

GLEN LENNOX REDEVELOPMENT
TRAFFIC IMPACT STUDY



Prepared for:
The Town of Chapel Hill
Engineering Department

Prepared by:
HNTB North Carolina, PC
343 East Six Forks Road
Suite 200
Raleigh, NC 27609
NCBELS License #: C-1554

October 2013

HNTB

**GLEN LENNOX
MIXED-USE REDEVELOPMENT
TRAFFIC IMPACT STUDY**



Prepared for:

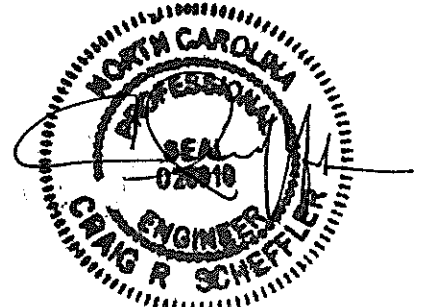
The Town of Chapel Hill
Engineering Department

Prepared by:

HNTB North Carolina, PC

*343 East Six Forks Road
Suite 200
Raleigh, NC 27609
NCBELS License #: C-1554*

October 2013



10-17-13



Table of Contents

LIST OF FIGURES	ii
LIST OF TABLES/APPENDICES	ii
I. Existing Conditions.....	1
A. Project Overview	1
B. Site Location and Study Area	1
C. Site Description.....	2
D. Existing and Proposed Uses in Vicinity of Site	3
E. Existing and Committed Surface Transportation Network.....	3
F. Existing Traffic Conditions	8
II. Future Build-Out Year Scenario Conditions	11
A. Future Ambient Traffic Growth Without Proposed Development.....	11
B. Approved Background Traffic	14
C. Proposed Project Traffic.....	15
i.) Trip Generation	15
ii.) Adjustments to Trip Generation Rates.....	22
iii.) Trip Distribution	27
iv.) Trip Assignment	30
D. Future Traffic Forecasts with the Proposed Development	30
III. Impact Analyses	31
A. Peak Hour Intersection Level-of-Service Analysis	31
i.) Methodology	31
ii.) 2013 Existing Conditions Results	34
iii.) 2018 Phase 1 Scenario Results	36
iv.) 2023 Phase 2 Scenario Results	40
v.) 2028 Phase 3 Full Build-Out Scenario Results.....	43
B. Generalized Daily Arterial Volume to Capacity Analysis	46
C. Access Analysis	50
D. Signal Warrant Analysis	52
E. Sight Distance Analysis.....	53
F. Crash Analysis	53
G. Other Transportation-Related Analyses	56
H. Special Analysis/Issues Related to the Project.....	56
IV. Mitigation Measures/Recommendations	57
A. Planned Improvements	57
B. Background Committed Improvements	57
C. Applicant Committed Improvements.....	57
D. Necessary Improvements	58



List of Figures

Figure

- 1) Project Study Area
- 2) Current Site Concept Redevelopment Plan
- 3A-3B) 2013 Existing Intersection Laneage
- 4) 2013 Existing Pedestrian/Bicycle Facilities
- 5) 2013 Existing Transit Routes
- 6) Potential Study Area Recommended Improvements
- 7A-7D) 2013 Existing AM, Noon, and PM Peak Hour Traffic Volumes
- 8) Background Traffic Generator Locations
- 9A-9B) External Site Trip Distribution Percentages (All Scenarios)
- 10A-10D) 2018 Peak Hour Traffic Volumes With Site
- 11A-11D) 2023 Peak Hour Traffic Volumes With Site
- 12A-12D) 2028 Peak Hour Traffic Volumes With Site
- 13A-13B) 2013 Existing Peak Hour LOS Results
- 14) 2018 Worst-Case Peak Hour LOS Results
- 15) 2023 Worst-Case Peak Hour LOS Results
- 16) 2028 Worst-Case Peak Hour LOS Results
- 17A-17B) 2018 Recommended Improvements
- 18A-18B) 2023 Recommended Improvements
- 19A-19B) 2028 Recommended Improvements

List of Tables

Table	Page
1 Existing Study Area Roadways.....	4
2 Existing Study Area Intersection Details	5
3 Current Study Area Weekday Chapel Hill Transit Service	7
4 Potential Surface Transportation Improvement Projects	9
5 Traffic Count Information	10
6 Historic Study Area NCDOT AADT Information	12
7 TRM Daily Assignment and Study Area Growth Patterns 2010-2040	13
8 Study Area Background Development Status.....	14
9 Glen Lennox Development Program (May 2013).....	15
10 Comparison of Existing Glen Lennox Trips Versus ITE Predictions	17
11 Weekday Vehicle Trip Generation Summary	19-21
12 Summary Internal Capture Rates By Redevelopment Phase	22
13 CHT Transit Ridership Adjacent to Glen Lennox	23
14 Transit/Vehicle Mode Splits From Field Data.....	23
15 Glen Lennox Redevelopment Selected Transit Trip Reductions	24
16 Total Transit Trip Generation Estimates By Phase	25
17 12 Hour Pedestrian Count Summary	25
18 Applied Pass-by Trip Percentages	26
19 Summary Trip Generation Data (Cumulative Sub-Phase)	28
20 External Trip Distribution Assumptions	29
21 Level of Service (LOS) Characteristics	32
22 Capacity Analysis Results - 2013 Existing Traffic	35
23 Capacity Analysis Results - 2018 Phase 1 Analysis Year.....	39
24 Capacity Analysis Results - 2023 Phase 2 Analysis Year.....	42
25 Capacity Analysis Results - 2028 Phase 3 Analysis Year.....	45



List of Tables (Continued)

Table	Page
26 2013 Daily Volume/Capacity Analysis for Selected Study Area Road Segments..	47
27 2040 Daily No-Build/Build Volume/Capacity Analysis for Selected Segments	49
28 Comparison of Proposed Storage Bay Lengths and Build-Out Scenario 95th Percentile Synchro Estimated Queues – Glen Lennox Access Points	51
29 Study Area Crash Rate Comparison – N.C. 86 (MLK Jr. Blvd) Corridor.....	53
30 Study Area Crash Rate Comparison – Eubanks Road Corridor.....	54
31 Study Area Intersection Crash Summary.....	55
32 Other Transportation-Related Analyses.....	56
33 Recommended Improvements Matrix	60-61

Appendices

- A. Figures
- B. Traffic Count Data
- C. Trip Generation Data
- D. Site Traffic Assignment Data
- E. SYNCHRO Signalized Analysis Output
- F. Highway Capacity Software Analysis Output
- G. MUTCD Peak Hour Signal Warrant Analysis
- H. Crash Data

(Information Contained in **Appendices B-H** is Found in the *Glen Lennox Mixed-Use Redevelopment TIS Technical Appendix* document)



I. EXISTING CONDITIONS

A. Project Overview

A redevelopment of the existing Glen Lennox neighborhood in Chapel Hill, located along NC 54 (Raleigh Road) and US 15-501 (Fordham Boulevard), is being proposed by Grubb Properties. **Figure 1**, found in **Appendix A**, shows the general location of the site which, currently comprises approximately 400 acres of development. The project is to be constructed in phases, over a potential 20 year time frame. This report analyzes three phased build-out scenarios for the years 2018, 2023 and 2028, the no-build scenario for those three years, as well as 2013 base year traffic conditions.



The proposed site concept plan maintains four access points to NC 54 (Raleigh Road), a new access point along US 15-501, and the existing access point on US 15-501 at Brandon Road. All local street access to the north and east is proposed to remain the same as current conditions. The plans also show additional internal circulation streets, designed to provide connectivity to surface parking lots and structured parking, that are similar to the existing roadway network within the Glen Lennox property. **Figure 2** displays the preliminary concept plan of Glen Lennox and nearby land uses and roadways.

B. Site Location and Study Area

This report analyzes and presents the transportation impacts that the Glen Lennox redevelopment will have on the following intersections in the project study area (numbers correspond to information presented on **Figure 1**):

- 1) US 15-501 Bypass (Fordham Boulevard) & Ephesus Church Road
- 2) US 15-501 Bypass (Fordham Boulevard) & Elliot Road
- 3) US 15-501 Bypass (Fordham Boulevard) & Willow Drive
- 4) US 15-501 Bypass (Fordham Boulevard) & Estes Drive
- 5) US 15-501 Bypass (Fordham Boulevard) & Cleland Road
- 6) US 15-501 Bypass (Fordham Boulevard) & Brandon Road
- 7) US 15-501 Bypass (Fordham Boulevard) & NC 54 Interchange Ramps (North Side)
- 8) US 15-501 Bypass (Fordham Boulevard) & NC 54 Interchange Ramps (South Side)
- 9) US 15-501/NC 54 Bypass (Fordham Boulevard) & Manning Drive
- 10) US 15-501/NC 54 Bypass (Fordham Boulevard) & Old Mason Farm Road
- 11) South Road/Raleigh Road and Country Club Drive / Ridge Road
- 12) NC 54 (Raleigh Road) & US 15-501 (Fordham Boulevard) Interchange Ramps (West Side)
- 13) NC 54 (Raleigh Road) & US 15-501 (Fordham Boulevard) Interchange Ramps (East Side)
- 14) NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #1 (Eastbound Left-Over)
- 15) NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #2 (RIRO)
- 16) NC 54 (Raleigh Road) & Hamilton Road
- 17) NC 54 (Raleigh Road) & Audley Lane
- 18) NC 54 (Raleigh Road) & Burning Tree Drive / Finley Golf Course Road
- 19) NC 54 (Raleigh Road) & W. Barbee Chapel Road



- 20) NC 54 (Raleigh Road) & Meadowmont Lane / Friday Center Drive
- 21) NC 54 (Raleigh Road) & Barbee Chapel Road / Barbee Chapel Road Extension
- 22) E. Franklin Street & Estes Drive
- 23) Willow Drive & Estes Drive
- 24) Cleland Road & Hayes Drive
- 25) Cleland Road & Hamilton Road
- 26) Flemington Road & Hamilton Road
- 27) Cleland Drive & Burning Tree Drive
- 28) Pinehurst Drive & Burning Tree Drive
- 29) Brandon Road & Hayes Road
- 30) Beckley Road & Oakwood Drive
- 31) US 15-501 Bypass (Fordham Boulevard) & Proposed Glen Lennox Access Road

The impacts of the proposed site at the study area intersections will be evaluated during the AM, noon, and PM peak hours of an average weekday. The following study is based on background traffic for the 2013 base year, and the phased build-out years of 2018, 2023, and 2028, as well as the estimated site-generated traffic produced by the mixed-use development.

There are several Town-approved future developments in the immediate project study area that were considered to be constructed over the Glen Lennox redevelopment project duration and may generate additional background traffic. To account for background traffic growth from these developments, and to account for area-wide ambient future traffic growth, a composite growth percentage of 1.40 percent per year was applied to existing peak hour traffic volumes for each build-out year scenario, based on information extracted from the Triangle Regional Travel Demand Model (TRM) Version 5.0 and verified through comparison with historical study area traffic growth and previous traffic studies.

C. Site Description

The Glen Lennox site is currently a 400 acre parcel containing 440 apartment units and a small shopping center and is surrounded by existing residential neighborhoods to the north, west, and east. Additional commercial and mixed-use developments are present along the NC 54 (Raleigh Road) corridor to the south. Additional residential subdivisions are present throughout the project study area, with significant commercial and retail development along US 15-501 (Fordham Boulevard) to the north.

The site concept plan, shown in **Figure 2**, shows the overall layout of the mixed-use development, which is to include residential units (apartments and condominiums), office space, retail stores, and a hotel. The concept plan also shows building footprints, general location of parking facilities, internal driveways and proposed local street network.

No specific external roadway improvements are included conceptually on the site plan, other than the proposed access point along US 15-501. Existing





access driveway connections, and access points at Hamilton Road and Audley Lane, are initially proposed to remain in place after the site redevelopment. No laneage modifications along NC 54 or US 15-501, or at the adjacent US 15-501/NC 54 interchange are shown.

One of the purposes of this transportation analysis is to determine feasible access improvements along the major US 15-501 and NC 54 thoroughfares and at the interchange, and let any recommendations serve as guidance to develop more detailed roadway improvement plans and modifications to the existing site concept plan, which is not done to the level of detail of an engineering site plan.

D. Existing and Proposed Uses in Vicinity of Site

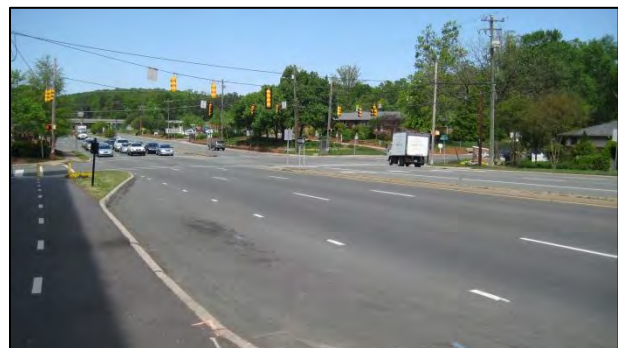
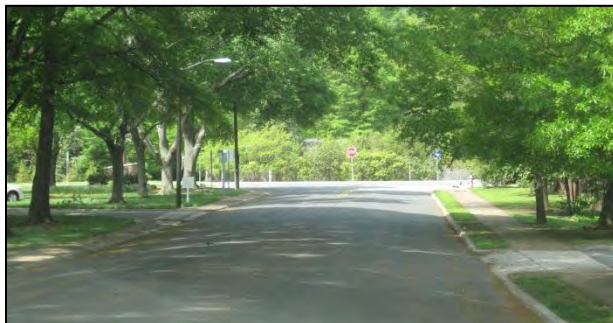
The land uses and development in the study area are a mixture of low and medium-density residential, commercial, office, and institutional facilities. There are higher density commercial areas located along both NC 54 and US 15-501. North and east of the site, land uses are primarily low-density residential neighborhoods. The Existing Land Use Plan in the 2020 *Town of Chapel Hill Comprehensive Plan* indicates that the existing Glen Lennox site is a mix of “Medium-density residential 4-8 units/acre” and “Commercial”. The Future Land Use Plan (updated June 25, 2012), that is also a part of the Comprehensive Plan, indicates that the parcel could be a “Town/Village Center”. It also indicates that this parcel is included in a “Development Opportunity Area”, and a “Future Focus Discussion Area”. The parcel is currently zoned R-3 (Medium Density Residential – 7 Units/Acre) and CC (Community Commercial), with a neighborhood conservation district overlay (CD-8C Glen Lennox).

Due to the unique opportunities for future land uses on the existing parcel, the “Glen Lennox Area Neighborhood Conservation District Plan for CD-8C” was created by Urban Design Associates, and adopted by the Town Council in May 2012. This planning document also provides additional details for recommended uses and design standards.

E. Existing and Committed Surface Transportation Network

Roadways

The Glen Lennox project study area features several major arterial roadways serving areas throughout Chapel Hill and points beyond, as well as a number of collector and local access streets for commercial development and residential neighborhoods on the east side of Chapel Hill. **Table 1** summarizes pertinent information on the study area roadway facilities.



The existing Glen Lennox parcel has full movement access along US 15-501 at Brandon Road, as well as multiple driveway and local street access points along NC 54. A fully developed internal roadway network exists within Glen Lennox that also has local connectivity to neighborhoods to the north and west.



Table 1. Existing Study Area Roadways

Road Name	Functional Class	Study Area Cross-Section	2011 AADT	Speed Limit	Sidewalk	On-Street Parking
US 15-501 / NC 54 Bypass (Fordham Boulevard)	Principal Arterial	4-lane median divided	41,000-51,000	45	S	N
US 15-501 Bypass (Fordham Boulevard)	Principal Arterial	4-lane median divided	30,000-38,000	45	Y	N
NC 54 (Raleigh Road)	Major Arterial	6-lane median divided	42,000-46,000	35-45	Y	N
E. Franklin Street (SR 1010)	Minor Arterial	5-lane undivided with CTL	18,000-23,000	35	Y	N
Ephesus Church Road (SR 1742)	Minor Arterial	3-lane undivided with CTL	10,000	25-35	S	N
Elliott Road	Collector	3-lane undivided with CTL	6,900	25	Y	S
Willow Drive	Collector/Local	3-lane undivided with CTL	2,500-6,200	25	Y	S
Estes Drive (SR 1750)	Minor Arterial	5-lane undivided with CTL	13,000-16,000	35	Y	N
Cleland Road	Collector	2-lane undivided	1,600	25	N	Y
Brandon Road	Local	2-lane undivided	N/A	25	Y	Y
Raleigh Road (SR 2048)	Minor Arterial	4-lane undivided and median divided	20,000	35	Y	N
Country Club Road	Collector	3-lane undivided with CTL	12,000	25	Y	S
Hamilton Road	Collector	2-lane undivided	2,200	25	Y	N
Finley Golf Course Road / Old Mason Farm Rd (SR 1900)	Collector	2-lane undivided	2,400	35	S	N
South Road (SR 2048)	Collector	2-lane undivided	7,400	25	Y	N
Manning Drive (SR 1902)	Minor Arterial	4-lane undivided	17,000	25	N	N
Burning Tree Drive	Collector	2-lane undivided	1,700	25	S	N
Pinehurst Drive	Collector	2-lane undivided	N/A	25	S	Y
Hayes Road	Local	2-lane undivided	N/A	25	S	Y
W. Barbee Chapel Road	Collector	3-lane undivided with CTL	N/A	25	Y	N
Meadowmont Lane	Collector	4-lane median divided	N/A	25	Y	N
Friday Center Drive	Collector	4-lane median divided	N/A	25	S	S
E. Barbee Chapel Road (SR 1110)	Minor Arterial	2-lane undivided	11,000	35	S	S
Berkley Drive	Local	2-lane undivided	N/A	25	Y	Y
Oakwood Drive	Local	2-lane undivided	N/A	25	Y	Y
Flemington Road	Local	2-lane undivided	N/A	25	S	Y

N/A – No Information Available

S – Some Sidewalk/On-Street Parking Present

CTL – Two-Way Center Left-turn Lane

Annual Average Daily Traffic (AADT) data was taken from 2011 AADT mapping produced by the NCDOT Traffic Survey Unit. **Figures 3A and 3B** show the existing lane configuration, traffic control, and speed limits for these study area roadways.



Intersections

Table 2 summarizes all 30 existing study area intersections, as well as traffic control features and pedestrian amenities at each. Laneage details and intersection turn bay lengths are also detailed on **Figures 3A and 3B**.

Table 2. Existing Study Area Intersection Details

ID #	Intersection	Signal Inv #	Signal Phases	Signal Operation	Cross walk	Ped Signal
1	US 15-501 Bypass (Fordham Blvd) & Ephesus Church Road	07-0530	6	Coordinated	Yes	Yes
2	US 15-501 Bypass (Fordham Blvd) & Elliot Road	07-0547	5	Coordinated	Yes	Yes
3	US 15-501 Bypass (Fordham Blvd) & Willow Drive	07-0506	5	Coordinated	Yes	Yes
4	US 15-501 Bypass (Fordham Blvd) & Estes Drive	07-0529	6	Coordinated	Yes	Yes
5	US 15-501 Bypass (Fordham Blvd) & Cleland Road	Unsig	N/A	N/A	No	N/A
6	US 15-501 Bypass (Fordham Blvd) & Brandon Road	Unsig	N/A	N/A	No	N/A
7	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (North)	07-1696	2	Coordinated	No	No
8	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (South)	Unsig	N/A	N/A	No	N/A
9	US 15-501 / NC 54 Bypass (Fordham Blvd) & Old Mason Farm Road	07-1709	7	Coordinated	Yes	Yes
10	US 15-501 / NC 54 Bypass (Fordham Blvd) & Manning Drive	07-0505	6	Coordinated	Yes	Yes
11	South Road / Raleigh Road & Country Club Drive / Ridge Road	07-0522	4	Coordinated	Yes	Yes
12	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (West)	Unsig	N/A	N/A	No	N/A
13	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (East)	Unsig	N/A	N/A	No	N/A
14	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #1 (Eastbound Left-Over)	Unsig	N/A	N/A	No	N/A
15	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #2 (RIRO)	Unsig	N/A	N/A	No	N/A
16	NC 54 (Raleigh Rd) & Hamilton Road	07-0521	5	Coordinated	Yes	Yes
17	NC 54 (Raleigh Road) & Audley Lane	Unsig	N/A	N/A	No	N/A
18	NC 54 (Raleigh Road) & Burning Tree Drive / Finley Golf Course Road	07-1238	5	Coordinated	Yes	Yes
19	NC 54 (Raleigh Road) & W. Barbee Chapel Road	07-1882	7	Coordinated	Yes	Yes
20	NC 54 (Raleigh Road) & Meadowmont Lane / Friday Center Drive	07-1655	6	Coordinated	Yes	Yes
21	NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Road Ext	07-1712	6	Coordinated	Yes	Yes
22	E. Franklin Street & Estes Drive	07-0527	8	Coordinated	Yes	Yes
23	Willow Drive & Estes Drive	07-0556	3	Coordinated	Yes	Yes
24	Cleland Road & Hayes Drive	Unsig	N/A	N/A	No	N/A
25	Cleland Road & Hamilton Road	Unsig	N/A	N/A	No	N/A
26	Flemington Road & Hamilton Road	Unsig	N/A	N/A	No	N/A
27	Cleland Drive & Burning Tree Drive	Unsig	N/A	N/A	No	N/A
28	Pinehurst Drive & Burning Tree Drive	Unsig	N/A	N/A	No	N/A
29	Brandon Road & Hayes Road	Unsig	N/A	N/A	No	N/A
30	Beckley Road & Oakwood Drive	Unsig	N/A	N/A	No	N/A

Unsig – Unsignalized



The project study area features a mixture of signalized and unsignalized intersections. Several arterial corridors feature coordinated signal operation for weekday peak hours, including NC 54, US 15-501 (Fordham Boulevard) south of the NC 54 interchange, US 15-501 (Fordham Boulevard) north of the NC 54 interchange and Estes Drive west of US 15-501. No current study area signalized intersections currently operate in peak hour “free-run” uncoordinated operation, where a signal’s cycle length and timings vary throughout the day. Most signalized intersections in the project study area have pedestrian crosswalk and signal heads on multiple approaches.

Bicycle Routes and Sidewalks

Specific bicycle facilities are present in the project study area, with striped bicycle lanes in both directions along W. Barbee Chapel Road, Sprunt Lane, and Meadowmont Lane within the Meadowmont development, and along Country Club Road near the UNC Main Campus. Along NC 54, paved greenway paths exist on both sides of the facility from Finley Golf Course Road/Burning Tree Lane to E. Barbee Chapel Road. This greenway system also extends along the south side of NC 54 from Hamilton Road to Finley Golf Course Road, as well as extending through the Meadowmont development. Another paved bicycle/pedestrian path exists just north of Glen Lennox along US 15-501 from Cleland Road to Estes Drive. US 15-501 features widened paved shoulders, making bicycling feasible even though the facility experiences heavy vehicular traffic volumes.

Pedestrian sidewalks are found throughout the University Mall / Elliott Road / Eastgate Shopping Center area, as well as internal to the existing Glen Lennox development. Some additional sidewalk is present along Hayes Drive and Brandon Road near the Glen Lennox site. Sidewalks are present along NC 54 (Raleigh Road) throughout the study area, transitioning to the paved off-road path, described previously, east of Burning Tree Lane / Finley Golf Course Road. Most of the signalized intersections in the project study area feature crosswalks and pedestrian signalization on multiple approaches. **Figure 4** displays a schematic of existing pedestrian and bicycle facilities in the project study area.

Transit Routes

Currently, seven local routes and one express Chapel Hill Transit (CHT) route serve various corridors in the project study area with weekday bus service. The G Route provides service directly through the Glen Lennox development. Numerous bus stops, with a range of amenities (shelters, benches), are present in the study area.

Triangle Transit (TT) provides regional bus service to the immediate study area via the 400/405 and 800/805 Routes that run along NC 54 and US 15-501 between Chapel Hill and Durham, Research Triangle Park, and Raleigh. Service for these routes occurs at 30 minute headways during peak weekday periods. Triangle Transit also provides express bus service from Chapel Hill to Raleigh on the FCX Route that uses NC 54 in the study area and makes a stop at the Friday Center Park and Ride facility on 30 minute headways during weekdays.

Table 3 details the current CHT and TT routes serving the study area.



Table 3. Current Study Area Weekday Transit Service

Route	Headways (minutes)			Study Area Stops	Destinations
	AM Peak	PM Peak	Off Peak		
CHT Fixed-Route Local Service*					
CL	60	70	N/A	• E. Franklin Street • Estes Drive • Eastgate	• Colony Lake • Sage Road • Downtown Chapel Hill • UNC Main Campus
D	20	20	40-50	• E. Franklin Street • Estes Drive • Eastgate	• Culbreth Road • Downtown Chapel Hill • UNC Main Campus
F	25-30	30	50	• University Mall • E. Franklin Street • Eastgate • Rams Plaza • Ephesus Church Road	• Colony Woods • Downtown Chapel Hill • Carrboro
G	35-45	45	50-60	• Raleigh Road • Glen Lennox • University Mall	• Booker Creek Apartments • Downtown Chapel Hill • UNC Main Campus
HU	15-15	7-10	30-40	• Old Mason Farm Road • Finley Golf Course Road • NC 54 (Raleigh Road)	• Friday Center Park and Ride • UNC Hospitals
S	10	10	35	• Old Mason Farm Road • NC 54 (Raleigh Road) • Friday Center	• UNC Main Campus • NC 54 Park and Ride • Southern Village
V	35	35	50-80	• NC 54 (Raleigh Road) • Meadowmont	• Southern Village • Downtown Chapel Hill
CHT Express Service*					
FCX	5	10	20-30	• Friday Center Park & Ride	• UNC Main Campus
Triangle Transit Service*					
400/405	30	30	60	• E. Franklin Street	• Durham
800/805	30	30	60	• NC 54 (Raleigh Road)	• Raleigh/RTP
CRX	15	15	N/A	• NO STOPS	• Raleigh/RTP

* - Sources: Chapel Hill Transit 2013 Spring Ride Guide, TT System Map (April 2013)

Figure 5 displays CHT weekday transit routes that currently exist in the project study area. This study's analysis accounts for a transit trip reduction factor. The proximity and frequency of transit service to/from the existing and future Glen Lennox development is likely to account for a quantifiable portion of site trips, as is the proposed future development intensity, mixture of land uses, and character of internal roadway network.

Recommended/Committed Surface Transportation Improvement Projects

There are no committed/programmed NCDOT Transportation Improvement Program (STIP) projects in the project study area that are listed in the most current 5 Year Work Program (through fiscal year 2017) or the 6-10 Year Developmental Program (through fiscal year 2023). NCDOT STIP U-5304 is a future year (beyond 2023) unfunded project to provide substantial



corridor improvements to US 15-501 but was not considered to be complete over the Glen Lennox redevelopment horizon year of 2028.

Two planning studies were recently completed that may potentially affect the transportation system in the project study area. One study, *Ephesus Church Road / Fordham Boulevard Small Area Plan* focused on improvements in the northern portion of the project study area to the US 15-501 corridor and the Ephesus Church Road and Elliott Road intersections. The other study is the *NC 54 / I-40 Corridor Study Transportation-Land Use Master Plan*. This study focused on improvements to the NC 54 (Raleigh Road) corridor from US 15-501 to I-40. The recommendations from these studies were considered when developing mitigation strategies for the Glen Lennox Redevelopment horizon analysis years – if mitigation improvements were necessary at intersections for which improvements were recommended in these planning studies.

Table 4 summarizes the recommended projects and potential improvements recommended from the planning studies that would directly affect the Glen Lennox project study area. **Figure 6** displays a schematic of the location of the recommended transportation improvements identified in the table.

F. Existing Traffic Conditions

Figures 7A – 7D show the existing AM, noon, and PM weekday peak hour traffic volumes for the study area intersections. The turning movement counts used to determine these volumes were conducted in April 2013 for all study area intersections during the weekday periods 7:00 - 9:00 AM, 11:00 AM – 1:00 PM, and 4:00 – 6:00 PM. All turning movement count output is found in **Appendix B**. **Table 5** provides a detailed listing of each intersection count, peak hour, and count date. All turning movement counts included pedestrian volumes, heavy vehicle volumes, and computation of peak hour factors necessary in the traffic capacity analyses.

An additional 48-hour vehicle volume and classification tube count was conducted at one location in the project study area (along US 15-501 just north of the NC 54 interchange. This information will be used to compare to and update NCDOT Average Annual Daily Traffic (AADT) data for the project study area for use in making comparisons of planning level daily traffic demand/capacity in the study area. This data is found in **Appendix B**. The tube count information was collected in April 2013 and will be adjusted by seasonal factors, per information from NCDOT Transportation Planning Branch, in estimating roadway segment AADTs.

A 12-hour turning movement count, that included both pedestrians and bicycles, was conducted at the intersection of NC 54 and Hamilton Road. This count was used to determine existing pedestrian and bicycle activity near the Glen Lennox site, as well as to be used in estimation of AADTs along NC 54 and Hamilton Road in this vicinity.



Table 4. Potential Surface Transportation Improvement Projects

Project Location	Recommended By	Description	Estimated Horizon Date
US 15-501 / Ephesus Church Road Area	<i>Ephesus Church Road/ Fordham Boulevard Small Area Plan – Traffic Analysis (KHA, 2011)</i>	• Realign Ephesus Church Road east of US 15-501	2020 (Development Dependent)
		• Add East Leg at existing US 15-501 & Elliott Road intersection	
NC 54 (Raleigh Road) Corridor	<i>NC 54 / I-40 Corridor Study: Transportation - Land Use Master Plan – (Renaissance Planning Group, 2010)</i>	• Pedestrian Crossing/Signalization Improvements • Narrow lane widths and add striped bike lanes (Burning Tree Ln to US 15-501) • Modify US 15-501 abutment walls for widened sidewalk • Bicycle improvements on several study area roadways • Expand Local Bus Service • Free-flow Lane Eastbound on NC 54 from Friday Center Drive to E. Barbee Chapel Rd • Upgrade Marriott Way to Connect E. Barbee Chapel Rd to Friday Center Drive	Short-Term 2012-2017
		• Bus Rapid Transit – Meadowmont to Downtown Chapel Hill • Off-Road path improvements in/adjacent to Glen Lennox • Potential Superstreet Improvements Meadowmont Lane to E. Barbee Chapel Road	Mid-Term 2015-2020
		• Potential LRT Improvements	Long-Term 2022-2035
US 15-501 (Fordham Boulevard) Corridor	NCDOT STIP U-5304	• Potentially convert portions to superstreet to include sidewalks, wide outside lanes, and transit accommodations • Potentially construct interchange at Manning Drive • Potentially construct intersection improvements at Ephesus Church Road	Unfunded Project (Beyond Fiscal Year 2023)



Table 5. Traffic Count Information

ID #	Traffic Count Location	Peak Hour Time			Count Date
		AM	Noon	PM	
1	US 15-501 Bypass (Fordham Boulevard) & Ephesus Church Road	7:30-8:30	11:45-12:45	4:45-5:45	4/24/13
2	US 15-501 Bypass (Fordham Boulevard) & Elliot Road	7:30-8:30	11:45-12:45	4:45-5:45	4/24/13
3	US 15-501 Bypass (Fordham Boulevard) & Willow Drive	7:30-8:30	11:45-12:45	4:45-5:45	4/24/13
4	US 15-501 Bypass (Fordham Boulevard) & Estes Drive	7:30-8:30	12:00-1:00	4:30-5:30	4/24/13
5	US 15-501 Bypass (Fordham Boulevard) & Cleland Rd	7:30-8:30	12:00-1:00	4:30-5:30	4/24/13
6	US 15-501 Bypass (Fordham Boulevard) & Brandon Rd	8:00-9:00	12:00-1:00	4:30-5:30	4/24/13
7	US 15-501 Bypass (Fordham Boulevard) & NC 54 (Raleigh Road) Interchange Ramps (Northbound)	7:30-8:30	12:00-1:00	4:45-5:45	4/25/13
8	US 15-501 Bypass (Fordham Boulevard) & NC 54 (Raleigh Road) Interchange Ramps (Southbound)	7:30-8:30	12:00-1:00	4:45-5:45	4/25/13
9	US 15-501/NC 54 Bypass (Fordham Boulevard) & Old Mason Farm Road	7:15-8:15	12:15-1:15	5:00-6:00	4/25/13
10	US 15-501/NC 54 Bypass (Fordham Boulevard) & Manning Drive	7:45-8:45	12:00-1:00	5:00-6:00	4/25/13
11	South Road / Raleigh Road & Country Club Drive / Ridge Road	7:30-8:30	11:45-12:45	4:45-5:45	4/25/13
12	US 15-501 Bypass (Fordham Boulevard) & NC 54 (Raleigh Road) Interchange Ramps (West)	7:30-8:30	12:00-1:00	4:45-5:45	4/25/13
13	US 15-501 Bypass (Fordham Boulevard) & NC 54 (Raleigh Road) Interchange Ramps (East)	7:30-8:30	12:00-1:00	4:45-5:45	4/25/13
14	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #1 (Eastbound Left-Over)	7:30-8:30	12:00-1:00	5:00-6:00	4/24/13
15	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #2 (RIRO)	7:30-8:30	11:30-12:30	5:00-6:00	4/24/13
16	NC 54 (Raleigh Road) & Hamilton Road	7:30-8:30	12:00-1:00	4:45-5:45	4/25/13
17	NC 54 (Raleigh Road) & Audley Lane	7:30-8:30	11:30-12:30	5:00-6:00	4/24/13
18	NC 54 (Raleigh Road) & Burning Tree Drive / Finley Golf Course Road	7:30-8:30	11:45-12:45	4:45-5:45	4/25/13
19	NC 54 (Raleigh Road) & W. Barbee Chapel Road	7:45-8:45	11:30-12:30	5:00-6:00	4/24/13
20	NC 54 (Raleigh Road) & Meadowmont Lane / Friday Center Drive	7:30-8:30	12:00-1:00	5:00-6:00	4/24/13
21	NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Rd Extension	7:30-8:30	12:00-1:00	5:00-6:00	4/24/13
22	E. Franklin Street & Estes Drive	7:45-8:45	12:00-1:00	5:00-6:00	4/24/13
23	Willow Drive & Estes Drive	8:00-9:00	12:00-1:00	4:00-5:00	4/24/13
24	Cleland Road & Hayes Drive	7:30-8:30	12:00-1:00	4:45-5:45	4/24/13
25	Cleland Road & Hamilton Road	7:30-8:30	12:00-1:00	4:45-5:45	4/24/13
26	Flemington Road & Hamilton Road	7:45-8:45	11:45-12:45	4:45-5:45	4/24/13
27	Cleland Drive & Burning Tree Drive	7:30-8:30	12:00-1:00	4:45-5:45	4/24/13
28	Pinehurst Drive & Burning Tree Drive	7:30-8:30	12:00-1:00	5:00-6:00	4/24/13
29	Brandon Road & Hayes Road	8:00-9:00	11:45-12:45	5:00-6:00	4/25/13
30	Beckley Road & Oakwood Drive	7:15-8:15	11:00-12:00	N/A	4/25/13

Volume Balancing

For the intersection capacity analyses, volume balancing was done for through movements along US 15-501/NC 54 (Fordham Boulevard) between Manning Drive and the NC 54 (Raleigh



Road) interchange, due to considerable variability in turning movement counts at several locations, as well as variability in the turning movement count data to the 48-hour vehicle volume (tube) count along US 15-501 north of the NC 54 interchange. Since there are few additional intersections or driveways between the intersections in this area, traffic counts need to exhibit relatively close agreement between intersections, which was not the case with the raw data. Flows were balanced to within 100 vehicles upstream/downstream for each intersection. In other areas of the network, traffic flows were not balanced in the capacity analyses due to expected variations in the data such as traffic counts taken on different days, differing specific peak hour time periods, and the presence of side streets / driveways in between counted intersections. In most cases, turning movement counts for adjacent intersections do provide fairly balanced results.

Traffic count information indicated flows on US 15-501/NC 54 (Fordham Boulevard) and NC 54 (Raleigh Road) were heavy during the AM and PM peak count periods. All roadways providing radial access to the UNC Main Campus/downtown Chapel Hill showed at least some degree of higher directional split inbound in the AM peak hour and outbound in the PM peak hour, with more balanced noon peak hour flows. Traffic flows on Fordham Boulevard were directionally balanced for all peak hours, as this facility provides circumferential mobility around Chapel Hill. Traffic on some of the other arterial study area roadways such as Manning Drive, Raleigh Road / South Road, Barbee Chapel Road, Estes Drive and Ephesus Church Road was moderate to heavy during the peak periods, with directional variation inbound toward downtown Chapel Hill and UNC Main Campus in the AM peak and outbound from downtown in the PM peak, depending on each roadway's function in facilitating traffic to/from downtown and UNC. Traffic flows were light to moderate on the remaining study area roadways that function as collector or local access streets.

II. FUTURE BUILD-OUT YEAR SCENARIO CONDITIONS

A. Future Ambient Traffic Growth Without Proposed Development

Area-wide ambient traffic growth for the study area was estimated by reviewing data from the latest version of the Triangle Region Travel Demand Model (TRM Version 5.0) and comparing it to historic NCDOT AADT traffic estimates for study area roadways. The TRM can be used to estimate regional traffic growth for the Chapel Hill area by comparing model daily traffic assignments for base year (2010) and future year (2040) conditions. Annual growth percentages, based on model daily traffic assignment data, were approximately 1.40 percent per year from the 2010 base model to 2040, using gross total daily traffic flows around the project study area roadway cordon. Individual link assignments show considerable variability, depending on the relative daily traffic levels, with lower volume facilities sometimes exhibiting high individual increases. Historic NCDOT AADT counts in the project study area also show considerable variability over the last decade, with many locations in the project study area actually showing a decrease in traffic volumes.

Table 6 displays the historic NCDOT AADT count data that is available for study area roadways. Over the last eight years, where data is available, the general trend in the study area is that daily traffic growth is stagnant or actually decreasing in multiple locations.



Table 6. Historic Study Area NCDOT AADT Information

NCDOT AADT STATION	ROUTE	LOCATION	Count Year					8 Year Growth	Per Year Growth
			2011	2009	2007	2005	2003		
501	NC 54 (RALEIGH RD)	N OF SR 1110 (BARBEE CHAPEL)	42000	42000	42000	42000	44000	-5%	-0.6%
735	SR 1110 (BARBEE CHAPEL RD)	S OF SR 2281 (STANCELL DR)	11000	8700	8700	6800	8000	38%	4.7%
790	SR 1902 (MANNING DR)	N OF US 15-501	15000	17000	17000	17000	18000	-17%	-2.1%
791	SR 1900 (MASON FARM RD)	E OF HIGHLAND WOODS RD	2800	2300	2300	2500	1900	47%	5.9%
792	FINLEY GOLF COURSE RD	S OF NC 54	2600	2400	2000	2300	2100	24%	3.0%
793	NC 54 (RALEIGH RD)	E OF FINLEY GOLF COURSE RD	44000	44000	46000	43000	37000	19%	2.4%
794	BURNING TREE DR	N OF NC 54	1700	1700	1700	1900	2200	-23%	-2.8%
795	NC 54 (RALEIGH RD)	E OF US 15-501	46000	46000	48000	44000	0	5%	0.8%
796	US 15-501 (FORDHAM BLVD)	S OF NC 54	0	51000	53000	51000	50000	2%	0.3%
797	SR 2048 (RALEIGH RD)	W OF US 15-501	21000	20000	21000	20000	16000	31%	3.9%
798	COUNTRY CLUB RD	N OF SR 2048 (RALEIGH RD)	12000	13000	14000	0	15000	-20%	-2.5%
799	COUNTRY CLUB RD	S OF SR 2048 (RALEIGH RD)	8000	8200	0	0	10000	-20%	-2.5%
800	SR 2048 (SOUTH RD)	E OF RALEIGH ST	10000	7100	7800	8800	10000	0%	0.0%
827	US 15-501 (FORDHAM BLVD)	S OF SR 1750 (ESTES DR)	0	38000	40000	39000	37000	3%	0.5%
828	CLELAND RD	W OF HAMILTON RD	2000	1600	2100	2100	1600	25%	3.1%
829	US 15-501 (FORDHAM BLVD)	N OF SR 1750 ESTES DR EXT	28000	30000	29000	31000	31000	-10%	-1.2%
830	SR 1750 (ESTES DR)	W OF US 15-501	12000	13000	14000	14000	14000	-14%	-1.8%
832	WILLOW DR	E OF WALNUT ST	2300	2500	2500	2500	3100	-26%	-3.2%
833	SR 1742 (EPHESUS CHURCH RD)	W OF BANBURY LN	6600	6900	7400	7400	8400	-21%	-2.7%
835	SR 1742 (EPHESUS CHURCH RD)	E OF US 15-501	9200	10000	11000	11000	11000	-16%	-2.0%
836	SR 1742 (EPHESUS CHURCH RD)	E OF SR 1010 (FRANKLIN ST)	0	7900	0	9500	7200	10%	1.6%
837	ELLIOT RD	E OF SR 1010 (FRANKLIN ST)	7400	6900	7600	7700	10000	-26%	-3.3%
838	SR 1750 (ESTES DR EXT)	E OF SR 1010 (FRANKLIN ST)	15000	16000	17000	17000	20000	-25%	-3.1%
839	SR 1010 (FRANKLIN ST)	S OF SR 1750 (ESTES DR EXT)	17000	18000	19000	21000	22000	-23%	-2.8%
840	SR 1010 (FRANKLIN ST)	N OF SR 1750 (ESTES DR EXT)	22000	23000	24000	26000	27000	-19%	-2.3%
841	SR 1750 (ESTES DR EXT)	W OF SR 1010 (FRANKLIN ST)	15000	15000	15000	15000	17000	-12%	-1.5%

RED = High Volume Regional Arterial Facilities

BLUE = 6 Year Data Trends



Though historic NCDOT AADT information indicates that, overall, there is little growth (or even negative growth) in traffic volume in the project study area, TRM results in **Table 7** show that future regional traffic growth is expected to occur between the 2010 base year data and 2040 future year model estimates. To conservatively estimate that some growth is likely to occur in the project study area, the gross composite estimate of a 1.4 percent per year factor (corresponding to seven percent, five-year growth factors for each build-out phase milestone) applied to 2013 traffic count volumes for the baseline 2018, 2023, and 2028 analysis years for the Glen Lennox redevelopment.

Table 7. TRM Daily Assignment and Study Area Cordon Growth Patterns 2010-2040

Cordon Segment Location	2010 Assignment	2040 Assignment	Overall Growth	Per Year Growth	5 Year Growth Factor
US 15-501 - N of Ephesus Church Rd	39,970	41,491	3.8%	0.1%	0.6%
Eastgate Shopping Center	7,976	10,051	26.0%	0.9%	4.3%
Ephesus Church Rd Area - E of 15-501	14,324	26,967	88.3%	2.9%	14.7%
Elliott Road	12,714	16,941	33.2%	1.1%	5.5%
E. Franklin Street - N of Estes Drive	20,350	24,483	20.3%	0.7%	3.4%
Estes Drive - W of E. Franklin Street	22,171	19,341	-12.8%	-0.4%	-2.1%
E. Franklin Street - S of Estes Drive	10,631	29,781	180.1%	6.0%	30.0%
University Mall (Willow Drive)	8,605	12,875	49.6%	1.7%	8.3%
Cleland Road	896	2,926	226.6%	7.6%	37.8%
Brandon Road (Centroid)	2,160	6,941	221.3%	7.4%	36.9%
Hamilton Road	2,116	4,609	117.8%	3.9%	19.6%
Country Club Road - N of Raleigh Rd	9,067	15,203	67.7%	2.3%	11.3%
South Road - E of Country Club Rd	22,977	23,496	2.3%	0.1%	0.4%
Ridge Road - S of Raleigh Rd	3,178	5,201	63.7%	2.1%	10.6%
Burning Tree Drive	705	1,084	53.8%	1.8%	9.0%
W. Barbee Chapel Road (Centroid)	5,153	6,146	19.3%	0.6%	3.2%
Meadowmont Drive	9,602	14,234	48.2%	1.6%	8.0%
NC 54 - E of Barbee Chapel Road	52,152	89,865	72.3%	2.4%	12.1%
Barbee Chapel Road	10,434	11,290	8.2%	0.3%	1.4%
Friday Center (Centroid)	7,328	10,560	44.1%	1.5%	7.4%
Manning Drive	21,459	27,553	28.4%	0.9%	4.7%
US 15-501/NC 54 - W of Manning Dr	39,681	58,082	46.4%	1.5%	7.7%
Study Area Gross Composite	323,649	459,120	41.9%	1.4%	7.0%
individual link mean			64.0%	2.1%	10.7%
individual link median			47.3%	1.6%	7.9%

RED = Daily Assignments Directly Related to Glen Lennox Site

Ambient growth factors were not applied to driveway access movements to and from the Glen Lennox development, as individual No-Build and Build scenario trip generation data will account for changes to site-related traffic for each development phase when compared to existing and future background traffic volume levels. As shown in **Table 7**, the TRM is already estimating traffic growth from the Traffic Analysis Zone (TAZ) that produces trips to/from Glen Lennox.

Ambient growth data will also be incorporated in calculations pertaining to No-Build and Build conditions for 2023 Phase 2 and 2028 Phase 3 described in the following sections of this report. For each future analysis year, ambient growth traffic volumes include the 1.4 percent per year



growth rate, in addition to the net Glen Lennox external traffic volumes from the previous phase. For example, 2023 Glen Lennox Phase 2 “without site” traffic volumes include the 2023 ambient growth estimates as well as the assigned 2018 Glen Lennox Phase 1 traffic volumes.

B. Approved Background Traffic

There are numerous Town-approved developments and development plans under review in or near the project study area. Several projects are either currently under construction or could be fully built-out by the initial Glen Lennox Phase 1 2018 analysis year. Other projects are in early planning stages and are projected to be longer-term phased developments. In addition to specific private development, the Town has conducted planning studies for the Ephesus Church Road area and the NC 54 (Raleigh Road) corridor that may potentially affect study area background traffic patterns. The results of these studies were also considered in the anticipated traffic patterns and roadway networks in future Glen Lennox scenario analyses. These background developments and studies are listed in **Table 8**.

Due to the variability in the actual development of the study area background traffic-generating projects, the potential for changes in development intensity and for new developments not yet in the planning process over the next 15 years, all specific background traffic growth estimates in the project study area were assumed to be incorporated in the ambient growth rate estimates discussed previously. Since the TRM accounts for projected planning-level development patterns regionally, its results provide a reasonable guide for developing background traffic growth estimates. The only exception to this methodology is for the area included in the 2011 *Ephesus Church Road Small Area Plan*. Proposed changes to the roadway network and projected traffic changes in this area (principally affecting the US 15-501 intersections with Ephesus Church Road and Elliott Road) were incorporated into background traffic projections, starting with the 2023 Glen Lennox analysis year.

Table 8. Study Area Background Development and Studies

Development/Study Name	Study Area Location	Impacts to Glen Lennox Study Traffic Volumes/Network
SECU Family House	Old Mason Farm Road	Specific traffic volume growth from these development projects accounted for in overall study area ambient growth rate
Hultquist IP Office	Meadowmont	
ARC Orange Apartments	Meadowmont	
Learning Experience Day Care	Meadowmont	
Hillmont (Woodmont)	East of E. Barbee Chapel Rd	
The Park at Chapel Hill	Ephesus Church Road	
Sanctuary at Cobblestone	Ephesus Church Road	
Franklin Street Office Building	E. Franklin Street	
Walgreens at E. Franklin	E. Franklin Street	
UNC Main Campus Development Plan	West of Country Club Rd	
Carolina North	Outside Study Area	
<i>NC 54 / I-40 Corridor Study: Transportation – Land Use Master Plan</i>	NC 54 from US 15-501 to E. Barbee Chapel Road	Proposed improvements considered in if study area intersections warrant improvement
<i>Ephesus Church Road / Fordham Boulevard Small Area Plan</i>	US 15-501 corridor at Ephesus Church Road and Elliott Road	2020 SAP Traffic Study estimated traffic volumes and proposed network changes incorporated into analyses for 2023 and 2028 analysis years



Figure 8 shows the relative location of all existing background development projects, according to the latest information from the Town of Chapel Hill Planning Department, in relation to the Glen Lennox site. The figure also shows the location of the recent planning study areas.

C. Proposed Project Traffic

i. Trip Generation

The projected trips generated by the proposed Glen Lennox redevelopment were based on the *ITE Trip Generation Manual* (Institute of Transportation Engineers, 9th Edition, 2012). Four separate land use types were analyzed for the development. The Applicant's basic development program is as follows:

Table 9. Glen Lennox Development Program (May 2013)

Phase	Sub-Phase	Timeline	Proposed Land Use	Density	Existing Development Demolished	Net ITE Trip Generation
1	1A	2013-2018	Apartments	280 units	48 apartments	292 units – LUC 220 Apartments
			Retail	25,000 sf		
	1B		Retail	80,000 sf	5,084 sf Office 20,948 sf Retail 26 apartments	94,916 sf – LUC 710 General Office Building
	1C	2014-2018	Retail	15,000 sf	51 units	
			Hotel	150 rooms		
	1D		Apartments	180 units	43 apartments	150 rooms – LUC 310 Hotel
Office			100,000 sf			
2	2A	2019-2023	Apartments	60 units	27 apartments	458 units – LUC 220 Apartments
			Retail	30,000 sf		
	2B		Office	180,000 sf	55 apartments	500,000 sf – LUC 710 General Office Building
	2C		Apartments	480 units		
			Office	320,000 sf		
3	3A	2024-2028	Apartments	240 units	45 apartments	428 units – LUC 220 Apartments
			Other Res.*	60 units		
	3B		Apartments	160 units	27 apartments	
			Other Res.*	40 units		
4	4A	2014-2028	Apartments	118 units	Renovation of Existing Units	No Additional Trips Generated
	4B	2018-2028	Apartments	33 units		

* - Assumed to be apartment units, but could be condominiums/townhomes



Existing Trip Generation Comparison

Existing study area traffic volumes at all existing entrances/exits to/from the current Glen Lennox development compiled from April 2013 traffic counts, and transit ridership for routes directly serving Glen Lennox (spring 2013 weekday data provided by CHT), were compared to ITE-estimated trip generation data for the current Glen Lennox development densities. This information is shown in **Table 10**.

This data is provided as a “check” of ITE-estimated trip generation results to actual trip activity for vehicular and transit trips for the existing Glen Lennox development density. As shown in **Table 10**, AM peak hour projected ITE trips are lower than field-collected data, though the noon and PM peak hour data sets are very similar. No noon peak data was available from ITE data, so an average of the weekday AM and PM peak generation rates for each land use type were used for estimation purposes. Since ITE trip generation data for the three land use types shown in **Table 10** was collected from suburban sites around the United States that would likely not have the same access or dependence on transit service as is found in Chapel Hill and the Glen Lennox area, it is appropriate to combine field-collected vehicle and transit trips as a base comparison with ITE trip generation data.

In general, the data shows that the use of ITE raw trip generation rates for future redevelopment scenarios is appropriate, if the data is adjusted for additional factors related to transit usage and internal capture.

The selection of independent variables and the use of rate-based or equation-based generation methods for each particular land use type follow NCDOT Congestion Management Unit practices for this existing year comparison and will continue to be used for future year redevelopment scenarios.



Table 10. Comparison of Existing Glen Lennox Trips Versus ITE Predictions

ITE Trip Generation Information - Existing Glen Lennox Development

Land Use	LUC	Density	Daily			AM Peak Hour			Noon Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	440 units	1,395	1,395	2,790	44	175	219	107	133	240	169	91	260
General Office Building	710	5,084 sf	68	68	136	16	2	18	15	36	51	14	70	84
Shopping Center	820	20,948 sf	1,229	1,229	2,458	37	23	60	69	66	135	101	109	210
TOTALS			2,692	2,692	5,384	97	200	297	191	235	426	284	270	554

Field Collected Traffic Volume and Transit Ridership Data

	AM Peak Hour			Noon Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Traffic Count	174	174	348	167	177	344	265	234	499
Transit Ridership	6	71	77	18	19	37	62	9	71
TOTALS	180	245	425	185	196	381	327	243	570



Development of Future Trip Generation Scenarios

Separate trip generation tabulations were made for each Glen Lennox development phase and account for “net” trip generation impacts, as redevelopment will necessitate the demolition of existing trip generating commercial, office, and residential space.

Additional information from the Applicant regarding location and intensity of “sub-phases” within the Glen Lennox site was used to initially determine all respective trip generation and then was used in the trip distribution process. All “sub-phases” within each development phase were aggregated to determine overall trip generation by redevelopment phase.

Table 11 shows the estimated number of trips generated by each Glen Lennox redevelopment phase during the weekday AM, noon, and PM peak hours of adjacent streets. A truck percentage of two percent was estimated for all site-generated traffic.

The methodology used in **Table 11** follows a progression of:

- 1) deriving raw unadjusted “net” trips from ITE data,
- 2) subtracting potential internally-captured trips, using the most recent ITE internal-capture methodologies,
- 3) reducing the “net” external trips by a transit/multi-modal factor for appropriate land uses, and
- 4) segregating new external vehicular site trips and pass-by type trips.

Both transit trip reduction and internal capture assumptions were discussed, and approved, by Town staff for recent similar mixed-use transit-oriented development projects as part of this process. Additional details and methodologies regarding all trip adjustment factors are contained in the sections following **Table 11**.



Table 11. Weekday Vehicle Trip Generation Summary - Glen Lennox Redevelopment

PHASE 1 CUMULATIVE SUB-PHASE TRIP GENERATION DATA

ITE RAW TRIP GENERATION CALCULATIONS - NET DEVELOPMENT

Land Use	ITE Code	Size	Unit	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	292	DU	1,318	1,318	2,636	28	115	143	66	86	152	103	57	160
Hotel	310	150	Rooms	613	613	1,226	47	33	80	47	38	85	47	43	90
General Office Building	710	94.916	1000 SF	589	589	1,178	152	21	173	42	27	69	18	88	106
Shopping Center	820	99.052	1000 SF	3,748	3,748	7,496	112	71	183	212	203	415	309	333	642
TOTAL				6,268	6,268	12,536	339	240	579	367	354	721	477	521	998
INTERNAL CAPTURE (FROM ITE CALCULATIONS)				626	626	1,252	25	25	50	78	78	156	129	129	258
EXTERNAL TRIP GENERATION BEFORE TRANSIT REDUCTION				5,642	5,642	11,284	314	215	529	289	276	565	348	392	740

TRANSIT TRIP GENERATION FACTORS	Daily Factors			AM Peak Hour %			Noon Peak Hour %			PM Peak Hour %		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	--	--	1.83	--	--	20%	--	--	10%	--	--	20%
Hotel	--	--	0	--	--	0	--	--	0	--	--	0
General Office Building	--	--	2.07	--	--	15%	--	--	7.5%	--	--	15%
Shopping Center	--	--	3.56	--	--	20%	--	--	10%	--	--	20%

TRANSIT TRIP GENERATION BY LAND USE	ITE Code	Size	Unit	Daily Ridership			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	292	DU	267	267	534	6	23	29	6	8	14	20	11	31
Hotel	310	150	Rooms	0	0	0	0	0	0	0	0	0	0	0	0
General Office Building	710	94.916	1000 SF	98	98	196	23	3	26	3	2	5	4	18	21
Shopping Center	820	99.052	1000 SF	176	176	353	17	11	28	15	14	29	36	39	75
TOTAL				542	542	1,083	46	37	83	24	24	48	60	68	128

TOTAL EXTERNAL VEHICLE TRIPS (DRIVEWAY VOLUMES)	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
	5,100	5,100	10,200	268	178	445	265	252	518	288	324	612

PASS-BY TRIPS	ITE Code	Size	Unit	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Pass-By Trip Rates - Shopping Center	820	99.052	1000 SF	34%	34%	34%	0%	0%	0%	34%	34%	34%	34%	34%	34%
Pass-By Trips				1,087	1,087	2,174	0	0	0	47	41	88	56	40	96
Adjacent Pass-By Trips				1,087	1,087	2,174	0	0	0	44	44	88	47	47	96

TOTAL EXTERNAL VEHICLE TRIPS ADDED TO ADJACENT STREETS	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
	4,013	4,013	8,026	268	178	445	221	208	430	241	277	516



Table 11 (Continued). Weekday Vehicle Trip Generation Summary - Glen Lennox Redevelopment

PHASE 2 CUMULATIVE SUB-PHASE TRIP GENERATION DATA

ITE RAW TRIP GENERATION CALCULATIONS - NET DEVELOPMENT

Land Use	ITE Code	Size	Unit	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	458	DU	1,567	1,567	3,134	48	193	241	121	149	270	193	104	297
Hotel	310	0	Rooms	0	0	0	0	0	0	0	0	0	0	0	0
General Office Building	710	500	1000 SF	2,615	2,615	5,230	696	95	791	204	172	376	122	595	717
Shopping Center	820	30	1000 SF	990	990	1,980	30	19	49	56	53	109	81	87	168
TOTAL				5,172	5,172	10,344	774	307	1,081	381	374	755	396	786	1,182
INTERNAL CAPTURE (FROM ITE CALCULATIONS)				518	518	1,036	30	30	60	52	52	104	73	73	146
EXTERNAL TRIP GENERATION BEFORE TRANSIT REDUCTION				4,654	4,654	9,308	744	277	1,021	329	322	651	323	713	1,036

TRANSIT TRIP GENERATION FACTORS	Daily Factors			AM Peak Hour %			Noon Peak Hour %			PM Peak Hour %		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	--	--	1.83	--	--	20%	--	--	10%	--	--	20%
Hotel	--	--	0	--	--	0	--	--	0	--	--	0
General Office Building	--	--	2.07	--	--	15%	--	--	7.5%	--	--	15%
Shopping Center	--	--	3.56	--	--	20%	--	--	10%	--	--	20%

TRANSIT TRIP GENERATION BY LAND USE	ITE Code	Size	Unit	Daily Ridership			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	458	DU	419	419	838	9	36	45	11	13	23	34	18	52
Hotel	310	0	Rooms	0	0	0	0	0	0	0	0	0	0	0	0
General Office Building	710	500	1000 SF	518	518	1,035	100	14	114	13	11	25	16	80	96
Shopping Center	820	30	1000 SF	53	53	107	5	3	8	4	4	9	13	14	27
TOTAL				990	990	1,980	114	53	166	28	28	57	63	112	175

TOTAL EXTERNAL VEHICLE TRIPS (DRIVEWAY VOLUMES)	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
	3,664	3,664	7,328	630	224	855	301	294	594	260	601	861

PASS-BY TRIPS	ITE Code	Size	Unit	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Pass-By Trip Rates - Shopping Center	820	99.052	1000 SF	34%	34%	34%	0%	0%	0%	34%	34%	34%	34%	34%	34%
Pass-By Trips				285	285	569	0	0	0	13	13	26	18	19	36
Adjacent Pass-By Trips				285	285	569	0	0	0	13	13	26	18	18	36

TOTAL EXTERNAL VEHICLE TRIPS ADDED TO ADJACENT STREETS	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
	3,379	3,379	6,759	630	224	855	288	281	568	242	583	825



Table 11 (Continued). Weekday Vehicle Trip Generation Summary - Glen Lennox Redevelopment

PHASE 3 CUMULATIVE SUB-PHASE TRIP GENERATION DATA

ITE RAW TRIP GENERATION CALCULATIONS - NET DEVELOPMENT

Land Use	ITE Code	Size	Unit	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	428	DU	1,421	1,421	2,842	44	174	218	111	135	246	176	95	271
Hotel	310	0	Rooms	0	0	0	0	0	0	0	0	0	0	0	0
General Office Building	710	0	1000 SF	0	0	0	0	0	0	0	0	0	0	0	0
Shopping Center	820	0	1000 SF	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL				1,421	1,421	2,842	44	174	218	111	135	246	176	95	271
INTERNAL CAPTURE (FROM ITE CALCULATIONS)				143	143	286	12	12	24	12	12	24	14	14	27
EXTERNAL TRIP GENERATION BEFORE TRANSIT REDUCTION				1,278	1,278	2,556	32	162	194	99	123	222	162	81	243

TRANSIT TRIP GENERATION FACTORS	Daily Factors			AM Peak Hour %			Noon Peak Hour %			PM Peak Hour %		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	--	--	1.83	--	--	20%	--	--	10%	--	--	20%
Hotel	--	--	0	--	--	0	--	--	0	--	--	0
General Office Building	--	--	2.07	--	--	15%	--	--	7.5%	--	--	15%
Shopping Center	--	--	3.56	--	--	20%	--	--	10%	--	--	20%

TRANSIT TRIP GENERATION BY LAND USE	ITE Code	Size	Unit	Daily Ridership			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	428	DU	392	392	783	8	31	39	10	12	22	32	17	49
Hotel	310	0	Rooms	0	0	0	0	0	0	0	0	0	0	0	0
General Office Building	710	0	1000 SF	0	0	0	0	0	0	0	0	0	0	0	0
Shopping Center	820	0	1000 SF	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL				392	392	783	8	31	39	10	12	22	32	17	49

TOTAL EXTERNAL VEHICLE TRIPS (DRIVEWAY VOLUMES)	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
	886	886	1,772	24	131	155	89	111	200	130	64	195

PASS-BY TRIPS	ITE Code	Size	Unit	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Pass-By Trip Rates - Shopping Center	820	0	1000 SF	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pass-By Trips				0	0	0	0	0	0	0	0	0	0	0	0
Adjusted Pass-By Trips				0	0	0	0	0	0	0	0	0	0	0	0

TOTAL EXTERNAL VEHICLE TRIPS ADDED TO ADJACENT STREETS	24 Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
	886	886	1,772	24	131	155	89	111	200	130	64	195



ii.) Adjustments to Trip Generation Rates

Raw ITE trip generation estimates for daily and peak hour trips were adjusted for the following factors, in the recommended sequential order for reducing raw trip generation estimates to actual estimated vehicular trips produced by Glen Lennox redevelopment.

a.) Internal Capture

The land use mix and density proposed for Glen Lennox redevelopment would exhibit the potential for internally captured trips. The latest ITE methodologies for internal capture calculations automatically compute internally captured trips from raw vehicular trip generation data whenever two or more land use categories (that would be included in a mixed-use development) are aggregated. Information from the ITE results (See **Appendix C** for ITE trip generation output sheets) was used in reducing raw trip generation estimates. It was assumed that daily internal capture rates would be 10 percent of total daily generated trips, based on the range of AM and PM capture rates which varied between 3 and 26 percent, depending on the Glen Lennox analysis sub-phase. Noon peak internal capture data was estimated to be an average of AM and PM peak hour totals, and was compared to overall noon peak trip generation data for computation of internal capture percentages. **Table 12** displays the aggregate internal capture percentages for each composite phase and the overall composite internal capture rates for the total net redevelopment trip generation data. Summary results for internal capture reductions were applied directly to the raw trip generation rates and volumes and are shown previously in **Table 11**.

Table 12. Summary Internal Capture Rates By Redevelopment Phase

Phase	Daily Trips*	AM Peak Hour	Noon Peak Hour	PM Peak Hour
1	10%*	9%	22%	26%
2	10%*	6%	14%	12%
3	10%*	10%#	10%#	10%#
Composite Total	10%*	7%	16%	18%

* - No Specific ITE Calculation Available for Daily Trips

- Phase 3 Has Only One Land Use, but was assumed to contribute to overall internal trips

b.) Modal Split

Transit

Since the study area is well served by several CHT and Triangle Transit fixed bus routes, with frequent existing service, and also has facilities for pedestrians and bicyclists with potentially improved connectivity after the project is constructed, an analysis was conducted to estimate trip reductions for these modes. The basis for modal split estimation relies on three data sources:

a) existing field data that compares vehicle and transit trips to/from the existing Glen Lennox development;

b) information provided by the Town of Chapel Hill, including the document “Chapel Hill Payment-in-Lieu – Transit Trip Generation”; and



c) research and case studies compiled for the Transportation Research Board (TRB) Transit Cooperative Research Program (TCRP) *Report 128 – Effects of Transit-Oriented Development on Housing, Parking, and Travel* (Arrington and Cervero, 2008). Case study developments presented in the research that had similar characteristics as the proposed Glen Lennox redevelopment and existing/future transit service along NC 54 and US 15-501 were analyzed for trip generation rates, mode splits, number of automobiles owned, and parking generation rates.

Existing Field Data

Chapel Hill Transit staff provided the following information in **Table 13** related to spring 2013 ridership for specific routes directly serving the existing Glen Lennox development. Boarding and alighting data (corresponding to “trips” exiting and entering Glen Lennox, respectively) was summarized for the total amount of peak hour and daily transit activity “produced” by Glen Lennox. Route G, which winds through the residential component of the development, exhibits the highest ridership numbers. Bus stops that are located immediately along the Glen Lennox frontage with NC 54 were included in all three route data sets, though ridership at these locations may be related to other development located along NC 54. The purpose of the compilation is to compare existing vehicular traffic levels with projected transit trip generation methodologies described below.

Table 13. CHT Transit Ridership Within/Adjacent to Glen Lennox

Route	Daily			AM Peak			Noon Peak			PM Peak		
	OFF (Enter)	ON (Exit)	Totals	OFF (Enter)	ON (Exit)	Totals	OFF (Enter)	ON (Exit)	Totals	OFF (Enter)	ON (Exit)	Totals
G	159	348	507	2	44	45	10	14	24	33	4	37
S	95	84	179	3	21	24	5	3	7	25	5	29
V	24	21	45	1	7	7	3	3	6	5	0	5
Total	278	453	731	6	71	77	18	19	38	62	9	71

Table 14 provides a comparison of the CHT transit ridership data and available vehicular count data tabulated for all entrances/exits to/from the existing Glen Lennox parcel. Daily volumes were not collected for all access points to/from Glen Lennox in spring 2013, so rough estimates from both raw ITE trip generation information and previous studies were used. Results indicate that general mode splits are in the 15 percent range for both peak hour and daily trips.

Table 14. Transit/Vehicle Mode Splits From Field Data

Data Source	Daily			AM Peak			Noon Peak			PM Peak		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Traffic Counts	2,500	2,500	5,000	174	174	348	167	177	344	265	234	499
Transit Sum	278	453	731	6	71	77	18	19	38	62	9	71
Total Trips	2,778	2,953	5,731	180	245	425	185	196	382	327	243	570
Transit Mode Split			13%				18%				10%	12%

BLUE = Estimated from Previous 2008 Data/Studies



Transit Trip Generation Estimates

Using the information from **Table 14** and general results from the TCRP Report 128, the mode splits for each proposed Glen Lennox land use type were calculated, and are shown in **Table 15**. Information from the “Chapel Hill Payment-in-Lieu – Transit Trip Generation” study was analyzed, but was not used to develop peak hour transit mode splits because estimated transit trip generation factors in this document do not correlate well with overall ITE vehicular trip generation factors for several land use types. For example, the transit trip generation rates for office developments exceed the overall ITE vehicular trip generation rates for office developments, and the use of the transit trip generation rates as a reduction factor would result in a negative peak hour value for vehicular trip generation from any Glen Lennox office land uses. However, the overall daily transit trip generation rates from the “Payment in Lieu – Transit Trip Generation Study” show reasonable correlation with existing field data and could be used to compute transit trip reduction factors from raw ITE trip generation results.

Table 15. Glen Lennox Redevelopment Selected Transit Trip Reductions

TRANSIT TRIP GENERATION FACTORS	Daily Factors*	AM Peak Hour %	Noon Peak Hour %	PM Peak Hour %
Apartments	1.83*	20%	10%	20%
Hotel	0	0%	0%	0%
General Office Building	2.07*	15%	7.5%	15%
Shopping Center	3.56*	20%	10%	20%

* - From *Chapel Hill Payment-in-Lieu – Transit Trip Generation*, Renaissance Planning Group, 2012. Data Reflects Transit Trip Generation Rate Per 1,000 Square Feet of Development

Though no standard, simplified estimates for peak hour mode splits and trip generation rates are directly presented in the TCRP Report 128 information, the aggregate data suggests that a 20 percent vehicle trip reduction for a higher density/transit-oriented development with proximal, high frequency transit service is achievable. This 20 percent represents transit trips that are made after internal trips are removed from original raw trip generation estimates. This estimate correlates well with recent, generalized data on trip making characteristics for Chapel Hill and Orange County from the 2008 American Community Survey (source: *2010 Town of Chapel Hill Data Book*, pg 7.6-7.8). This data suggests that about 70 percent of Chapel Hill and 80 percent of Orange County work-related trips were made by single occupant vehicles or car pools.

As shown in **Table 15**, a 20 percent transit trip reduction factor is estimated for Glen Lennox residential and commercial trips. A slightly lower 15 percent factor was estimated for office trips, as the office land uses may likely generate trips beyond the immediate CHT service area. Since noon hour transit service is not provided with the same frequency as AM and PM peak service, transit trip reduction estimates were assumed to be 50 percent of the peak hour estimates. Trips for the hotel land use were not included in the transit trip reduction estimates, as these would generally not be considered to produce appreciable transit trips. However, reductions for hotel trips were included in the internal capture estimates derived for the project.

Table 11 shows the effects of transit trip reductions on trip generation data, after internally-captured trips are removed.



By applying the transit trip reduction percentages to overall external trip generation estimates, rough estimates of actual daily and peak hour transit trips can be obtained. These results are shown in **Table 16**. Compared to daily and peak hour existing transit ridership data in **Table 14**, the ultimate build-out of the Glen Lennox redevelopment would represent significant increases in transit ridership, in the order of four to five times greater than existing ridership levels within and adjacent to the Glen Lennox site.

Table 16. Total Transit Trip Generation Estimates By Phase

Phase	Daily Ridership			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
1	542	542	1,083	46	37	83	24	24	48	60	68	128
2	990	990	1,980	114	53	166	28	28	57	63	112	175
3	392	392	783	8	31	39	10	12	22	32	17	49
SUM	1,923	1,923	3,847	167	121	288	62	65	127	155	197	352

Pedestrian/Bicycle Trips

To make some initial estimates of potential pedestrian and bicycle activity related to the Glen Lennox redevelopment external to the site, a 12-hour pedestrian and bicycle count was conducted in April 2013 at the intersection of NC 54 and Hamilton Road, which is the primary point where external pedestrian and bicycle activity related to the Glen Lennox site could be observed.

Table 17 shows the results of pedestrian counts across each leg of the NC 54 and Hamilton Road intersection. 12-hour totals were converted into 24-hour daily estimates by applying a factor of anticipated 12-hour activity to daily activity (assuming that the 12-hour counts represent approximately 75 percent of daily volume). A comparison of the 12-hour activity to 12-hour vehicular counts at the intersection shows that overall pedestrian activity is less than one percent of overall traffic volumes.

Table 17. 12-Hour Pedestrian Count Summary

Time Period	Count Across Each Leg				Total
	North	South	East	West	
AM Peak Hour	9	6	6	13	34
Noon Peak Hour	2	5	10	9	26
PM Peak Hour	7	11	25	8	51
12-Hour	52	60	103	101	316
Daily Estimate	69	80	137	135	421

A summary of bicycling activity through all intersection legs shows the following:

- One cyclist observed in the AM peak hour
- Two cyclists observed in the Noon peak hour
- Three cyclists observed in the PM peak hour
- 22 cyclists observed in the 12-hour period, one at the northbound leg, four at the southbound leg, nine eastbound and 8 westbound.



The results of the 12-hour pedestrian and bicycle counts indicate that there is activity for both non-motorized transportation modes, but not to a significant degree when compared to the vehicular and transit modes. No additional trip reduction factors for these modes will be applied to the Glen Lennox redevelopment trip generation methodology, though consideration for these modes will be made in any analyses and recommendations for the study, since the likelihood will exist for an increase in biking and walking trips due to the redevelopment of Glen Lennox.

c.) Pass-by and Diverted Linked Trips

Pass-by trips were accounted for in this study for the retail component of the proposed Glen Lennox redevelopment plan. Applying ITE and NCDOT approved standards to the estimation of pass-by trips, the following pass-by trip reductions were applied to trip generation estimates after internally-captured trip reductions and transit/pedestrian/bicycle trip reductions were applied.

Table 18. Applied Pass-by Trip Percentages

Land Use	ITE Pass-By Rates			
	Daily	AM	Noon	PM
Shopping Center (Retail)	34.0%	0.0%	34.0%	34.0%

Raw pass-by trip data was balanced for inbound and outbound flows to achieve a 50-50 split of entering and exiting trips at site driveways serving Glen Lennox along US 15-501 and NC 54.

Diverted linked trips are considered to be trips with an origin and destination not related to the Glen Lennox site, but may be diverted to the Glen Lennox site retail component and then to their final destination. With the majority of all regional trip origins and destinations in the project study area directly served by the two major arterial facilities (US 15-501 and NC 54) that directly border the Glen Lennox site parcel, it was assumed that the proportion of diverted linked trips attributable to the redevelopment of Glen Lennox would be small and could be considered to be included in any calculations of pass-by trips as documented above.

d.) Trip Generation Budget

Current plans for Glen Lennox designate a phased construction process in four incremental stages over a 20+ year horizon. The first three phases add development density to the existing development (along with the demolition of existing development). The final phase would be a renovation to existing residential components and thus was not analyzed for additional impacts.

As such, this analysis considers the impacts of each development phase and makes recommendations for transportation system improvements directly related to that phase. Subsequent phases are analyzed with the assumption that the previous phase(s) are complete (along with their recommended transportation system improvements), and additional development will require additional improvements above and beyond what is already assumed to be in place to mitigate previous impacts. All analyses were completed based on the proposed development intensity levels provided by the Applicant. Any



deviations from this plan may require an update to this traffic impact study, depending on the estimated trip generation changes made by an update to the plan.

After the application of all previous trip adjustments were made to each sub-phase and aggregated by phase, the total anticipated trip generation for Glen Lennox was calculated and is shown in **Table 19**. **Table 19** lists anticipated overall trip generation for all driveways that will serve Glen Lennox, as well as net external trips to be added to the study area network. Driveway volumes will be higher, due to the presence of pass-by trips that utilize the driveways, but represent no additional increase to traffic volumes on the study area network.

iii.) Trip Distribution

Trip distribution for site-related traffic was based on existing daily traffic patterns to determine the directional peak hour characteristics of traffic to and from the site from the major study area thoroughfares and from some of the lower volume minor arterials and collector streets, based on anticipated trip productions to/from nearby residential or commercial development areas. Local trips to/from several lower volume collector and residential streets were estimated in the analysis, as the possibility exists that a small portion of trips may occur to/from these local streets that would be related to the different land use mixes developed in each Glen Lennox construction phase. The process for distributing trips to/from Glen Lennox development used the following methodology.

- External Trip Distribution

Trips to/from the Glen Lennox site were primarily assumed to enter/exit the network from external study area network locations. Small percentages of trips (1 to 2 percent) were assumed to originate/terminate from development areas and residential neighborhoods served by roadway facilities in the project study area, while larger distributions were assumed for higher volume arterial facilities that connect to the UNC Main Campus and other areas of Chapel Hill beyond the immediate project study area, as well as regional trips. Trips were assumed to use the most direct paths from external points to access Glen Lennox site via US 15-501, NC 54, or collector / local roadways to the north and east of the property.

Initial raw and revised external trip distribution proportions are shown in **Table 20**. Several raw proportions were revised, as potential site-related trips would either be expected to use other more direct roadway connections to/from the Glen Lennox site, or the local AADT proportions do not address the likely potential of regionally-based trips. The most pertinent example of this is the NC 54 corridor, which would likely facilitate most site-related trips that would have regional origins/destinations to the east from the I-40 corridor, southern Durham County and Wake County.



Table 19. Glen Lennox Redevelopment - Summary Trip Generation Data (Cumulative Sub-Phase)

Total External Vehicle Trips (Driveway Volumes)

Phase	24-Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
1	5,100	5,100	10,200	268	178	445	265	252	518	288	324	612
2	3,664	3,664	7,328	630	224	855	301	294	594	260	601	861
3	886	886	1,772	24	131	155	89	111	200	130	64	195
TOTALS	9,651	9,651	19,300	923	533	1,455	655	656	1,312	678	989	1,668

Total External Vehicle Trips Added to Adjacent Streets

Phase	24-Hour Volumes			AM Peak Hour Trips			Noon Peak Hour Trips			PM Peak Hour Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
1	4,013	4,013	8,026	268	178	445	221	208	430	241	277	516
2	3,379	3,379	6,759	630	224	855	288	281	568	242	583	825
3	886	886	1,772	24	131	155	89	111	200	130	64	195
TOTALS	8,279	8,279	16,557	923	533	1,455	598	599	1,198	613	924	1,536



Table 20. External Trip Distribution Assumptions

Study Area Cordon Roadway	AADT	Raw Proportion	Revised Proportion
US 15-501 / NC 54 Bypass (Fordham Boulevard)	41,000	14%	13%
US 15-501 Bypass (Fordham Boulevard)	42,000	15%	15%
NC 54 (Raleigh Road)	42,000	15%	29%
E. Franklin Street (SR 1010)	22,000	8%	1%
E. Franklin Street (SR 1010)	17,000	6%	0%
Ephesus Church Road	9,200	3%	2%
Elliott Road	7,400	3%	1%
Willow Drive (West)	7,000	2%	1%
Willow Drive (South)	7,000	2%	1%
Willow Drive (East)	-	-	1%
Estes Drive (SR 1750)	15,000	5%	5%
Country Club Road	12,000	4%	2%
Country Club Road/Ridge Road	8,000	3%	1%
South Road (SR 2048)	10,000	4%	6%
Finley Golf Course Road / Old Mason Farm Road	2,500	1%	0%
Manning Drive (SR 1902)	15,000	5%	5%
Burning Tree Drive	-	-	1%
Pinehurst Drive	5,000	2%	2%
W. Barbee Chapel Road	2,000	1%	2%
Meadowmont Lane	5,000	2%	2%
Friday Center Drive	5,000	2%	2%
E. Barbee Chapel Road	11,000	4%	4%
Oakwood Drive/Berkley Drive (local)	-	-	3% (total)
TOTALS		100%	100%

- Driveway Trip Distribution

From the external trip distribution estimates to/from the general site location, trips were distributed to site access points based on the spatial relationship of the trips generated by a particular phased development subarea, as defined in **Figure 2**. Since the Glen Lennox site has multiple proposed external access connections to US 15-501, NC 54, and local streets north and east of the site, in addition to a fully developed internal street network as shown on the site concept plan, several assumptions were made to route site-related traffic to origins/destinations within the site. These assumptions account for the spatial layout of site land uses and parking facilities. Trip generation data was broken out for external site trips to assign specific trip generation to each driveway, based on the most proximal land uses/parking that each would serve.

- Pass-By Trip Distribution

The distribution of pass-by trips differs from the external (new) trip distribution in that pass-by trips would have distribution patterns specific to the adjacent US 15-501 and NC 54 corridors where pass-by trip-making would be expected. The pass-by trip distribution and assignment was then estimated separately from new site trips. It was assumed that the following overall pass-by percentages would occur, based on the relative weight of existing peak period traffic counts:

- 25%/25% To/From US 15-501 Northbound (Noon/PM Peak, respectively)



- 25%/20% To/From US 15-501 Southbound
- 25%/30% To/From NC 54 Eastbound
- 25%/25% To/From NC 54 Westbound

These distributions were calculated for each phase and sub-phase of the Glen Lennox redevelopment, so if a particular sub-phase was located directly adjacent to either US 15-501 or NC 54, it would be expected to capture higher overall percentages than what is listed above. In addition, if multiple driveways along US 15-501 might serve a particular sub-phase, the percentages were further divided to split potential pass-by trips at each driveway location. Relative pass-by trip proportions for the each of the roadways described above were routed to the site access point (and removed, as appropriate, from through traffic streams related to each pass-by distribution).

Figures 9A and 9B present the projected external trip distribution traffic percentages for the proposed site in all 2018, 2028, and 2038 scenarios.

iv.) Trip Assignment

Appendix D contains a summary of the site traffic volumes, by redevelopment phase, distributed on the 2018, 2023, and 2028 study area network. Total volumes into and out of the site correspond to total external vehicular trips generated, based on the trip generation methodology developed previously. **Table 16** lists the anticipated transit trip generation totals from Glen Lennox site. Additional transit capacity may be necessary to serve demand generated by Glen Lennox site. No specific determination of distribution and assignment of these trips was conducted for this study. Similarly, no specific forecasts or estimates of pedestrian or bicycle trip distribution and assignment were made for this study.

D. Future Traffic Forecasts with the Proposed Development

Figures 10A through 12D display the 2018 Phase 1, 2023 Phase 2, and 2028 Phase 3 projected study area traffic volumes with site traffic added for each respective development phase. These traffic volumes represent the aggregate traffic growth over existing traffic volumes for a) ambient traffic growth, b) specific site-related traffic assignments from the previous development phase(s), and c) estimated net site traffic assignments for the particular Glen Lennox development phase expected to be complete by each analysis year. Thus, 2023 Phase 2 with site traffic volumes equate to 2023 ambient background volumes plus the net 2018 Phase 1 traffic assignment. The assumption for each development phase is that the previous phase will be built-out at that point, and thus should be included in the background traffic assumptions.

The figures also show the redistribution of traffic volumes as a result of any recommended transportation network improvements that were analyzed in the following sections of this report.



III. IMPACT ANALYSES

A. Peak Hour Intersection Level of Service Analysis

i.) Methodology

Evaluation of traffic operations on suburban arterials is most effective through the determination of level of service (LOS) criteria. The concept of level of service correlates qualitative aspects of traffic flow to quantitative terms. This enables transportation professionals to take the qualitative issues, such as congestion and substandard geometrics, and translate them into measurable quantities, such as operating speeds and vehicular delays. The 2010 *Highway Capacity Manual (HCM 2010)* characterizes level of service by letter designations A through F. Level of service A represents ideal low-volume traffic operations, and level of service F represents over-saturated high-volume traffic operations. Level of service is measured differently for various roadway facilities, but in general, level of service letter designations are described by the following criteria in **Table 21**.

The *Synchro Professional Version 7* operations analysis software was used to analyze peak hour conditions at signalized intersections. The *Highway Capacity Software (HCS+ Version 5.6)* was used to analyze peak hour conditions at unsignalized intersections.

The minimum acceptable peak hour intersection level of service established for this project is LOS D for signalized intersections or LOS E for critical movements at unsignalized intersections, or no increase in delay for signalized intersections operating below LOS D or unsignalized intersection critical movements operating below LOS E without the inclusion of site traffic. The following conditions were evaluated:

- Base Year 2013 Traffic
- 2018 Traffic without Site Traffic
- 2018 Traffic with Phase 1 Net Site Traffic Volumes Added
- 2018 Traffic with Phase 1 Net Site Traffic and Necessary Improvements
- 2023 Traffic without Phase 2 Site Traffic (Includes Phase 1 Site Traffic)
- 2023 Traffic with Phase 2 Net Site Traffic Volumes Added
- 2023 Traffic with Phase 2 Net Site Traffic and Necessary Improvements
- 2028 Traffic without Phase 3 Site Traffic (Includes Phases 1 and 2 Site Traffic)
- 2028 Traffic with Phase 3 Net Site Traffic Volumes Added
- 2028 Traffic with Phase 3 Net Site Traffic and Necessary Improvements



Table 21. Level of Service (LOS) Characteristics

Level of Service Description	Per Vehicle Delay at Signal	Per Vehicle Delay at Stop Sign
LOS A ➤ Free flow ➤ Freedom to select desired speed and to maneuver is extremely high ➤ General level of comfort and convenience for motorists is excellent	< 10.0 sec	< 10.0 sec
LOS B ➤ Stable flow ➤ Other vehicles in the traffic stream become noticeable ➤ Reduction in freedom to maneuver from LOS A	10.0 – 20.0 sec	10.0 – 15.0 sec
LOS C ➤ Stable flow ➤ Maneuverability and operating speed are significantly affected by other vehicles ➤ General level of comfort and convenience declines noticeably	20.0 – 35.0 sec	15.0 – 25.0 sec
LOS D ➤ High density but stable flow ➤ Speed/freedom to maneuver are very restricted ➤ General level of comfort / convenience is poor ➤ Small increases in traffic will generally cause operational problems	35.0 – 55.0 sec	25.0 – 35.0 sec
LOS E ➤ Unstable flow ➤ Speed reduced to lower but relatively uniform value ➤ Volumes at or near capacity level ➤ Comfort and convenience are extremely poor ➤ Small flow increases or minor traffic stream disturbances will cause breakdowns	55.0 – 80.0 sec	35.0 – 50.0 sec
LOS F ➤ Forced or breakdown flow ➤ Volumes exceed roadway capacity ➤ Formation of unstable queues ➤ Stoppages for long periods of time because of traffic congestion	> 80.0 sec	> 50.0 sec

The results of this analysis are based on the procedures presented in the *HCM 2010* and performed with the corresponding capacity analysis software described previously. The methodology of evaluating each scenario for signalized intersections is presented below:

- **2013 Existing Conditions** – Use current Town of Chapel Hill data for the cycle length and splits of individual signalized intersections and report LOS and delay values from Synchro. There are no traffic signals in the project study area that operate in “free-run” mode.
- **Future Year No-Build/Build Conditions** – Reoptimize the cycle lengths and splits of individual intersections in Synchro, if existing timing data does not provide adequate overall intersection LOS. Adjust cycle lengths, splits, and offsets, if necessary, if the signal is currently operating in a coordinated system. The optimized signal timing information will be held constant for both No-Build and Build Conditions for each analysis year, to provide a means to compare effects of the proposed site traffic. No changes to free run traffic signal inputs were made for Conditions 2 and 3. For any intersections



that will experience capacity improvements, individual intersection retiming and offsets were implemented.

- **Future Year Build Conditions Requiring Mitigation** – Optimize coordinated traffic signals for effects of recommended mitigation strategies that implement existing/committed changes to lane geometrics. Evaluate the potential for different signal phasing schemes (left-turn lag phases, for example). Retain existing split minimums and any pedestrian timing values. Recommendations, if warranted, will be made to obtain at least LOS D for the intersection as a whole.

The net effect of this process is that direct comparisons, by movement, of delay and LOS between each of the three conditions are impossible because splits and cycle lengths can and do change between conditions. The pertinent statistics of this analysis are the *overall intersection level of service and delay*. Improvements to deficient intersections in Build Scenario analyses were made by first attempting to adjust signal operations via changes in cycle lengths, splits and/or with acceptable adjustments to signal phasing. If that did not produce satisfactory results for all intersections, geometric improvements to improve intersection capacity were considered for the deficient intersections. **Appendix E** contains the Synchro output for all conditions (where applicable).

Unsignalized intersections were analyzed directly in HCS. Their results were evaluated on a per-movement basis, since HCS does not produce an overall intersection level of service for unsignalized intersections. Thus, intersections with deficient (LOS F) movements in the Build Scenario analyses would need to be evaluated for improvements in the mitigation scenarios. This methodology differs from signalized intersections, where one or more movements at an intersection may be deficient in a Build Scenario, but as long as the overall intersection level of service does not fall below LOS D, no intersection improvements are deemed necessary. **Appendix F** contains the HCS output for all unsignalized intersections under study.



ii.) 2013 Existing Conditions Results

Table 22 presents the results for the existing year traffic conditions as compiled from field data. The table lists LOS and delay values for intersections that are in existence at this time. It also lists data for worst-case critical movements encountering delay at the stop-controlled intersections (which do not have an overall intersection delay value produced by HCS).

Results indicate that most study area signalized intersections operate at acceptable overall levels of service (LOS D or better) in all three peak hours. The intersection of US 15-501 (Fordham Boulevard) and Old Mason Farm Road is over capacity in the AM and PM peak hours, according to the capacity analysis results. The adjacent upstream intersection of US 15-501 and Manning Drive also operates at a deficient LOS E in the AM peak hour. The intersection of E. Franklin Street and Estes Drive operates at a LOS E in the PM peak hour, and is near capacity in the AM and Noon peak hours.

Several unsignalized study area intersections have critical movements that are over capacity in at least one peak hour and deficient according to Town of Chapel Hill thresholds (need to be LOS E or better). The full access unsignalized intersections of US 15-501 (Fordham Boulevard) with Brandon Road and Cleland Road have stop-controlled movements that are LOS F in at least one peak hour due to high traffic volume on US 15-501 preventing acceptable gaps for left-turning vehicles. In addition, the yield-controlled intersection of US 15-501 (Fordham Boulevard) northbound and the NC 54 interchange on-ramp (analyzed as a stop-controlled intersection for this analysis) operates at a LOS F in the PM peak hour. Actual traffic operations at this location permit the yield-controlled movement to utilize a short acceleration lane to merge onto US 15-501 northbound, but field observation shows reluctance for some vehicles to utilize this lane due to speed differential and sight distance issues. All other unsignalized intersections in the project study area have stop-controlled critical movements that operate at a LOS E or better in the 2013 peak hours analyzed.

Figure 13A and 13B display all AM, noon, and PM peak hour LOS results for all existing study area intersections analyzed in this study.



Table 22. Capacity Analysis Results for Study Area Intersections - 2013 Existing Traffic

ID	Intersection Name	LOS			Average Delay (sec/veh)		
		AM	Noon	PM	AM	Noon	PM
1	US 15-501 Bypass (Fordham Blvd) & Ephesus Church Road	D	D	D	47.3	53.9	51.1
2	US 15-501 Bypass (Fordham Blvd) & Elliot Road	B	C	B	15.9	22.7	16.9
3	US 15-501 Bypass (Fordham Blvd) & Willow Drive	B	C	C	17.8	28.1	25.8
4	US 15-501 Bypass (Fordham Blvd) & Estes Drive	C	C	C	22.4	29.6	32.5
5	US 15-501 Bypass (Fordham Blvd) & Cleland Rd [@]	F	F	F	93.4	50.8	*
6	US 15-501 Bypass (Fordham Blvd) & Brandon Rd [@]	E	F	E	46.8	55.5	37.8
7	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (North)	D# C	D# B	F# C	32.6# 21.6	30.5# 19.2	133.9# 26.2
8	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (South)	C	C	D	18.3	15.8	26.2
9	US 15-501 / NC 54 Bypass (Fordham Blvd) & Old Mason Farm Road	F	D	E	104.9	42.1	74.5
10	US 15-501 / NC 54 Bypass (Fordham Blvd) & Manning Drive	E	C	D	61.3	26.7	35.3
11	South Road / Raleigh Road & Country Club Drive	C	D	D	33.6	35.7	38.2
12	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (West) [@]	C	B	D	17.2	14.5	28.7
13	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (East) [@]	C	B	C	16.2	12.2	15.8
14	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #1 (Eastbound Left-Over) [@]	C	B	C	16.1	12.2	16.1
15	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #2 (RIRO) [@]	B	B	B	14.4	11.9	14.1
16	NC 54 (Raleigh Rd) & Hamilton Road	C	B	C	20.4	15.3	22.4
17	NC 54 (Raleigh Road) & Audley Lane [@]	B	B	B	13.8	11.2	14.0
18	NC 54 (Raleigh Road) & Burning Tree Drive / Finley Golf Course Road	A	A	B	10.0	8.7	15.0
19	NC 54 (Raleigh Road) & W. Barbee Chapel Road	B	B	C	15.2	16.2	23.7
20	NC 54 (Raleigh Road) & Meadowmont Lane / Friday Center Drive	C	C	D	30.2	29.1	49.7
21	NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Road Ext	D	B	C	36.4	18.2	26.5
22	E. Franklin Street & Estes Drive	D	D	E	51.9	54.8	65.4
23	Willow Drive & Estes Drive	B	B	B	12.9	13.8	15.1
24	Cleland Road & Hayes Drive [@]	A	A	B	9.7	9.4	11.9
25	Cleland Road & Hamilton Road [@]	A	A	C	9.8	9.5	21.4
27	Cleland Drive & Burning Tree Drive [@]	A	A	A	8.1	7.4	8.1
28	Pinehurst Drive & Burning Tree Drive [@]	B	A	B	10.3	9.8	11.5
29	Brandon Road & Hayes Road [@]	A	A	A	9.7	9.2	9.4
30	Beckley Road & Oakwood Drive [@]	A	A	A	7.3	7.1	7.2

BOLD/ITALICS – Movement or Overall Intersection is over capacity as defined by Town of Chapel Hill TIS Standards

* - No Movement Capacity Estimated By HCM Methodology, Delay Theoretically Infinite

- Estimated LOS/Delay For Yield-Controlled Movement Based on HCM Stop-Controlled Methodology

@ - Unsignalized Intersection, LOS/Delay Values Correspond to Worst-Case Critical Movement



iii.) 2018 Phase 1 Scenario Results

Table 23 presents the results for the 2018 design year estimated traffic conditions with and without the impacts of site-related traffic. This analysis includes the effect of ambient growth over the 2013-2018 time period. A summary of operations for each scenario is presented below.

2018 No-Build Scenario Results

The 2018 No-Build Scenario assumes no changes to the study area network, other than the effects of background traffic growth and the reoptimization of all existing 2013 peak hour signal timings for all coordinated traffic signal control zones in the project study area.

Though the projected peak hour traffic volume increases due to area-wide background growth can be expected to have an impact on overall project area traffic operations, the impact is mitigated in some instances by the reoptimization of the signal control zones in the project study area. The US 15-501 (Fordham Boulevard) intersection with Old Mason Farm Road is expected to operate at an overall AM peak hour LOS F, even with signal retiming. Similarly, the E. Franklin Street and Estes Drive intersection is projected to operate at a LOS E in the PM peak hour as it does in 2013 existing conditions.

Traffic volume increases along US 15-501 further limit acceptable gaps at the full movement unsignalized intersections (Brandon Road and Cleland Road) and result in LOS F in all three peak hours, with no theoretical movement capacity in the PM peak hour at both intersections.

2018 Build – Phase 1 Scenario Results

The 2018 Build – Phase 1 scenario will add additional site-related traffic to the study area network. To comparatively study the effects of this additional traffic, all signal timings and geometrics were held constant from 2018 No-Build scenario conditions. The effect of site-related traffic is marginal additional increases in overall intersection delay in most locations around the project study area. No new intersections are expected to experience deficient operations compared to the No-Build scenario.

The only changes to the study area network assumed in the Build – Phase 1 Scenario were the following:

- Allow access connection to US 15-501 with the restriction of allowing left-turns in southbound and prohibiting left-turns out. To provide adequate initial capacity, this intersection would have dual left-turn lanes on US 15-501 southbound into the site and dual right-turn lanes westbound out of the site. It was also assumed that US 15-501 would be widened for an auxiliary lane that would connect the existing interchange on-ramp (and acceleration lane) from NC 54 westbound to this proposed intersection.

2018 Build – Phase 1 with Mitigation Results

To mitigate individual unsignalized and signalized intersection operational deficiencies in the 2018 Phase 1 – analysis year, the following mitigation improvements are recommended:

- **US 15-501 & Cleland Road / US 15-501 & Brandon Road** – Both unsignalized full movement intersections are expected to operate at LOS F in all peak hours in 2018, due to limited to non-existent movement capacity for minor street stop-controlled approaches. To mitigate these deficiencies, and maintain throughput along the US 15-



501 corridor, these intersections were converted to a superstreet design, with left-turns from US 15-501 permitted and left-turns and through movements from the side streets prohibited. The access modifications will also require a new u-turn-only signalized intersection (Median U-Turn #3) in the existing US 15-501 median located approximately 1,000 feet from each existing intersection, as well as the ability for u-turn movements to be completed at the existing Estes Drive intersection. The signalized Brandon Road superstreet intersection will also facilitate u-turn movements from the upstream proposed Glen Lennox access point along US 15-501.

- **US 15-501 Northbound laneage between NC 54 (Westbound) on-ramp and Proposed Glen Lennox Access** – The existing on-ramp to northbound US 15-501 is yield-controlled, but was analyzed as a stop-controlled movement, since traffic often does not use the short 300 foot acceleration lane to merge into US 15-501. Extending the northbound acceleration lane northward to the proposed Glen Lennox new access intersection allows over 1,000 feet of auxiliary lane where weaving maneuvers may be made between the on-ramp traffic and traffic making a northbound right-turn into the Glen Lennox redevelopment. This improvement will reduce the effect of traffic coming to a complete stop at the yield point on the on-ramp.
- **US 15-501 Southbound and NC 54 (Westbound) On-Ramp** – Though 2018 traffic operations results do not indicate this intersection is over capacity, it will benefit from the upstream signalized superstreet configuration in the ability to allow signal progression along the US 15-501 corridor.
- **US 15-501 & Old Mason Farm Road** – This intersection is expected to be over capacity in the 2018 AM peak hour with or without site-related traffic and has limited options for conventional improvement due to high traffic volumes on US 15-501 coupled with a non-standard signal phasing concept necessitated by a five-legged intersection configuration. To reduce the complexity of signal phasing and increased throughput on US 15-501 through the intersection, a superstreet design is recommended. This improvement would eliminate left-turn and through traffic from all of the minor street approaches across US 15-501. In conjunction with this improvement, it is recommended to restrict left-turn access from US 15-501 to the minor streets and instead provide access at new signal controlled u-turn intersections upstream on US 15-501 in either direction. The northern u-turn intersection (Median U-Turn #2) could be located at an existing access driveway to the St. Thomas More parish parking lot that connects to existing Carmichael Street, providing access to the parish inbound, as well as access to Fern Lane via Carmichael Street. Similarly, a new signalized median u-turn location (Median U-Turn #1) could be located in between Manning Drive and Old Mason Farm Road – approximately 750 feet from each intersection.
- To properly regulate signalized progression along US 15-501 in the vicinity of Manning Drive and Old Mason Farm Road, it is also recommended that Manning Drive undergo superstreet improvements. In this case, left-turn access will be maintained for Manning Drive onto US 15-501 and existing left-turns from US 15-501 onto Manning Drive eliminated. Northbound US 15-501 left-turns would be redirected to Median U-Turn #1 and southbound left-turns would use the existing median break at Kings Mill Road for u-turn access into the residential neighborhoods to the south of US 15-501.
- **East Franklin Street and Estes Drive** – This intersection is expected to be over capacity in the 2018 analysis year, with or without site traffic added in the PM peak hour.



To mitigate this deficiency, it is recommended that a southbound right-turn auxiliary lane be constructed along with dual eastbound left-turn lanes to provide adequate capacity for these high volume movements.

- **NC 54 Improvements Along Glen Lennox Frontage** – Though capacity analysis results indicate that existing geometrics and intersection control may provide adequate traffic operations in the 2018 analysis year with Phase 1 Glen Lennox redevelopment traffic, the following improvements are recommended to maintain adequate throughput and traffic safety along NC 54 in the area between the US 15-501 interchange and frontage along the Glen Lennox site.
 - Remove existing access connections at Site Driveway #1 and Audley Lane to reduce vehicle conflicts along NC 54 westbound.
 - Lengthen existing eastbound left-turn bay at Hamilton Road for 300 feet of storage.
 - Construct westbound right-turn deceleration lanes with 250 feet and 150 feet of storage (respectively) at Hamilton Road and at Site Driveway #2.
 - Construct a 250 foot right-turn only deceleration lane to serve US 15-501 northbound on-ramp traffic just past the Site Driveway #2 location.
 - Lengthen the southbound left-turn lane on Hamilton Road for a minimum of 250 feet of storage.

Figure 14 displays worst-case peak hour LOS results for all existing and proposed study area intersections included in the 2018 Phase 1 analysis year for 2018 No-Build, Build, and Mitigation Scenarios.



Table 23. Capacity Analysis Results for Study Area Intersections (2018 Phase 1 Analysis Year)

ID	Intersection Name	2018 No-Build Scenario						2018 Build Phase 1 Scenario						2018 Build Phase 1 with Mitigation					
		LOS			Average Delay (sec/vehicle)			LOS			Average Delay (sec/vehicle)			LOS			Average Delay (sec/vehicle)		
		AM	Noon	PM	AM	Noon	PM	AM	Noon	PM	AM	Noon	PM	AM	Noon	PM	AM	Noon	PM
1	US 15-501 Bypass (Fordham Blvd) & Ephesus Church Road	D	D	D	42.6	49.7	53.2	D	D	D	43.5	50.3	54.4	N/A	N/A	N/A	N/A	N/A	N/A
2	US 15-501 Bypass (Fordham Blvd) & Elliot Road	A	B	B	7.9	19.3	13.4	A	B	B	8.0	19.3	13.4	N/A	N/A	N/A	N/A	N/A	N/A
3	US 15-501 Bypass (Fordham Blvd) & Willow Drive	B	C	B	9.8	21.5	15.7	B	C	B	9.8	21.6	15.7	N/A	N/A	N/A	N/A	N/A	N/A
4	US 15-501 Bypass (Fordham Blvd) & Estes Drive	C	C	C	22.3	27.0	32.7	C	C	C	23.2	27.1	34.5	N/A	N/A	N/A	N/A	N/A	N/A
5	US 15-501 Bypass (Fordham Blvd) & Cleland Road [@]	F	F	F	128.5	62.7	*	F	F	F	155.1	70.7	*	A	A	A	7.2	5.2	9.9
6	US 15-501 Bypass (Fordham Blvd) & Brandon Road [@]	F	F	F	57.8	72.1	*	F	F	F	57.8	72.1	*	A	A	A	6.3	7.2	7.3
7	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Rd) Interchange Ramps (North) [@]	E#	E#	F#	44.4#	41.2#	207.3#	F#	F#	F#	101.9#	60.6#	268.2#	B	B	C	16.8	12.4	26.3
		C	B	C	28.1	18.2	30.9	C	C	C	28.2	20.1	34.2						
8	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Rd) Interchange Ramps (South) [@]	C	C	D	19.8	16.9	31.8	C	C	D	20.1	17.2	34.3	N/A	N/A	N/A	N/A	N/A	N/A
9	US 15-501 / NC 54 Bypass (Fordham Blvd) & Old Mason Farm Road	F	D	D	169.4	37.1	49.2	F	D	D	178.5	35.2	48.7	D	B	B	40.8	17.5	16.0
10	US 15-501 / NC 54 Bypass (Fordham Blvd) & Manning Drive	D	C	D	38.3	30.2	38.5	D	C	D	40.5	30.4	41.3	B	B	C	11.2	14.1	19.5
11	South Road / Raleigh Road & Country Club Drive	D	D	D	36.1	35.6	39.9	D	D	D	36.6	35.8	40.3	N/A	N/A	N/A	N/A	N/A	N/A
12	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (West) [@]	C	C	E	19.0	15.7	37.3	C	C	F	20.8	18.0	76.5	N/A	N/A	N/A	N/A	N/A	N/A
13	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (East) [@]	C	C	C	17.4	17.2	24.8	C	B	C	18.4	14.0	17.4	N/A	N/A	N/A	N/A	N/A	N/A
14	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #1 (Eastbound Left-Over) [@]	C	B	C	17.1	12.6	17.1	C	B	C	18.0	13.0	18.0	N/A	N/A	N/A	N/A	N/A	N/A
15	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #2 (RIRO) [@]	C	B	B	15.1	12.2	14.8	C	B	C	15.7	12.6	15.2	N/A	N/A	N/A	N/A	N/A	N/A
16	NC 54 (Raleigh Rd) & Hamilton Road	C	B	C	23.6	17.5	21.5	C	C	C	26.4	20.6	25.1	N/A	N/A	N/A	N/A	N/A	N/A
17	NC 54 (Raleigh Road) & Audley Lane [@]	B	B	B	14.5	11.5	14.6	B	B	C	14.9	11.9	15.4	N/A	N/A	N/A	N/A	N/A	N/A
18	NC 54 (Raleigh Road) & Burning Tree Drive / Finley Golf Course Road	A	A	B	9.2	9.0	13.6	A	A	B	9.5	9.2	14.3	N/A	N/A	N/A	N/A	N/A	N/A
19	NC 54 (Raleigh Road) & W. Barbee Chapel Road	B	B	C	18.2	12.9	20.1	B	B	C	19.1	13.5	20.7	N/A	N/A	N/A	N/A	N/A	N/A
20	NC 54 (Raleigh Road) & Meadowmont Lane / Friday Center Drive	C	B	D	23.8	18.1	39.0	C	B	D	24.0	18.1	40.7	N/A	N/A	N/A	N/A	N/A	N/A
21	NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Road Extension	D	B	C	38.6	17.1	26.8	D	B	C	40.3	17.1	28.2	N/A	N/A	N/A	N/A	N/A	N/A
22	E. Franklin Street & Estes Drive	D	D	E	53.8	53.6	68.5	D	D	E	54.5	54.2	69.9	D	D	D	41.5	41.9	48.0
23	Willow Drive & Estes Drive	B	B	B	12.0	13.3	15.1	B	B	B	11.9	13.3	15.1	N/A	N/A	N/A	N/A	N/A	N/A
24	Cleland Road & Hayes Drive [@]	A	A	B	9.8	9.5	12.7	A	A	B	9.8	9.5	12.7	N/A	N/A	N/A	N/A	N/A	N/A
25	Cleland Road & Hamilton Road [@]	A	A	D	9.9	9.6	25.6	A	A	D	9.1	9.1	26.4	N/A	N/A	N/A	N/A	N/A	N/A
27	Cleland Drive & Burning Tree Drive [@]	A	A	A	8.2	7.7	8.2	A	A	A	8.3	7.8	8.3	N/A	N/A	N/A	N/A	N/A	N/A
28	Pinehurst Drive & Burning Tree Drive [@]	B	A	B	10.5	9.9	11.9	B	A	B	10.6	10.0	12.0	N/A	N/A	N/A	N/A	N/A	N/A
29	Brandon Road & Hayes Road [@]	A	A	A	9.8	9.3	9.5	A	A	A	9.8	9.3	9.5	N/A	N/A	N/A	N/A	N/A	N/A
30	Beckley Road & Oakwood Drive [@]	A	A	A	7.3	7.1	7.2	A	A	A	7.5	7.1	7.2	N/A	N/A	N/A	N/A	N/A	N/A
31	US 15-501 Bypass (Fordham Boulevard) & Proposed Site Entrance	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	4.7	5.7	8.0	A	A	A	4.5	5.1	7.8
91	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	A	A	21.3	6.0	7.2
92	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	9.2	6.4	6.2
61	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	1.1	1.0	1.6

N/A – Not Applicable, i.e. movement is non-existent or no improvements made

* - No Movement Capacity Estimated By HCM Methodology, Delay Theoretically Infinite

@ - Unsignalized Intersection, LOS/Delay Values Correspond to Worst-Case Critical Movement

BOLD/ITALICS – Movement or Overall Intersection is over capacity as defined by Town of Chapel Hill TIS Standards

- Estimated LOS/Delay For Yield-Controlled Movement Based on HCM Stop-Controlled Methodology

BLUE = New/Proposed Intersections



iv.) 2023 Phase 2 Scenario Results

Table 24 presents results for the 2023 analysis year estimated traffic conditions, including impacts of site-related traffic from the Phase 2 redevelopment of Glen Lennox. An operations summary for each analysis scenario is given below. It is assumed that all proposed improvements and changes in access analyzed in the 2018 Phase 1 scenarios would be in effect for the 2023 analysis scenarios.

2023 No-Build Scenario Results

With recommended improvements from the 2018 Phase 1 scenario, most study area intersections maintain acceptable delays and LOS in the 2023 No-Build scenario. This scenario assumes that proposed modifications to the US 15-501 intersections at Ephesus Church Road and Elliot Road are implemented by the 2023 Phase 2 analysis year (per the Ephesus Road Small Area Plan). Without these improvements, the US 15-501/Ephesus Church Road intersection would exceed capacity in at least one peak hour.

Even with the proposed superstreet improvements at US 15-501 and Old Mason Farm Road, the 2023 AM peak hour LOS is still expected to be a LOS E, necessitating additional improvements as described below.

The stop controlled US 15-501 southbound off-ramp intersection with Raleigh Road eastbound is expected to operate at LOS F, with excessive queuing in the 2023 PM Peak hour.

The intersection of East Franklin Street and Estes Drive, even with 2018 Phase 1 improvements is expected to be over capacity in the PM peak hour.

2023 Build – Phase 2 Scenario Results

Additional Phase 2 site traffic will marginally increase vehicular delays throughout the project study area. In two locations, at NC 54 (Raleigh Road) and Hamilton Road and NC 54 (Raleigh Road) and E. Barbee Chapel Road, overall intersection operations drop to LOS E in at least one peak hour. Intersections that are expected to experience a deficient LOS in the 2023 No-Build Scenario will also experience these conditions in the Build – Phase 2 Scenario.

2023 Build – Phase 2 with Mitigation Results

To mitigate intersections that operate below an overall LOS D in the 2023 No-Build and/or Build Scenarios, the following improvements are recommended:

- **US 15-501 (Fordham Boulevard) & Old Mason Farm Road** – Due to high traffic projections for US 15-501 through movements at this intersection, additional throughput capacity is necessary to allow the superstreet intersection to function adequately. The existing northbound approach lane configuration should be modified to allow the existing right-turn auxiliary lane to function as a shared through/right-turn lane. This lane should be extended northbound to the NC 54 interchange where it would directly tie into the existing eastbound NC 54 off-ramp.
- **US 15-501 (Fordham Boulevard) Southbound Off-Ramp & Raleigh Road Eastbound** – This unsignalized intersection is expected to experience LOS F conditions for the off-ramp stop-controlled movement in the PM peak hour, due to increasing traffic volumes on eastbound Raleigh Road that limit acceptable gaps to make a right-turn. The short weaving area downstream of the intersection does allow stopped vehicles to



enter the traffic stream, but causes a safety issue with the short acceleration lane that is available for merging. To improve these conditions, it is recommended that this approach be signalized and the merge into the traffic stream be made directly into the outer through travel lane along Raleigh Road.

- **NC 54 (Raleigh Road) & Hamilton Road** – Due to the fact that a large proportion of Glen Lennox Phase 2 site-related traffic may utilize this intersection for access to/from the site, additional intersection improvements are necessary to maintain adequate LOS in the AM and PM peak hours. It is recommended to widen NC 54 to include dual left-turn lanes eastbound and to improve the southbound approach to include dual left-turn lanes, a through lane and an exclusive right-turn lane. The existing signal phasing configuration will need to be updated for protected-only phasing for left-turn movements and overlap phasing for exclusive right-turn lanes.
- **NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Road Extension** – This intersection is expected to operate at a deficient LOS E in the 2023 AM Peak hour with or without Phase 2 site traffic. The recommended improvement at this intersection is to implement the full access connection of Marriott Way between E. Barbee Chapel Road and Friday Center Drive – as described in the *NC 54 / I-40 Corridor Study – Transportation and Land Use Plan*. This connection will decrease left-turn and right-turn volumes at several approaches at the NC 54 intersections with E. Barbee Chapel Road and Meadowmont Lane/Friday Center Drive.
- **East Franklin Street and Estes Drive** – This intersection is expected to operate at an overall LOS E in the 2023 analysis year with or without site traffic. Additional capacity is necessary to improve operations to a LOS D, which can be achieved by adding a second through travel lane eastbound on Estes Drive. This lane would need to be developed several hundred feet upstream to accommodate projected peak hour queues.

Figure 15 displays worst-case peak hour LOS results for all existing and proposed study area intersections included in the 2023 Phase 2 analysis year for 2023 No-Build, Build, and Mitigation Scenarios.



Table 24. Capacity Analysis Results for Study Area Intersections (2023 Phase 2 Analysis Year)

ID	Intersection Name	2023 No-Build Scenario (Includes Phase 1)						2023 Build Phase 2 Scenario						2023 Build Phase 2 with Mitigation					
		LOS			Average Delay (sec/vehicle)			LOS			Average Delay (sec/vehicle)			LOS			Average Delay (sec/vehicle)		
		AM	Noon	PM	AM	Noon	PM	AM	Noon	PM	AM	Noon	PM	AM	Noon	PM	AM	Noon	PM
1	US 15-501 Bypass (Fordham Blvd) & Ephesus Church Road	D	D	D	40.6	50.8	51.3	D	D	D	41.7	51.6	52.7	N/A	N/A	N/A	N/A	N/A	N/A
2	US 15-501 Bypass (Fordham Blvd) & Elliot Road	C	C	C	26.4	33.0	30.0	C	C	C	28.0	33.2	31.1	N/A	N/A	N/A	N/A	N/A	N/A
3	US 15-501 Bypass (Fordham Blvd) & Willow Drive	B	C	C	13.0	25.8	21.8	B	C	C	13.3	26.1	23.0	N/A	N/A	N/A	N/A	N/A	N/A
4	US 15-501 Bypass (Fordham Blvd) & Estes Drive	C	C	C	26.1	28.2	33.0	C	C	D	22.8	28.6	35.9	N/A	N/A	N/A	N/A	N/A	N/A
5	US 15-501 Bypass (Fordham Blvd) & Cleland Road	A	A	B	8.1	5.5	12.5	A	A	B	8.1	5.4	13.6	N/A	N/A	N/A	N/A	N/A	N/A
6	US 15-501 Bypass (Fordham Blvd) & Brandon Road	A	A	B	6.8	7.7	10.1	A	A	B	6.9	7.9	10.7	N/A	N/A	N/A	N/A	N/A	N/A
7	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Rd) Interchange Ramps (North)	C	B	C	21.3	15.2	31.6	C	B	D	23.2	16.4	41.5	N/A	N/A	N/A	N/A	N/A	N/A
8	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Rd) Interchange Ramps (South) @	C	C	E	21.8	18.4	45.8	C	C	E	22.5	19.1	48.2	N/A	N/A	N/A	N/A	N/A	N/A
9	US 15-501 / NC 54 Bypass (Fordham Blvd) & Old Mason Farm Road	E	B	B	59.4	16.8	19.4	E	C	C	69.2	28.5	33.8	C	C	C	26.7	28.5	27.6
10	US 15-501 / NC 54 Bypass (Fordham Blvd) & Manning Drive	B	B	C	13.7	14.9	30.4	B	B	C	16.1	16.2	28.0	N/A	N/A	N/A	N/A	N/A	N/A
11	South Road / Raleigh Road & Country Club Drive	D	D	D	39.9	36.2	42.9	D	D	D	42.3	36.5	43.7	N/A	N/A	N/A	N/A	N/A	N/A
12	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (West) @	C	C	F	24.2	20.2	115.9	E	C	F	38.3	23.0	145.0	A	A	B	8.4	7.7	18.5
13	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (East) @	C	B	C	19.7	14.7	18.6	C	C	C	20.6	15.3	20.4	N/A	N/A	N/A	N/A	N/A	N/A
14	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #1 (Eastbound Left-Over) @	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #2 (RIRO) @	C	C	C	21.5	15.3	20.4	C	C	C	22.4	15.9	22.8	N/A	N/A	N/A	N/A	N/A	N/A
16	NC 54 (Raleigh Rd) & Hamilton Road	C	C	C	34.3	23.9	31.4	E	C	E	73.5	32.2	63.4	D	C	D	40.8	28.4	40.1
17	NC 54 (Raleigh Road) & Audley Lane @	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	NC 54 (Raleigh Road) & Burning Tree Drive / Finley Golf Course Road	B	B	B	12.0	12.0	16.0	B	B	B	13.8	12.6	19.0	N/A	N/A	N/A	N/A	N/A	N/A
19	NC 54 (Raleigh Road) & W. Barbee Chapel Road	B	B	C	19.3	17.9	21.6	C	B	C	21.0	18.9	22.4	N/A	N/A	N/A	N/A	N/A	N/A
20	NC 54 (Raleigh Road) & Meadowmont Lane / Friday Center Drive	C	C	D	27.5	26.3	46.3	C	C	D	28.5	25.6	54.3	N/A	N/A	N/A	N/A	N/A	N/A
21	NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Road Extension	D	B	C	50.5	19.0	28.3	E	B	C	60.9	18.9	34.2	D	B	C	46.1	18.7	33.1
22	E. Franklin Street & Estes Drive	D	D	E	46.7	47.7	58.2	D	D	E	47.7	48.5	60.0	D	D	D	44.0	45.3	50.6
23	Willow Drive & Estes Drive	B	B	B	13.8	14.7	17.0	B	B	B	13.2	14.6	17.1	N/A	N/A	N/A	N/A	N/A	N/A
24	Cleland Road & Hayes Drive @	A	A	B	9.9	9.6	13.0	A	A	B	9.9	9.6	13.0	N/A	N/A	N/A	N/A	N/A	N/A
25	Cleland Road & Hamilton Road @	A	A	D	9.2	9.2	30.9	A	A	D	9.2	9.2	33.6	N/A	N/A	N/A	N/A	N/A	N/A
27	Cleland Drive & Burning Tree Drive @	A	A	A	8.4	7.8	8.4	A	A	A	8.5	7.9	8.6	N/A	N/A	N/A	N/A	N/A	N/A
28	Pinehurst Drive & Burning Tree Drive @	B	B	B	10.9	10.1	12.4	B	B	B	11.1	10.3	12.8	N/A	N/A	N/A	N/A	N/A	N/A
29	Brandon Road & Hayes Road @	A	A	A	9.9	9.4	9.5	A	A	A	9.9	9.4	9.5	N/A	N/A	N/A	N/A	N/A	N/A
30	Beckley Road & Oakwood Drive @	A	A	A	7.5	7.1	7.2	A	A	A	7.7	7.2	7.3	N/A	N/A	N/A	N/A	N/A	N/A
31	US 15-501 Bypass (Fordham Boulevard) & Proposed Site Entrance	A	A	A	4.5	4.7	7.0	A	A	B	8.3	7.5	11.3	N/A	N/A	N/A	N/A	N/A	N/A
91	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #1	C	A	A	33.3	7.0	9.8	D	A	A	43.8	6.8	9.6	N/A	N/A	N/A	N/A	N/A	N/A
92	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #2	A	A	A	9.5	6.9	7.9	B	A	B	11.1	6.9	11.4	N/A	N/A	N/A	N/A	N/A	N/A
61	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #3	A	A	A	1.1	1.1	1.3	A	A	A	1.2	1.1	1.5	N/A	N/A	N/A	N/A	N/A	N/A

N/A – Not Applicable, i.e. movement is non-existent or no improvements made

* - No Movement Capacity Estimated By HCM Methodology, Delay Theoretically Infinite

@ - Unsignalized Intersection, LOS/Delay Values Correspond to Worst-Case Critical Movement

BOLD/ITALICS – Movement or Overall Intersection is over capacity as defined by Town of Chapel Hill TIS Standards

- Estimated LOS/Delay For Yield-Controlled Movement Based on HCM Stop-Controlled Methodology

BLUE = New/Proposed Intersections



v.) 2028 Phase 3 Full Build-Out Scenario Results

Table 25 presents results for 2028 analysis year estimated traffic conditions, including impacts of site-related traffic from the Phase 3 redevelopment of Glen Lennox. An operations summary for each intersection is given after the tables. It is assumed that all proposed improvements and changes in access analyzed in the 2023 Phase 2 scenarios would be in effect for the 2028 analysis scenarios.

2028 No-Build Scenario Results

Several intersections are expected to drop to a deficient LOS E or F in at least one peak hour due to projected background traffic increases between 2023 and 2028. The intersection of US 15-501 and Ephesus Church Road is projected to operate at LOS E in the 2028 PM peak hour with or without the effects of Glen Lennox Phase 3 site traffic. Similarly, the signalized intersection of US 15-501 Southbound and the NC 54 Westbound On-Ramp is expected to drop to LOS E in PM peak hour conditions. The unsignalized intersection of US 15-501 Northbound and the NC 54 Eastbound On-Ramp is expected to operate at LOS F in the 2028 PM peak hour.

Even with proposed northbound US 15-501 throughput improvements from the 2023 mitigation scenario, the US 15-501 (Fordham Boulevard) and Old Mason Farm Road intersection is projected to drop to LOS E in the AM peak hour. In addition, even with the proposed implementation of the Marriott Way connection between E. Barbee Chapel Road and Friday Center Drive in the 2023 analysis year, the intersection of NC 54 (Raleigh Road) and E. Barbee Chapel Road is expected to drop to LOS E in the 2028 analysis year AM peak hour.

2028 Build – Phase 3 Scenario Results

No additional intersections are expected to exceed the LOS D threshold with the addition of Phase 3 site-related traffic, though most intersections will experience a marginal increase in overall delay. All operational issues discussed in the 2028 No-Build scenario synopsis above are expected to also occur in the 2028 Build – Phase 3 scenario.

2028 Build – Phase 3 with Mitigation Results

To mitigate intersections that operate below an overall LOS D in the 2028 No-Build and/or Build Scenarios, the following improvements are recommended:

- **US 15-501 (Fordham Boulevard) & Ephesus Church Road** – To improve overall operations at this intersection to LOS D in all peak hours, an exclusive eastbound right-turn lane with 150 feet of storage is recommended, along with right-turn overlap signal phasing modifications.
- **US 15-501 (Fordham Boulevard) Southbound & NC 54 Westbound On-Ramp** – Increasing traffic volumes on both approaches are expected to eventually push this intersection beyond the LOS D threshold in the 2028 PM peak hour. More significant mitigation than basic capacity improvements are necessary to prevent queue spillback on the ramp and to maintain traffic flow downstream along US 15-501. It is recommended that the on-ramp be converted to a free flow lane and US 15-501 be widened to three lanes southbound down to Manning Drive. The resulting weaving section on US 15-501 southbound between the on-ramp and downstream off-ramp is expected to operate acceptably for all peak hours if the downstream off-ramp also features a deceleration lane to remove vehicles from the traffic stream.



- **US 15-501 (Fordham Boulevard) & Old Mason Farm Road** – Even with proposed US 15-501 Northbound improvements from the 2023 mitigation scenario in place, this superstreet intersection is expected to operate at LOS E in the 2028 AM peak hour. To mitigate this deficiency and increase overall intersection throughput, an additional southbound through travel lane is recommended.
- **NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Road Extension** – Even with the proposed connection of Marriott Way between E. Barbee Chapel Road and Friday Center Drive, this intersection is expected to drop to LOS E in the 2028 analysis year AM peak hour. To mitigate this potential issue, a second northbound left-turn lane on E. Barbee Chapel Road is recommended, along with the widening of NC 54 to three travel lanes in each direction to the east of the intersection. No additional analysis of potential superstreet improvements (as recommended in the NC 54/ I-40 Corridor Study) were conducted for this intersection, though these recommendations may also mitigate issues along the NC 54 corridor in this vicinity.

Figure 16 displays worst-case peak hour LOS results for all existing and proposed study area intersections included in the 2028 Phase 3 analysis year for 2028 No-Build, Build, and Mitigation Scenarios.



Table 25. Capacity Analysis Results for Study Area Intersections (2028 Phase 3 Analysis Year)

ID	Intersection Name	2028 No-Build Scenario (Includes Phase 1 & 2)						2028 Build Phase 3 Scenario						2028 Build Phase 3 with Mitigation					
		LOS			Average Delay (sec/vehicle)			LOS			Average Delay (sec/vehicle)			LOS			Average Delay (sec/vehicle)		
		AM	Noon	PM	AM	Noon	PM	AM	Noon	PM	AM	Noon	PM	AM	Noon	PM	AM	Noon	PM
1	US 15-501 Bypass (Fordham Blvd) & Ephesus Church Road	D	D	E	42.2	53.8	55.5	D	D	E	42.3	54.2	56.0	D	D	D	39.2	46.5	47.9
2	US 15-501 Bypass (Fordham Blvd) & Elliot Road	C	C	C	27.7	33.9	33.6	C	C	C	27.9	34.0	34.4	N/A	N/A	N/A	N/A	N/A	N/A
3	US 15-501 Bypass (Fordham Blvd) & Willow Drive	B	C	C	14.6	28.5	25.5	B	C	C	14.4	28.6	26.5	N/A	N/A	N/A	N/A	N/A	N/A
4	US 15-501 Bypass (Fordham Blvd) & Estes Drive	C	C	D	30.5	29.7	47.5	C	C	D	30.9	30.1	49.6	N/A	N/A	N/A	N/A	N/A	N/A
5	US 15-501 Bypass (Fordham Blvd) & Cleland Rd	A	A	B	8.3	5.7	16.7	A	A	B	8.4	5.7	18.6	N/A	N/A	N/A	N/A	N/A	N/A
6	US 15-501 Bypass (Fordham Blvd) & Brandon Rd	A	A	B	6.8	8.1	10.7	A	A	B	7.1	8.3	11.0	N/A	N/A	N/A	N/A	N/A	N/A
7	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Rd) Interchange Ramps (North)	D	B	E	35.4	17.8	58.3	D	B	E	37.4	18.4	60.6	C^{&}	B^{&}	C^{&}	26.6^{&}	22.7^{&}	30.8^{&}
8	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Rd) Interchange Ramps (South) [@]	C	C	F	24.3	20.5	69.0	C	C	F	24.7	20.8	69.8	N/A^{\$}	N/A^{\$}	N/A^{\$}	N/A^{\$}	N/A^{\$}	N/A^{\$}
9	US 15-501 / NC 54 Bypass (Fordham Blvd) & Old Mason Farm Road	E	C	D	60.8	31.8	40.9	E	C	D	62.7	31.7	43.3	C	C	B	21.6	29.9	13.8
10	US 15-501 / NC 54 Bypass (Fordham Blvd) & Manning Drive	C	B	D	22.9	17.6	46.5	C	B	D	23.0	18.0	46.3	N/A	N/A	N/A	N/A	N/A	N/A
11	South Road / Raleigh Road & Country Club Drive	D	D	D	47.6	37.1	46.9	D	D	D	47.8	37.2	47.0	N/A	N/A	N/A	N/A	N/A	N/A
12	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (West)	B	A	C	13.1	7.9	20.4	B	A	C	13.3	8.3	20.7	N/A	N/A	N/A	N/A	N/A	N/A
13	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (East) [@]	C	C	C	22.2	16.0	22.0	C	C	C	22.7	16.2	22.5	N/A	N/A	N/A	N/A	N/A	N/A
14	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #1 (Eastbound Left-Over) [@]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #2 (RIRO) [@]	C	C	C	24.5	16.6	24.8	D	C	D	25.1	16.9	25.6	N/A	N/A	N/A	N/A	N/A	N/A
16	NC 54 (Raleigh Rd) & Hamilton Road	D	C	D	49.4	28.8	45.5	D	C	D	54.4	31.1	52.8	N/A	N/A	N/A	N/A	N/A	N/A
17	NC 54 (Raleigh Road) & Audley Lane [@]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	NC 54 (Raleigh Road) & Burning Tree Drive / Finley Golf Course Road	B	B	C	16.9	14.1	31.1	B	B	C	17.4	14.6	33.3	N/A	N/A	N/A	N/A	N/A	N/A
19	NC 54 (Raleigh Road) & W. Barbee Chapel Road	C	C	C	22.3	20.9	20.3	C	C	C	22.7	21.1	20.4	N/A	N/A	N/A	N/A	N/A	N/A
20	NC 54 (Raleigh Road) & Meadowmont Lane / Friday Center Drive	C	C	D	30.7	25.3	48.9	C	C	D	31.7	25.5	50.3	N/A	N/A	N/A	N/A	N/A	N/A
21	NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Road Extension	E	B	D	56.8	19.7	41.3	E	B	D	57.1	19.8	43.5	D	B	C	40.4	18.1	29.7
22	E. Franklin Street & Estes Drive	D	D	D	41.5	47.1	53.9	D	D	D	41.7	47.3	54.4	N/A	N/A	N/A	N/A	N/A	N/A
23	Willow Drive & Estes Drive	C	B	B	22.9	15.0	15.3	C	B	B	22.9	15.0	15.3	N/A	N/A	N/A	N/A	N/A	N/A
24	Cleland Road & Hayes Drive [@]	B	A	B	10.0	9.7	13.6	B	A	B	10.0	9.7	13.6	N/A	N/A	N/A	N/A	N/A	N/A
25	Cleland Road & Hamilton Road [@]	A	A	E	9.1	9.2	42.8	A	A	E	9.1	9.2	43.5	N/A	N/A	N/A	N/A	N/A	N/A
27	Cleland Drive & Burning Tree Drive [@]	A	A	A	8.6	8.0	8.8	A	A	A	8.6	8.0	8.8	N/A	N/A	N/A	N/A	N/A	N/A
28	Pinehurst Drive & Burning Tree Drive [@]	B	B	B	11.3	10.5	13.3	B	B	B	11.4	10.6	13.4	N/A	N/A	N/A	N/A	N/A	N/A
29	Brandon Road & Hayes Road [@]	A	A	A	9.9	9.5	9.6	A	A	A	9.9	9.5	9.6	N/A	N/A	N/A	N/A	N/A	N/A
30	Beckley Road & Oakwood Drive [@]	A	A	A	7.7	7.2	7.3	A	A	A	7.7	7.2	7.3	N/A	N/A	N/A	N/A	N/A	N/A
31	US 15-501 Bypass (Fordham Boulevard) & Proposed Site Entrance	A	A	B	6.4	7.6	13.1	A	A	B	6.9	8.1	14.3	N/A	N/A	N/A	N/A	N/A	N/A
91	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #1	E	A	B	69.1	7.1	15.4	E	A	B	69.1	7.2	15.7	B	A	B	15.0	7.4	12.2
92	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #2	A	A	B	8.0	7.3	13.0	A	A	B	8.3	7.4	14.6	N/A	N/A	N/A	N/A	N/A	N/A
61	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #3	A	A	A	1.3	1.2	2.0	A	A	A	1.3	1.3	2.2	N/A	N/A	N/A	N/A	N/A	N/A

N/A – Not Applicable, i.e. movement is non-existent or no improvements made

* - No Movement Capacity Estimated By HCM Methodology, Delay Theoretically Infinite

@ - Unsignalized Intersection, LOS/Delay Values Correspond to Worst-Case Critical Movement

\$ - No Improvements Recommended – 95th %tile Queue Does Not Exceed Storage

BOLD/ITALICS – Movement or Overall Intersection is over capacity as defined by Town of Chapel Hill TIS Standards

- Estimated LOS/Delay For Yield-Controlled Movement Based on HCM Stop-Controlled Methodology

& - LOS and Density Values Given for Downstream Weaving Section Improvement

BLUE = New/Proposed Intersections



B.) Generalized Daily Arterial Volume/Capacity (V/C) Analysis

A generalized daily arterial capacity analysis was conducted for existing and 2040 long range planning-level future conditions. Data for this analysis was taken from the latest version of the Triangle Regional Travel Demand Model (TRM). Both generalized peak hour and/or daily volume/capacity link analyses are more applicable to long range future conditions. In most cases, study area traffic operations are better explained by peak hour intersection LOS methodologies when current and short range data are available.

The latest TRM data includes forecasts for the year 2040, which is the forecast year for most currently approved Long Range Transportation Plans, as well as a calibrated 2010 base year model. Information for the existing year analysis (using 2011 AADT data, as these are the latest currently available) was taken from NCDOT Traffic Survey Unit information. Information from the TRM was used to determine default daily link capacities for the 2010 base year TRM roadway network and the 2040 future TRM roadway network, along with future daily traffic assignments in 2040. Several study area roadways that have existing 2011 AADT information are not included in the TRM. Estimates of growth for these facilities were made using comparisons of daily traffic assignments at nearby centroid connectors that are used to load traffic onto the TRM networks.

As shown in **Table 26** on the following page, most of the roadways in the study vicinity operate with daily V/C ratios below 0.90 with the input 2011 AADT and 2010 base year TRM daily estimated capacities. When V/C ratios reach the range of 0.90 to 1.00, noticeable periods of congestion may occur on a roadway link as it approaches its threshold capacity. If demand volumes exceed threshold capacity ($V/C > 1.0$), significant congestion may occur during peak travel periods. Only one study area segment, NC 54 east of E. Barbee Chapel Road is currently "over capacity" using this methodology. One additional segment is "near capacity", located along US 15-501 (Fordham Boulevard) between Old Mason Farm Road and the NC 54 interchange.



Table 26.
2013 Daily Volume/Capacity Analysis for Selected Study Area Road Segments

Roadway Facility	Segment Limit		2011 NCDOT AADT	2010 Capacity (vpd)	V/C Ratio
	From	To			
NC 54 / US 15-501 Bypass (Fordham Blvd)	NC 86 (S. Columbia St)	Manning Drive	41,000	52,600	0.78
	Old Mason Farm Road	NC 54 (Raleigh Road)	51,000	52,600	0.97
US 15-501 Bypass (Fordham Blvd)	NC 54 (Raleigh Road)	Brandon Road	33,700#	52,600	0.64
	Cleland Road	Estes Drive	38,000	52,600	0.72
	Estes Drive	Willow Drive	30,000	52,600	0.57
NC 54 (Raleigh Road)	US 15-501 (Fordham Blvd)	Hamilton Road	46,000	65,200	0.71
	Finley Golf Course Road	W. Barbee Chapel Road	44,000	78,800	0.56
	E. Barbee Chapel Road	Little John Road	42,000	35,500	1.18
Eastgate Shopping Ctr	E. Franklin Street	US 15-501 (Fordham Blvd)	7,900	14,700	0.54
Ephesus Church Road	US 15-501 (Fordham Blvd)	Legion Road	10,000	17,500	0.57
Elliott Road	E. Franklin Street	US 15-501 (Fordham Blvd)	6,900	14,900	0.46
Willow Drive	Estes Drive	US 15-501 (Fordham Blvd)	6,200	17,500	0.35
	US 15-501 (Fordham Blvd)	Spruce Street	2,500	14,700	0.17
Estes Drive	Buriage Circle	E. Franklin Street	15,000	17,500	0.86
	E. Franklin Street	Willow Drive	16,000	35,200	0.45
	Willow Drive	US 15-501 (Fordham Blvd)	13,000	35,200	0.37
E. Franklin Street	Meadowbrook Drive	Estes Drive	18,000	43,400	0.41
	Estes Drive	Couch Road	23,000	43,400	0.53
Cleland Road	US 15-501 (Fordham Blvd)	Hamilton Road	1,600	13,200	0.12
South Road	Raleigh Street	Country Club Drive	10,000	17,800	0.56
Raleigh Road	Greenwood Road	US 15-501 (Fordham Blvd)	20,000	43,400	0.46
Country Club Road	Cobb Drive	South Road/Raleigh Road	12,000	14,700	0.82
	South Road/Raleigh Road	Ridge Road	8,000	14,700	0.54
Manning Drive	Skipper Bowles Drive	US 15-501/NC 54 Bypass	17,000	35,200	0.48
Old Mason Farm Road	US 15-501/NC 54 Bypass	Finley Golf Course Road	2,300	17,500	0.13
Finley Golf Course Rd	NC 54 (Raleigh Road)	Old Mason Farm Road	2,400	17,500	0.14
Burning Tree Lane	NC 54 (Raleigh Road)	Cleland Road	1,700	13,200	0.13
E. Barbee Chapel Rd	NC 54 (Raleigh Road)	Finley Forest Drive	11,000	17,500	0.63

vpd = vehicles per day

Data Sources: 2011 AADT Counts from NCDOT Traffic Survey Group and April 2013 Field Count (#)

Daily capacity data from the TRM Version 5 – 2010 Base Year



Table 27 displays a V/C comparison between estimated daily 2040 No-Build and Build Scenarios. The No-Build scenario was developed by assuming that existing levels of TRM daily traffic assignment to and from the existing Glen Lennox site would remain the same for the 2040 analysis year. Since the 2040 TRM model assumes that the Glen Lennox area would produce additional daily trips compared to existing conditions, these additional trips were “removed” from 2040 daily TRM assignments by:

- Calculating total daily traffic assignments to/from Glen Lennox in the 2010 and 2040 models and subtracting the 2010 values from 2040.
- The daily traffic assignment difference for Glen Lennox was applied to the study area roadways using site trip distribution percentages already developed for peak hour analyses and proportioning daily site trip generation estimates by the assumed distribution percentages.

The Build scenario was developed by first subtracting the 2010 base year total daily traffic assignment to/from Glen Lennox from the total ultimate build-out external daily vehicle trip generation estimate. This results in the “net” Glen Lennox redevelopment trips to be added to the 2040 No-Build scenario estimates described above. Similar to the No-Build distribution and assignment process, build scenario “net” trips were distributed using site trip distribution percentages already developed for peak hour analyses and proportioning daily site trip generation estimates by the assumed distribution percentages.

As shown in **Table 27**, the TRM daily assignment data predicts small to moderate (2 to 10 percent) daily traffic volume increases on most study area facilities, thus driving up daily V/C ratios for the 2040 roadway network, which does feature some capacity improvements to the US 15-501 and NC 54 corridors to mitigate some of the projected overall traffic growth.

No-Build and Build results indicate that daily V/C's exceeding 1.0 may be expected along several areas of NC 54 (Raleigh Road) and US 15-501 (Fordham Boulevard) indicating potential congestion issues with or without Glen Lennox redevelopment total build-out impact. Additional congestion issues, based on the 2040 daily traffic assignments from the TRM, may occur on the eastern side of UNC's Main Campus (South Road, Country Club Road, Raleigh Road), as well as in the vicinity of Elliott Road west of US 15-501.

No additional changes to the TRM have been made for any recommendations for mitigation improvements related to this Glen Lennox Redevelopment TIS.



Table 27. 2040 Daily No-Build/Build Volume/Capacity Analysis for Selected Study Area Road Segments

Roadway Facility	Segment Limit		2040 Assignment		2040 Capacity (vpd)	V/C Ratio		% Chg
	From	To	No-Build (vpd)	Build (vpd)		No-Build	Build	
NC 54 / US 15-501 Bypass (Fordham Blvd)	NC 86 (S. Columbia St)	Manning Drive	57,200	58,800	78,800	0.73	0.75	2.8%
	Old Mason Farm Road	NC 54 (Raleigh Road)	78,700	80,900	78,800	1.00	1.03	2.8%
US 15-501 Bypass (Fordham Blvd)	NC 54 (Raleigh Road)	Brandon Road	56,300	60,400	58,900	0.96	1.03	7.3%
	Cleland Road	Estes Drive	60,700	64,100	58,900	1.03	1.09	5.6%
	Estes Drive	Willow Drive	50,300	52,800	58,900	0.85	0.90	5.0%
NC 54 (Raleigh Road)	US 15-501 (Fordham Blvd)	Hamilton Road	87,900	96,100	65,200	1.35	1.47	9.3%
	Finley Golf Course Road	W. Barbee Chapel Road	94,600	99,300	88,200	1.07	1.13	5.0%
	E. Barbee Chapel Road	Little John Road	87,500	91,000	88,200	0.99	1.03	4.0%
Eastgate Shopping Center	E. Franklin Street	US 15-501 (Fordham Blvd)	10,000	10,100	14,200	0.70	0.71	1.0%
Ephesus Church Road	US 15-501 (Fordham Blvd)	Legion Road	7,000	7,000	17,500	0.40	0.40	0.0%
Elliott Road	E. Franklin Street	US 15-501 (Fordham Blvd)	16,800	16,900	14,900	1.13	1.13	0.6%
Willow Drive	Estes Drive	US 15-501 (Fordham Blvd)	9,100	9,200	17,500	0.52	0.53	1.1%
	US 15-501 (Fordham Blvd)	Spruce Street	3,600	3,700	14,700	0.24	0.25	2.8%
Estes Drive	Buriage Circle	E. Franklin Street	19,000	19,600	21,700	0.88	0.90	3.2%
	E. Franklin Street	Willow Drive	20,000	20,700	35,200	0.57	0.59	3.5%
	Willow Drive	US 15-501 (Fordham Blvd)	25,400	26,300	35,200	0.72	0.75	3.5%
E. Franklin Street	Meadowbrook Drive	Estes Drive	29,700	29,800	43,400	0.68	0.69	0.3%
	Estes Drive	Couch Road	24,800	24,800	43,400	0.57	0.57	0.0%
Cleland Road	US 15-501 (Fordham Blvd)	Hamilton Road	2,900	2,900	13,200	0.22	0.22	0.0%
South Road	Raleigh Street	Country Club Drive	23,100	23,900	17,800	1.30	1.34	3.5%
Raleigh Road	Greenwood Road	US 15-501 (Fordham Blvd)	42,600	43,700	43,400	0.98	1.01	2.6%
Country Club Road	Cobb Drive	South Road/Raleigh Road	15,000	15,200	14,700	1.02	1.03	1.3%
	South Road/Raleigh Road	Ridge Road	5,100	5,200	14,700	0.35	0.35	2.0%
Manning Drive	Skipper Bowles Drive	US 15-501/NC 54 Bypass	27,200	27,800	35,200	0.77	0.79	2.2%
Old Mason Farm Road	US 15-501/NC 54 Bypass	Finley Golf Course Road	4,100	4,100	17,500	0.23	0.23	0.0%
Finley Golf Course Road	NC 54 (Raleigh Road)	Old Mason Farm Road	3,500	3,500	17,500	0.20	0.20	0.0%
Burning Tree Lane	NC 54 (Raleigh Road)	Cleland Road	1,000	1,100	14,200	0.07	0.08	10.0%
E. Barbee Chapel Road	NC 54 (Raleigh Road)	Finley Forest Drive	14,800	15,200	17,500	0.85	0.87	2.7%

vpd = vehicles per day

GREEN = Links With Capacity Improvements Compared To 2010 Base Year TRM Network

Data Sources: Daily No-Build Assignment and capacity data from the 2035 TRM Model – Build Assignments Calculated from Daily Site Trip Distribution Estimates for Glen Lennox Development



C. Access Analysis

Initial site concept plans for vehicular site access propose the following:

- maintain two existing access driveways along NC 54 along with Audley Lane, and the existing full access at Hamilton Road;
- maintain existing local street connections with Berkley Road to the east and Hamilton Road and Maxwell Road to the north;
- maintain the existing internal “grid” local street network to provide access to all redevelopment areas and on-street parking, surface parking, and structured parking;
- maintain existing Brandon Road full access to US 15-501 (Fordham Boulevard); and
- create a new full access connection to US 15-501 (Fordham Boulevard) approximately 1,100 feet north of the NC 54 interchange ramp connections to US 15-501 and 750 feet south of Brandon Road.

No specific laneage or geometric details are shown on the concept plan at this time, other than general designations of roadway alignments.

Driveway throat lengths are not shown on the proposed site concept plan, although the following distances can be estimated to the first internal street intersection/major driveway:

- Existing Site Driveways along NC 54 and Audley Lane – no change from existing conditions
- Hamilton Road along NC 54 – 250 feet
- Proposed New Access along US 15-501 – 200 feet

Driveway laneage and storage capacity geometrics were developed by utilizing future scenario peak hour capacity analysis results related to 95th percentile queue lengths at each driveway. Based on recommended configurations for each driveway and access point, the capacity analysis results and expected queue lengths from adjacent intersections, the following minimum storage distances were estimated:

- Hamilton Road along NC 54 – 250 feet for Phase 1 traffic, 350 feet for Phase 2 & 3 traffic
- Proposed New Access along US 15-501 – 300 feet for dual westbound right-turn lanes
- Site Driveway #2 (Existing RIRO) along NC 54 – 50 feet

Therefore any internal roadway intersection needs to consider these minimum storage distances plus any additional distance for turn lanes in the opposite direction (inbound) needed at the first internal street intersection. As is shown in the existing concept plan, Hamilton Road would need modifications in its design to extend throat lengths to 350 feet at full build-out. The proposed Site Access Road along US 15-501 would need to be extended to 300 feet before the first internal driveway. It is also recommended that Hayes Road, along its frontage with US 15-501, be limited to RIRO access at Brandon Road in the both directions and eliminate its potential future access at the proposed Site Access Road intersection completely.

Additional details related to proposed turning bay storage lengths at Glen Lennox access points, and a comparison to Synchro-estimated 95th percentile queue lengths are found in **Table 28**.



Table 28. Comparison of Proposed Storage Bay Lengths and Build-Out Scenario 95th Percentile Synchro Estimated Queues – Glen Lennox Access Points

Intersection	Movement	Proposed Storage Bay Length (Feet)	Synchro Estimated 95 th Percentile Queue Length (Feet)		
			AM Peak	Noon Peak	PM Peak
US 15-501 & Brandon Road – 2028 Ultimate Build-Out	NB LT/U-Turn	250'	100'	100'	125'
	NB RT	150'	25'	25'	25'
	SB LT/U-Turn	250'	75'	75'	150'
	SB RT	150'	25'	25'	25'
	EB RT	50'	50'	50'	50'
	WB RT	275'	75'	100'	125'
US 15-501 & Proposed Site Access Road – 2028 Ultimate Build-Out	NB RT	750' (Drop)	25'	25'	50'
	SB LT/U-Turn	300' (Dual)	150'	100'	100'
	WB RT	300'	150'	150'	300'
NC 54 (Raleigh Road) & Site Access Driveway #2	SB RT	50'	50'	50'	50'
NC 54 (Raleigh Road) & Hamilton Road – Phase 1 2018 Improvements	SB LT	250'	125'	150'	175'
	SB THRT	N/A	150'	125'	175'
	EB LT	300'	125'	175'	250'
	WB LT	250' (Existing)	50'	100'	100'
	WB RT	250'	25'	25'	50'
NC 54 (Raleigh Road) & Hamilton Road – 2028 Ultimate Build-Out	SB LT	350' (Dual)	200'	250'	350'
	SB TH	N/A	75'	50'	75'
	SB RT	N/A (Drop)	300'	300'	700'
	EB LT	300' (Dual)	200'	150'	175'
	WB LT	250' (Existing)	125'	200'	225'
	WB RT	250'	75'	50'	125'

As shown in **Table 28**, proposed/recommended storage bay distances for access roadways to/from Glen Lennox provide adequate storage capacity based on estimated 95th percentile Synchro queue lengths. Some recommended distances include a factor of safety, considering the potential variability of site access traffic patterns over the duration of the redevelopment.

Driveway and local street access distances along US 15-501 from the signalized intersections at Estes Drive and NC 54 On-Ramp are acceptable, based on recommendations of 100 foot minimum corner clearance as set forth in the 2003 *NCDOT Policy on Street and Driveway Access to North Carolina Highways* and the 250 foot minimum along arterials specified in the 2005 *Town of Chapel Hill Design Manual*. These minimum thresholds are also met along the Glen Lennox frontage with NC 54. However, to insure that no queue blockages occur between the critical Hamilton Road intersection and Audley Lane, and to remove conflict points downstream of the Hamilton Road intersection to the US 15-501 interchange, it is recommended that the existing left-over Site Driveway #1 be eliminated, as it is only 175 feet from the interchange. Site Driveway #2 is recommended to remain as a restricted access driveway, and Audley Lane is recommended to be closed to traffic access from NC 54.



Access for pedestrians is currently adequate in the project study area. Sidewalk is present on both sides of NC 54 (Raleigh Road) throughout the study area, and connectivity is available on at least one side of the street along many facilities in the project study area that connect to NC 54. US 15-501 has limited pedestrian facilities and access along site frontage, especially across US 15-501 between the NC 54 interchange and Estes Drive. Crosswalks do exist across US 15-501 at Estes Drive and along NC 54 below the US 15-501 overpass. Most internal Glen Lennox streets and neighborhood streets connecting to Glen Lennox to the north and east have sidewalk on at least one side of the street.

Access for bicyclists is currently adequate in the project study area, though several limitations exist, due to no specific bicycle provisions along the high volume NC 54 corridor. No bicycle amenities are present within the Glen Lennox site, though the low volume/low speed grid street network is not prohibitive to cycling activities.

No details are shown on Glen Lennox concept plans regarding external improvements for pedestrian or bicycle access to/from the site. All recommended roadway improvements to facility segments or intersections should make accommodations, where appropriate, to provide adequate access for non-motorized transportation.

D. Signal Warrant Analysis

Based on projected Phase 1 - 2018 traffic volumes and current/proposed access plans, the only unsignalized intersections in the project study area that would potentially warrant the installation of a traffic signal, based on the peak hour warrant methodology found in the *2009 Manual on Uniform Traffic Control Devices (MUTCD)*, are the following intersections:

- US 15-501 (Fordham Boulevard) & Cleland Road
- US 15-501 (Fordham Boulevard) & Brandon Road
- US 15-501 (Fordham Boulevard) Southbound Off-Ramp & NC 54 (Raleigh Road) Eastbound

At these intersections, at least one peak hour capacity analysis result indicated LOS F conditions requiring mitigation. The Peak Hour signal warrant analysis is used as verification that projected traffic volumes meet peak hour warrants as a precursor to a more extensive analysis of conditions via additional data collection for 4-Hour and 8-Hour warrant analyses.

Based on Figure 4C-4 from the *MUTCD 2009*, the Cleland Road and Southbound Off-Ramp/Raleigh Road intersections would satisfy the Peak Hour Warrant in at least one peak hour in the 2018 with site traffic scenario. Projected queue lengths for the southbound off-ramp intersection indicated that, though warranted in 2018, this intersection may not require signalization until 2023.

At the intersection of US 15-501 (Fordham Boulevard) & Brandon Road, peak hour warrants are not met with the projected volumes. However, HCS results indicate that this intersection would have little to no movement capacity for the stop-controlled side street approaches. In addition, median u-turns at this location would necessitate adequate protection for these movements.

One additional intersection – US 15-501 (Fordham Boulevard) Northbound & NC 54 Westbound On-Ramp, is a yield-controlled intersection that was analyzed as a being “stop-controlled”, since field observation indicates that on-ramp vehicles have a tendency to stop and wait for gaps in northbound US 15-501 traffic flow instead of utilizing the full length of the existing acceleration



lane. This intersection was not specifically tested for signal warrants, as recommended mitigation strategies focused on lengthening the acceleration lane northbound to the new proposed access intersection along US 15-501.

Appendix G contains details for the Peak Hour Warrant analyses.

E. Sight Distance Analysis

In general, sight distance issues entering and exiting the proposed Glen Lennox site would be minimal, considering the fact that both NC 54 (Raleigh Road) and US 15-501 (Fordham Boulevard) have no significant horizontal curvature in the vicinity of the proposed project, and vertical curvature is currently minimal.

F. Crash Analysis

Data from the NCDOT Traffic Safety Unit was requested and provided for the period 6/1/2010 to 5/31/2013 for the segment of US 15-501 (Fordham Boulevard) from the Old Mason Farm Road intersection to Cleland Road and the segment of NC 54 (Raleigh Road) from US 15-501 (Fordham Boulevard) interchange to Finley Golf Course Road/Burning Tree Drive. Additional information was provided for crashes at all study area intersections for this time period. Raw crash data can be found in **Appendix H**.

US 15-501 (Fordham Boulevard) Corridor

There were 77 crashes reported along the US 15-501 (Fordham Boulevard) study area corridor over the three year period. Along this 1.44 mile segment, the most significant crash type was rear-end crashes (51), with no other category experiencing more than five crashes. 31 injury crashes were reported. One pedestrian was also involved in a crash during this time period.

Table 29 presents a comparison between the US 15-501 (Fordham Boulevard) corridor study area crash rates and the latest North Carolina statewide rates for the period 2008-2010 (compiled by NCDOT Traffic Safety Unit).

Overall, the number and severity of crashes along US 15-501 in the project study area are significantly lower in all crash categories than statewide averages for similar facilities. The predominate crash type (rear-end) is indicative of peak hour congested conditions in the area.

Table 29. Study Area Crash Rate Comparison – US 15-501 (Fordham Boulevard) Corridor

Statistic	Crashes Per 100 Million Vehicle Miles	
	US 15-501 (Fordham Boulevard) Old Mason Farm Road to Cleland Road	North Carolina Statewide Average Urban US Highway Routes (4-Lane Divided – No Access Control)
Total Crash Rate	111.57	275.74
Fatal Crash Rate	0.00	0.91
Non-Fatal (Injury) Crash Rate	31.88	92.82
Night Crash Rate	15.94	60.09
Wet Crash Rate	10.14	48.72



NC 54 (Raleigh Road) Corridor

There were 60 crashes reported along the NC 54 (Raleigh Road) study area corridor over the three year period. Along this 0.55 mile segment, significant crash types included rear-end crashes (23), angle crashes (10), and sideswipe crashes (9). 21 injury crashes were reported. One bicyclist was also involved in a crash during this time period.

Table 30 presents a comparison between the NC 54 (Raleigh Road) study area crash rates and the latest North Carolina statewide rates for the period 2008-2010 (compiled by NCDOT Traffic Safety Unit).

Table 30. Study Area Crash Rate Comparison – NC 54 (Raleigh Road) Corridor

Statistic	Crashes Per 100 Million Vehicle Miles	
	NC 54 (Raleigh Road) (US 15-501 Interchange to Finley Golf Course Rd / Burning Tree Drive)	North Carolina Statewide Urban NC Routes (4+ Lanes Divided - No Access Control)
Total Crash Rate	211.14	330.56
Fatal Crash Rate	0.00	0.81
Non-Fatal (Injury) Crash Rate	73.90	110.02
Night Crash Rate	52.79	68.97
Wet Crash Rate	17.60	62.37

Overall, the number and severity of crashes along NC 54 (Raleigh Road) in the project study area are lower in all crash categories than statewide averages for similar facilities. The predominate crash types (rear-end, angle) are indicative of peak hour congested conditions in the area.

Study Area Intersections

In addition to the crash comparison for the two project study corridors, individual intersection crash data for the three year period was provided and results are shown in **Table 31**.



Table 31. Study Area Intersection Crash Summary

Intersection	Total Crashes	Crashes Per 100 Million Vehicles Entered
US 15-501 Bypass (Fordham Blvd) & Ephesus Church Road	27	78.71
US 15-501 Bypass (Fordham Blvd) & Elliot Road	37	106.50
US 15-501 Bypass (Fordham Blvd) & Willow Drive	45	140.61
US 15-501 Bypass (Fordham Blvd) & Estes Drive	31	73.47
US 15-501 Bypass (Fordham Blvd) & Cleland Road	6	14.41
US 15-501 Bypass (Fordham Blvd) & Brandon Road	8	19.67
US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (North)	<i>INFORMATION INCLUDED IN CORRIDOR SEGMENT ANALYSIS</i>	
US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (South)		
US 15-501 / NC 54 Bypass (Fordham Blvd) & Old Mason Farm Road	26	45.62
US 15-501 / NC 54 Bypass (Fordham Blvd) & Manning Drive	41	71.12
South Road / Raleigh Road & Country Club Drive / Ridge Road	10	44.77
US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (West)	<i>INFORMATION INCLUDED IN CORRIDOR SEGMENT ANALYSIS</i>	
US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (East)		
NC 54 (Raleigh Road) & Glen Lennox Shopping Center Dr #1 (Eastbound Left-Over)		
NC 54 (Raleigh Road) & Glen Lennox Shopping Center Dr #2 (RIRO)		
NC 54 (Raleigh Rd) & Hamilton Road	27	52.86
NC 54 (Raleigh Road) & Audley Lane	0	0
NC 54 (Raleigh Road) & Burning Tree Drive / Finley Golf Course Road	8	15.80
NC 54 (Raleigh Road) & W. Barbee Chapel Road	27	55.24
NC 54 (Raleigh Road) & Meadowmont Lane / Friday Center Drive	27	55.48
NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Road Extension	4	6.76
E. Franklin Street & Estes Drive	40	105.79
Willow Drive & Estes Drive	12	77.65
Cleland Road & Hayes Drive	0	0
Cleland Road & Hamilton Road	0	0
Flemington Road & Hamilton Road	0	0
Cleland Drive & Burning Tree Drive	0	0
Pinehurst Drive & Burning Tree Drive	0	0
Brandon Road & Hayes Road	1	304.14
Beckley Road & Oakwood Drive	0	0



G. Other Transportation-Related Analyses

Other transportation-related analyses relevant to the 2001 Town of Chapel Hill Guidelines for the preparation of Traffic Impact Studies were completed as appropriate. The following topics listed in **Table 32** are germane to the scope of this study.

Table 32. Other Transportation-Related Analyses

Analysis	Comment
Turn Lane Storage Requirements	Storage bay lengths at study area intersections were analyzed using Synchro and HCS 95 th percentile (max) queue length estimates for the Build Scenarios. Recommendations for improvements to storage bays were made in cases where intersections exhibited deficient peak hour LOS and required improvements to existing storage bay lengths. In some cases, new auxiliary lanes are proposed.
Appropriateness of Acceleration/Deceleration Lanes	The site concept plan shows no specifics related to acceleration/deceleration lanes. The capacity analyses conducted for the study include recommendations for right-turn deceleration lanes and auxiliary lanes where appropriate to provide additional capacity or improved weaving operations. No other specific acceleration/deceleration lane issues were analyzed in the project study area.
Pedestrian and Bicycle Analysis	Existing pedestrian and bicycle access and connectivity exists in the project study area, but is limited in some areas. Sidewalks exist along several major thoroughfares and into several neighborhoods/commercial areas. Bicycle facilities are also present in some areas. Several crosswalks with pedestrian signals exist across NC 54 and US 15-501 and provide connectivity and access to the Glen Lennox site. To achieve the goals of current Town pedestrian and bicycle plans and standards, it is recommended that improvements to the NC 54 and US 15-501 corridors necessary for vehicular capacity also include sidewalk and bicycle amenities to connect to existing ped/bike facilities.
Public Transportation Analysis	Public transportation service to the study area and proposed site is excellent. Additional study and coordination is necessary to implement additions and modifications to existing transit service to provide local and express bus service to/from Glen Lennox site, due to increased future demand.

H. Special Analysis/Issues Related to Project

Based on discussions with Town of Chapel Hill staff, there are no special issues or analyses beyond the ones already discussed for this proposed site.



IV. MITIGATION MEASURES/RECOMMENDATIONS

A. Planned Improvements

The Town of Chapel Hill, in coordination with the North Carolina Department of Transportation has two recently completed planning studies and an additional potential improvement project that may impact study area facilities within the analysis time frame of 2013 to 2028.

- The 2011 *Ephesus Church Road/Fordham Boulevard Small Area Plan* has several intersection and local connectivity improvements that affect the study area intersections of US 15/501 with Ephesus Church Road and Elliott Road, including a new extension of Elliott Road to the east of US 15-501.
- The 2010 *NC 54/I-40 Corridor Study – Transportation-Land Use Master Plan* includes a wide range of potential improvements to the NC 54 corridor in the project study area between the US 15-501 interchange and E. Barbee Chapel Road. These include intersection capacity improvements, conversion of specific sections to a superstreet concept, additional pedestrian and bicycle amenities, and transit route modifications.
- The NCDOT STIP U-5304 project is currently listed in the draft 2013-2023 STIP work program as being scheduled for a feasibility study of the US 15-501 (Fordham Boulevard) corridor from NC 86 (South Columbia Street) to Eastowne Drive/Lakeview Drive. Potential improvements along this six mile corridor include a conversion of corridor segments to a superstreet concept with sidewalks, wide outside lanes and transit accommodations. In addition, a study of a potential interchange with Manning Drive and intersection improvements at Ephesus Church Road are listed as part of the project.

None of the potential improvements from the studies/projects listed above were considered to be constructed by a specific analysis year. However, if intersections in the project study area fell below acceptable operating thresholds for either No-Build or Build Scenarios for a given analysis year, recommendations from these planning studies were considered as a mitigation option on a case-by-case basis.

B. Background Committed Improvements

Per information from the Town of Chapel Hill, there are no specific committed background improvements expected to be completed by the 2018, 2023, or 2028 analysis years.

C. Applicant Committed Improvements

Based on the concept plan provided, there are no specific transportation-related improvements shown external to the site property, except for the delineation of a new full access connection to US 15-501 between the NC 54 interchange and Brandon Road. One of the purposes of this traffic impact study was to provide guidance in determining appropriate access strategies and intersection improvements for areas adjacent to the site, as well as determining site traffic impacts for the general project study area beyond the immediate Glen Lennox site parcel. The following Necessary Improvements section details recommended improvements to maintain adequate transportation operations within the project study area over the phased development process.



D. Necessary Improvements

Project Study Area Roadway Network Improvements

Based on traffic capacity analyses for the 2018, 2023, and 2028 analysis years, and analyses of existing study area turning bay storage lengths and site access, the following improvements listed in **Table 33** are recommended as being necessary for adequate transportation network operations for the specific analysis year scenarios. **Figures 17A and 17B** display recommended 2018 improvements. **Figures 18A and 18B** display recommended 2023 improvements. **Figures 19A and 19B** display recommended 2028 improvements. All scenarios assume that improvements recommended in the previous scenario build-out/analysis year are completed and in place by the subsequent analysis year.

Project Study Area Roadway Network Improvements Required by Applicant

Due to the fact that the project study area contains many off-site recommended improvements that are caused by existing traffic conditions and background traffic growth unrelated to the redevelopment of Glen Lennox, a separation of improvements required by the Applicant is included in **Table 33** and **Figures 17-19** in **Appendix A**. The rationale for differentiating improvements into those responsible by the Applicant and those responsible by others (the Town of Chapel Hill, NCDOT, or other future private development projects) generally follows the methodology below:

- All recommended improvements that provide direct access to the Glen Lennox site, or would improve intersection operations directly adjacent to the Glen Lennox site were considered the responsibility of the Applicant.
- All recommended improvements to improve existing roadway/intersection operational or safety deficiencies within the project study area that are not directly adjacent to the Glen Lennox site OR would be necessary due to future background traffic growth and are not directly adjacent to the Glen Lennox are not considered the sole responsibility of the Applicant. In virtually every comparison of future scenario No-Build to Build conditions, the addition of site-related traffic causes marginal additional impacts to off-site intersections, and any deficiencies are generally the result of a combination of existing traffic volumes and projected background traffic growth increases that are present in the No-Build Condition for that particular scenario. As the Glen Lennox Redevelopment proceeds through each phase, it is recommended that project study area traffic operations are reassessed to ensure that projected impacts analyzed in this report are correlating with actual traffic conditions experienced at that time and that proposed improvements are actually constructed.

Transit Improvements

Based on preliminary trip generation and mode split data (see **Section II.C.ii.b** of this report for details), additional transit capacity will be necessary to accommodate projected transit ridership to/from the Glen Lennox Redevelopment.

Initial estimates of peak hour demand indicate that 288 AM peak hour, 127 noon peak hour and 352 PM peak hour trips (boardings or alightings) are estimated in the 2028 Phase 3 full build-out scenario. Given that fixed route service is provided through Glen Lennox on the G Route, with two AM, one noon, and two PM peak hour buses, and adjacent to Glen Lennox along NC 54 by the S and V Routes (eight AM and PM peak hour and three noon peak hour buses total), the total transit capacity provided by existing service may need to be increased to meet future



demand. No specific analysis of existing available capacity was conducted for this study, so additional study is necessary to determine appropriate headway adjustments to these three routes.

To better accommodate transit operations along the high volume westbound NC 54 corridor, it is recommended that a bus pull-out area be constructed immediately to the west of the NC 54 intersection with Hamilton Road. Additional improvements for transit operations along US 15-501 may also be considered as part of the superstreet concepts recommended in this study.

Pedestrian and Bicycle Improvements

Improvements to pedestrian and bicycle facilities, as recommended in *the NC 54/I-40 Corridor Study*, should be implemented in coordination with proposed roadway improvements to NC 54 between the US 15-501 interchange and Hamilton Road as recommended in this analysis. This would include additional crosswalks, bicycle lane striping and modifications to existing bridge abutments under the US 15-501 overpass as displayed in the NC 54/I-40 Corridor Study.

Superstreet recommendations for the US 15-501 corridor made in this report should also include the provision for pedestrian signalization and crossings of US 15-501 at appropriate locations – particularly Manning Drive, Old Mason Farm Road, and at the proposed new site access location along US 15-501 south of Brandon Road.



Table 33. Recommended Improvements Matrix
(Refer to Figures 17-19 in *Appendix A* for Additional Details)

ID	Intersection Name	Recommended Improvements		
		2018 Phase 1	2023 Phase 2	2028 Phase 3
1	US 15-501 Bypass (Fordham Blvd) & Ephesus Church Road	N/A	- Modify Intersection Per 2020 SAP Plan - Construct WB Dual LT Lanes with 250' storage - Retime Signal	Construct EB RT Lane with 150' Storage
2	US 15-501 Bypass (Fordham Blvd) & Elliot Road	N/A	- Modify Intersection Per 2020 SAP Plan - Construct New WB Elliot Drive Approach with Dual WB LT Lanes with 225' Storage, WB Through Lane, and WB RT Lane with 125' Storage - Construct EB Elliot Drive RT Lane with 275' Storage	N/A
4	US 15-501 Bypass (Fordham Blvd) & Estes Drive	Allow NB Left-Turn U-Turn Movements	N/A	N/A
5	US 15-501 Bypass (Fordham Blvd) & Cleland Road	- Construct Superstreet– Limit Side Streets to Right-Turns & Signalize Intersection - Construct NB and SB Right-Turn Deceleration Lanes with 150' storage	N/A	Extend SB LT Storage Bay to 300'
6	US 15-501 Bypass (Fordham Blvd) & Brandon Road	- Construct Superstreet– Limit Side Streets to Right-Turns & Signalize Intersection - Construct NB and SB Right-Turn Deceleration Lanes with 150' storage - Extend Existing NB and SB Left-Turn Lanes for 250' storage	N/A	N/A
7	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Rd) Interchange Ramps (North)	Construct 1,050' NB Auxiliary Lane From Existing On-Ramp to Proposed Site Access Driveway	N/A	Remove Traffic Signal and Convert Dual EB RT Lanes to Single Free-Flow Add Lane
8	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Rd) Interchange Ramps (South)	N/A	N/A	Construct 3rd SB Through Lane on US 15-501, Provide SB RT Decel Lane onto Ramp with 250' Storage
9	US 15-501 / NC 54 Bypass (Fordham Blvd) & Old Mason Farm Road	Construct Superstreet– Remove all LT and Thru Movements	Convert NB RT Lane to Thru/RT Lane and extend 3rd Through Lane to US 15-501 Interchange	Construct 3rd SB Through Lane on US 15-501 and Convert SB RT Lane to Through/RT Lane
10	US 15-501 / NC 54 Bypass (Fordham Blvd) & Manning Drive	- Construct Superstreet– Remove US 15-501 LTs and Manning Drive Through Movements - Convert Existing Outside LT Lane to Through Lane to Drop at Downstream U-Turn Intersection (#91)	N/A	N/A
12	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (West)	N/A	Signalize NB Stop-Controlled Approach if Meets Signal Warrants	N/A
13	US 15-501 Bypass (Fordham Blvd) & NC 54 (Raleigh Road) Interchange Ramps (East)	Construct EB Exclusive RT Deceleration Lane with 250' storage	N/A	N/A
14	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #1 (Eastbound Left-Over)	Close Access Point	N/A	N/A
15	NC 54 (Raleigh Road) & Glen Lennox Shopping Center Driveway #2 (RIRO)	Construct RT Deceleration Lane with 150' storage	N/A	N/A

N/A – Not Applicable, i.e. no recommended improvements for the intersection and scenario

RED – Necessary Improvements Required by Applicant



Table 33 (Continued). Recommended Improvements Matrix
(Refer to Figures 17-19 in Appendix A for Additional Details)

ID	Intersection Name	Recommended Improvements		
		2018 Phase 1	2023 Phase 2	2028 Phase 3
16	NC 54 (Raleigh Rd) & Hamilton Road	- Lengthen SB LT Storage to 250' minimum - Construct WB RT Deceleration Lane with 250' storage - Provide bus bay pullout on NC 54 Immediately West of Intersection	- Construct Dual SB LT Lanes with 350' Storage and Exclusive RT Lane Drop Lane - Construct EB Dual Left-Turn Lanes with 300' Storage - Provide Minimum 4-Lane Cross-Section on Hamilton Road into the Site	N/A
17	NC 54 (Raleigh Road) & Audley Lane	Close Access Point	N/A	N/A
20	NC 54 (Raleigh Road) & Meadowmont Lane / Friday Center Drive	N/A	Extend Marriott Way to Reduce Traffic Volumes Per NC 54/I-40 Corridor Study	N/A
21	NC 54 (Raleigh Road) & E. Barbee Chapel Road / Barbee Chapel Road Extension	N/A	Extend Marriott Way to Reduce Traffic Volumes Per NC 54/I-40 Corridor Study	Construct Additional NB LT Lane to Create Dual NB LT Lanes with 500' Storage
22	E. Franklin Street & Estes Drive	Construct Dual EB LT lanes with 250' storage and SB RT Lane with 200' storage	Construct Additional EB Through Lane	N/A
29	Brandon Road & Hayes Road	Restrict NB and SB Connections on Hayes Road to RIRO Intersections to Protect US 15-501 & Brandon Road Intersection WB Approach Vicinity	N/A	N/A
31	US 15-501 Bypass (Fordham Boulevard) & Proposed Site Entrance	- Construct Dual SB LT Lanes with 300' storage & Signalize Intersection - Construct Dual WB RT Lanes with 300' Storage (Driveway Throat Length) - Provide Two Inbound Travel Lanes - Prohibit Connection to Existing Hayes Road	N/A	N/A
91	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #1 (Between Manning Drive & Old Mason Farm Road)	Construct Superstreet Design with Median U-Turn Lanes (NB U-Turn Drop Lane From Manning Drive/250' SB U-Turn Storage) and Signalize Intersection	N/A	Construct 3rd NB Through Lane on US 15-501 (Fordham Blvd)
92	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #2 (North of Old Mason Farm Road)	- Construct Superstreet Design with NB Left-Turn/U-Turn (250' Storage) - Connect NB Left-Turn to Connect with St. Thomas More Driveway and Signalize Intersection	Construct 3rd NB Through Lane on US 15-501 (Fordham Blvd)	Construct 3rd SB Through Lane on US 15-501 (Fordham Blvd)
61	US 15-501 Bypass (Fordham Boulevard) & Median U-Turn #3 (Between Brandon Road & Cleland Road)	Construct Superstreet Design with Median U-Turn Lanes (200' Storage NB and SB) and Signalize Intersection	N/A	N/A

N/A – Not Applicable, i.e. no recommended improvements for the intersection and scenario

RED – Necessary Improvements Required by Applicant

BLUE – New Intersections Proposed in Corridor Superstreet Concept – Not Specifically Required by Applicant

Appendix A – Figures



- Phase 1: (1-5yrs)**
- 460 Residential Units
 - 86,500 SF Retail
(includes 20,948 existing)
 - 100,000 SF Office
(includes 5,084 existing)
 - 150 Hotel Rooms
- Phase 2: (6-10 yrs)**
- 460 Residential Units
 - 21,500 SF Retail
 - 500,000 SF Office
- Phase 3: (11-15 yrs)**
- 320 Residential Units
- Phase 4: (Over 20 yrs)**
- 118 Existing Residential Units Renovated
 - 33 Residential Units in same scale as existing units
- Total Land Use:**
- 1,391 Residential Units
 - 108,000 SF Retail
 - 600,000 SF Office
 - 150 Hotel Rooms

SOURCE: Grubb Properties (Applicant) May 2013

LEGEND

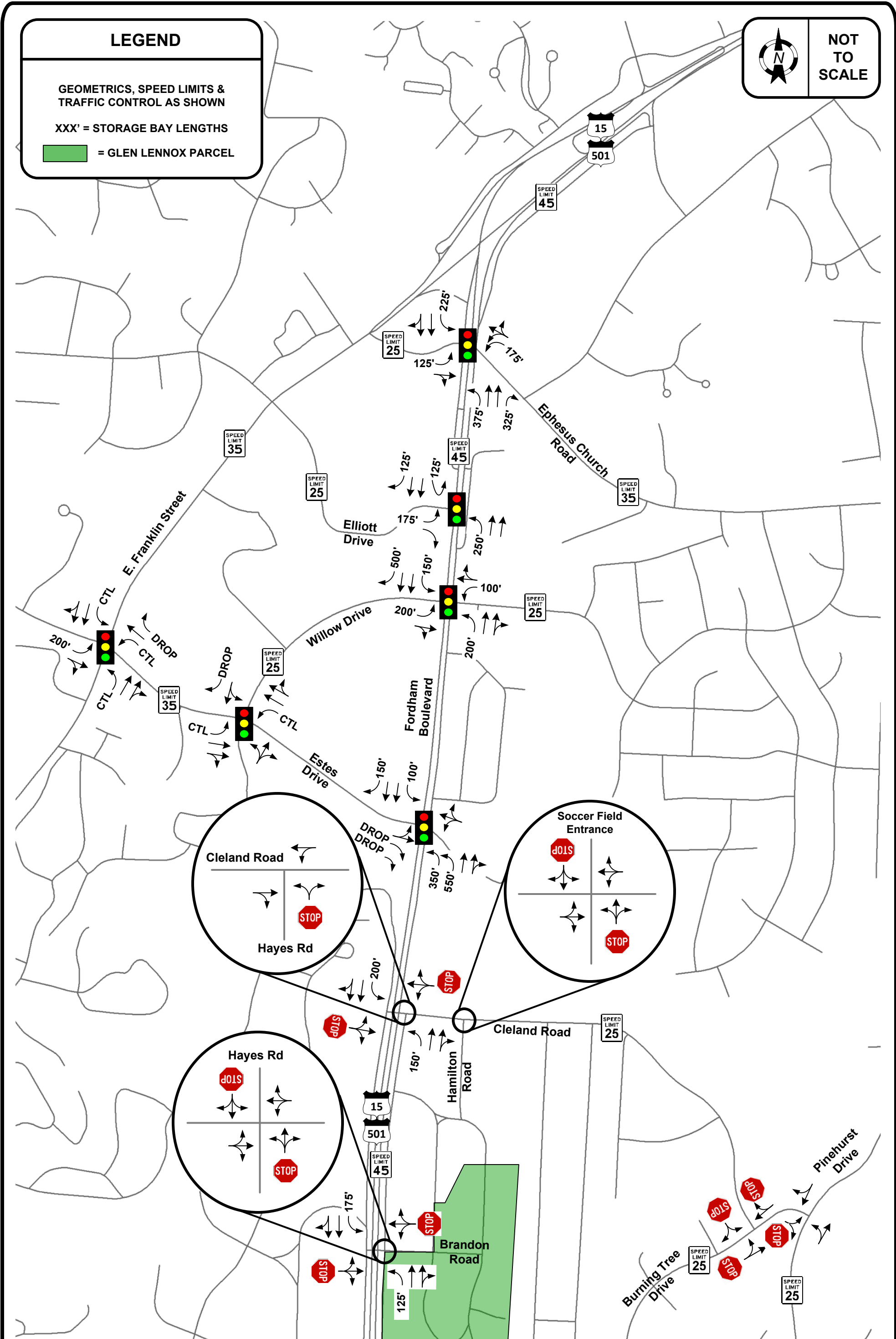
GEOMETRICS, SPEED LIMITS & TRAFFIC CONTROL AS SHOWN

XXX' = STORAGE BAY LENGTHS

 = GLEN LENNOX PARCEL



NOT
TO
SCALE



Glen Lennox Redevelopment
Traffic Impact Study

EXISTING LANEAGE

DATE: October 2013

FIGURE 3A



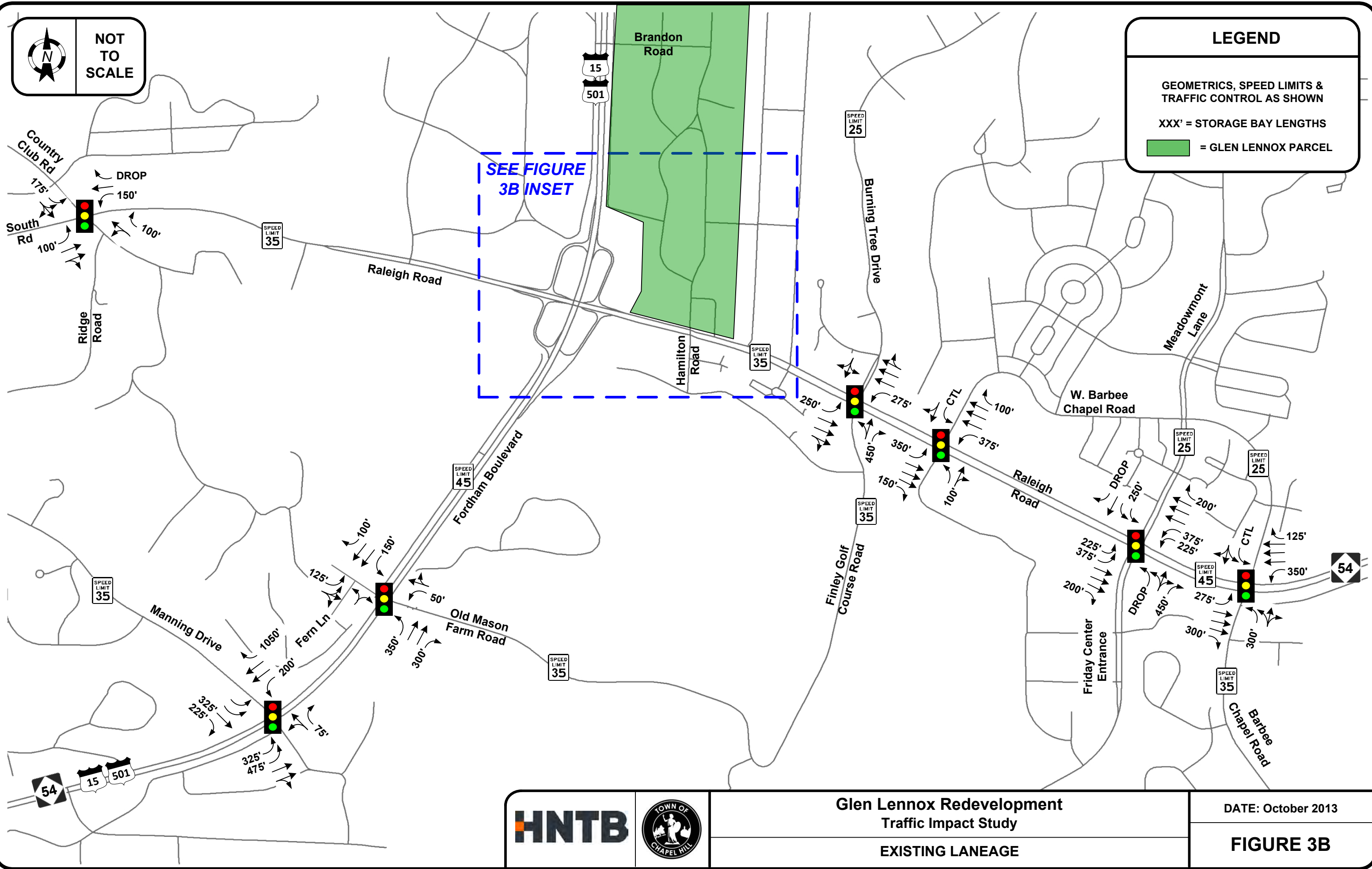
NOT
TO
SCALE

LEGEND

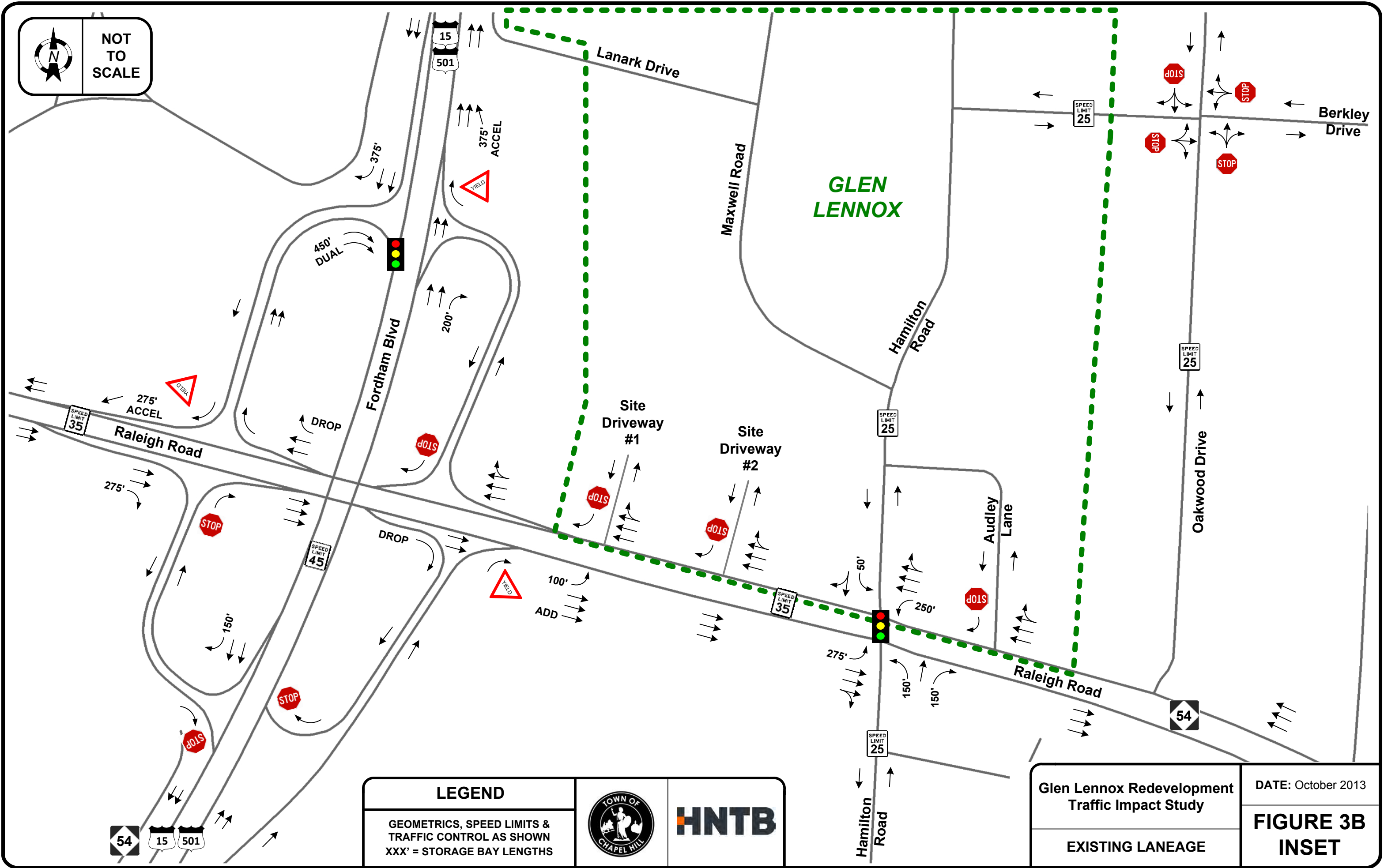
GEOMETRICS, SPEED LIMITS & TRAFFIC CONTROL AS SHOWN

XXX' = STORAGE BAY LENGTHS


= GLEN LENNOX PARCEL



NOT
TO
SCALE



LEGEND

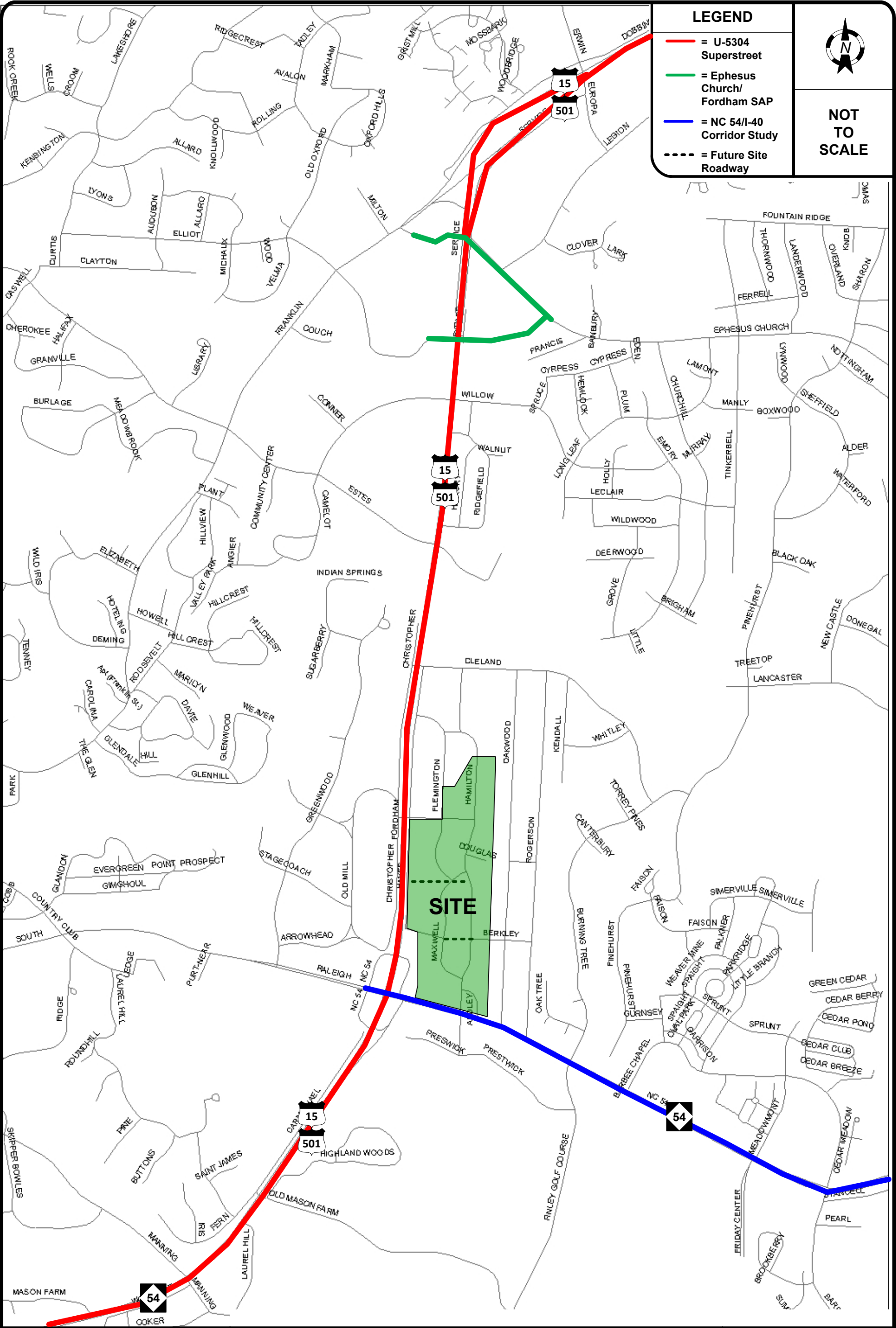
GEOMETRICS, SPEED LIMITS & TRAFFIC CONTROL AS SHOWN
XXX' = STORAGE BAY LENGTHS

Glen Lennox Redevelopment
Traffic Impact Study

EXISTING LANEAGE

DATE: October 2013

**FIGURE 3B
INSET**



LEGEND

- = U-5304 Superstreet
- = Ephesus Church/ Fordham SAP
- = NC 54/I-40 Corridor Study
- = Future Site Roadway



NOT TO SCALE

Glen Lennox Redevelopment
Traffic Impact Study

DATE: October 2013

POTENTIAL TRANSPORTATION IMPROVEMENT PROJECTS

FIGURE 6



LEGEND

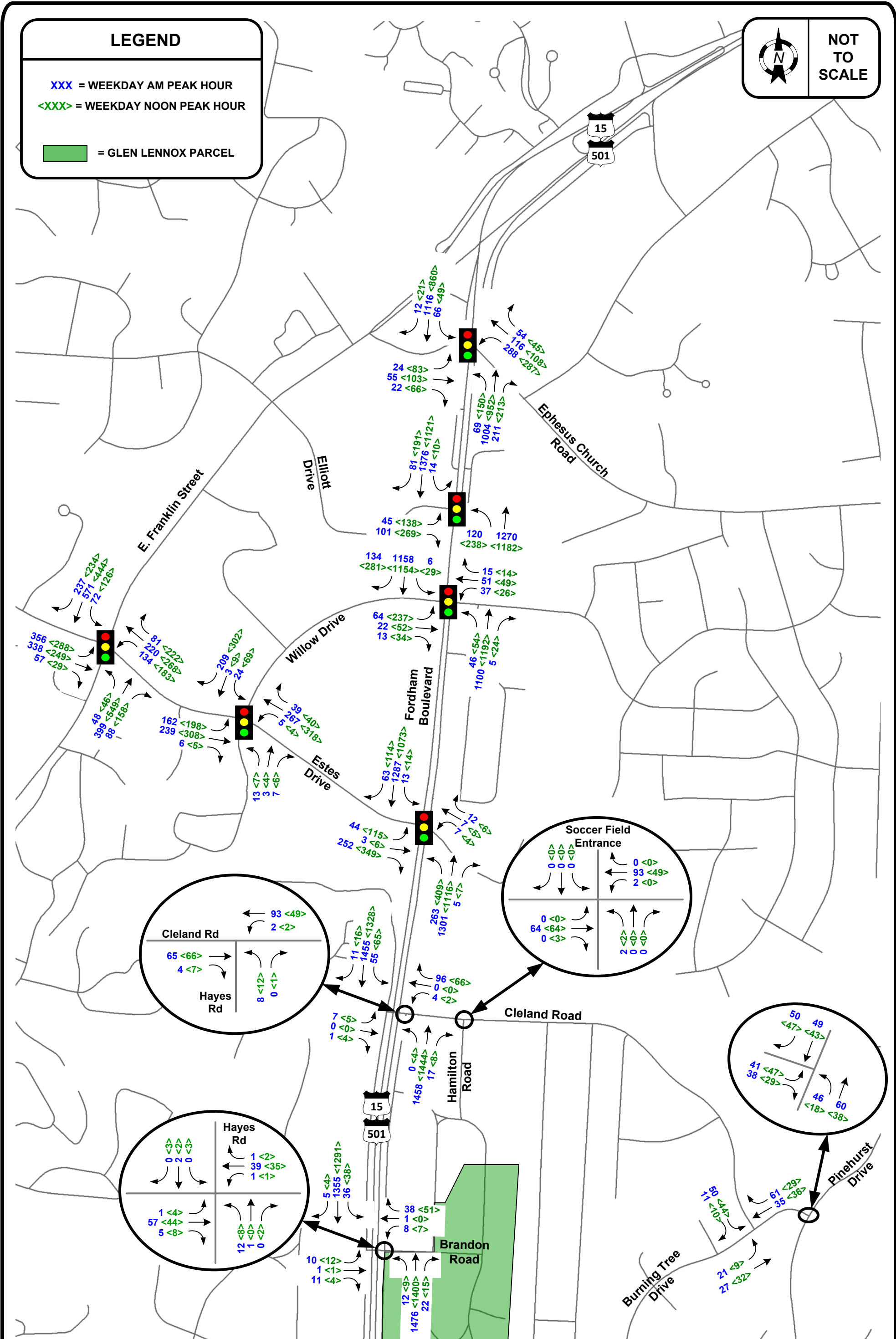
XXX = WEEKDAY AM PEAK HOUR

<XXX> = WEEKDAY NOON PEAK HOUR

 = GLEN LENNOX PARCEL



NOT
TO
SCALE





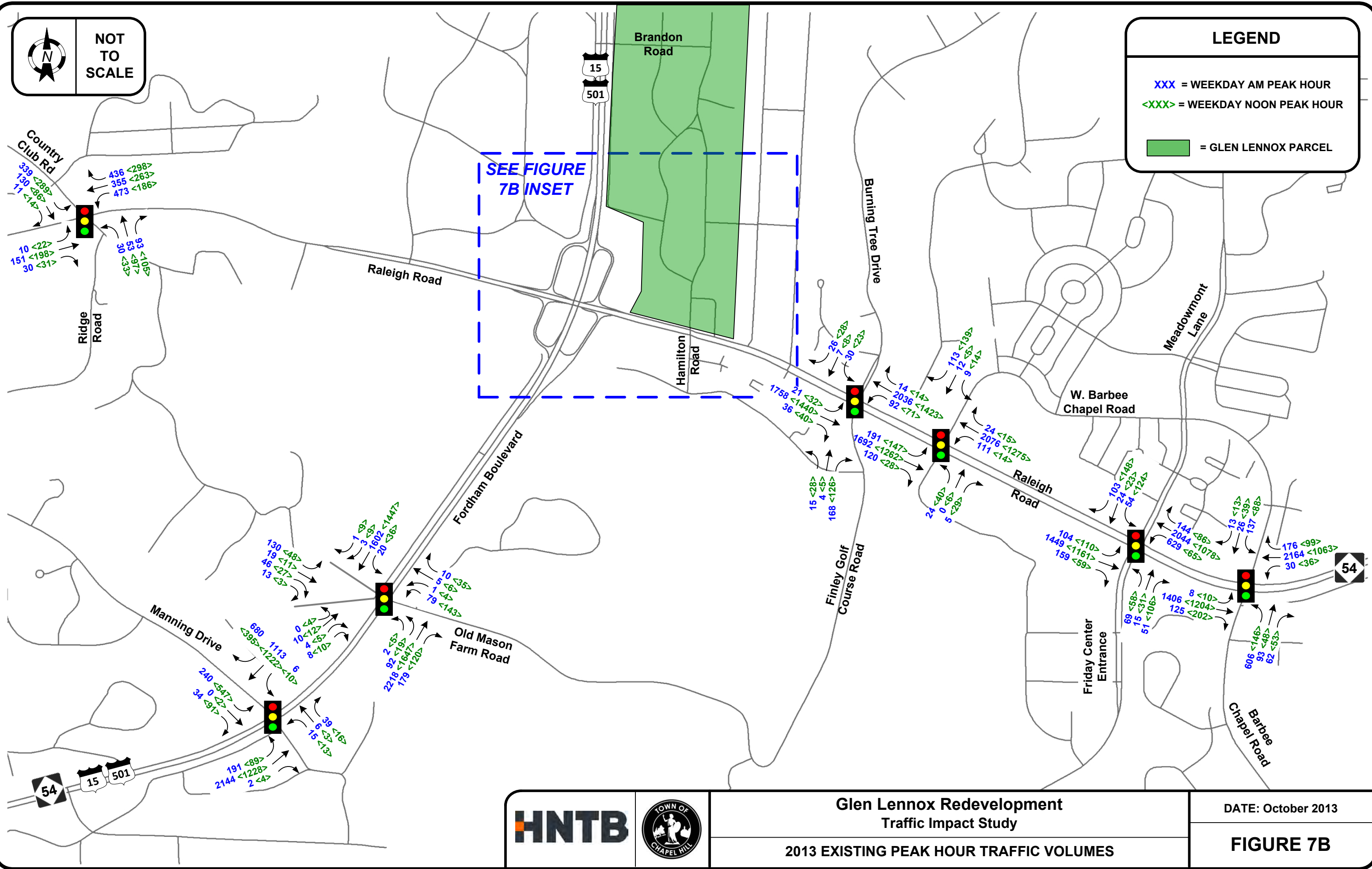
NOT
TO
SCALE

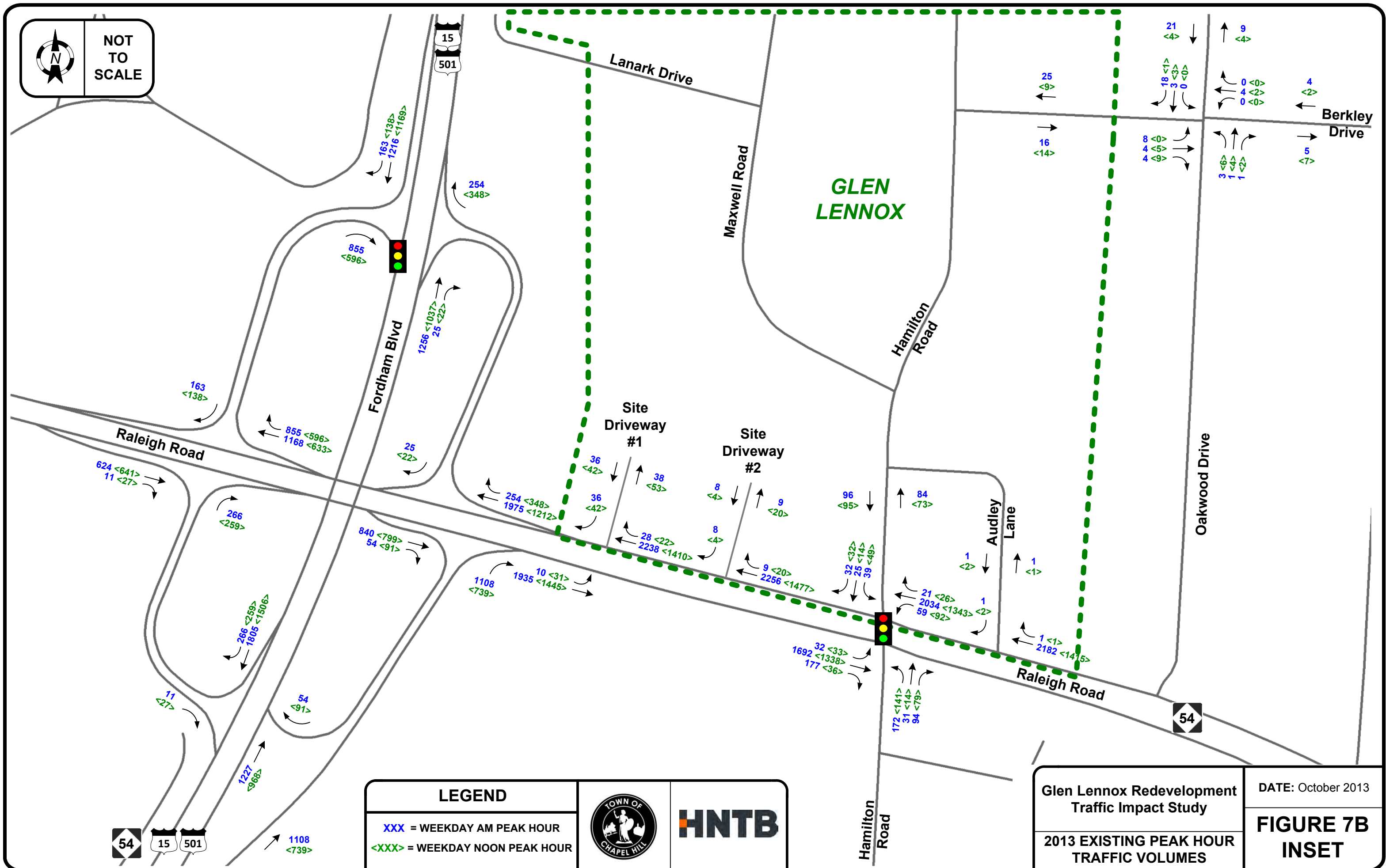
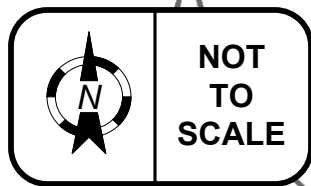
LEGEND

XXX
= WEEKDAY AM PEAK HOUR

<XXX>
= WEEKDAY NOON PEAK HOUR


= GLEN LENNOX PARCEL





Glen Lennox Redevelopment Traffic Impact Study

2013 EXISTING PEAK HOUR TRAFFIC VOLUMES

DATE: October 2013

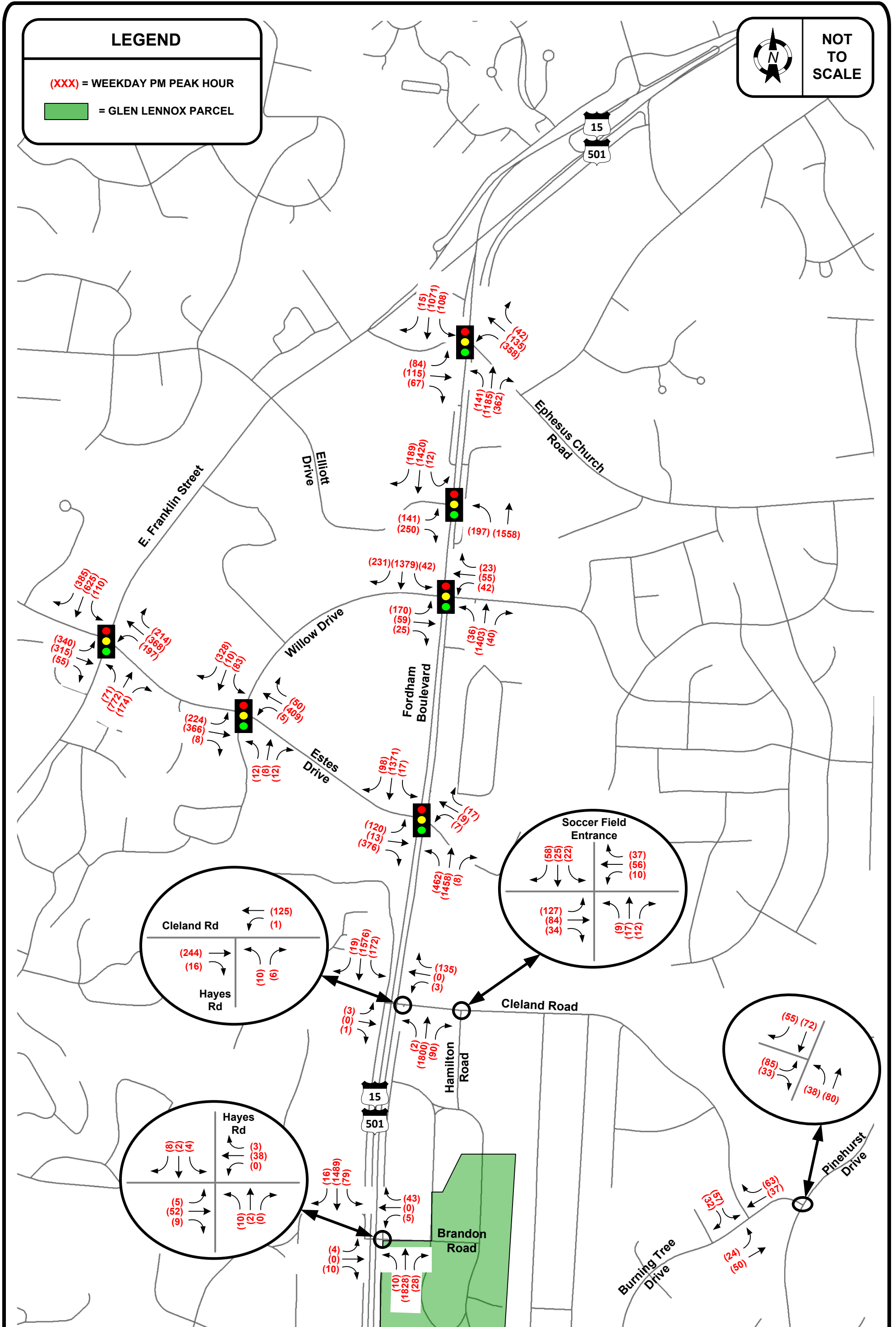
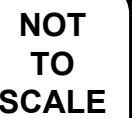
**FIGURE 7B
INSET**

LEGEND

(XXX) = WEEKDAY PM PEAK HOUR

 = GLEN LENNOX PARCEL

= GLEN LENNOX PARCEL



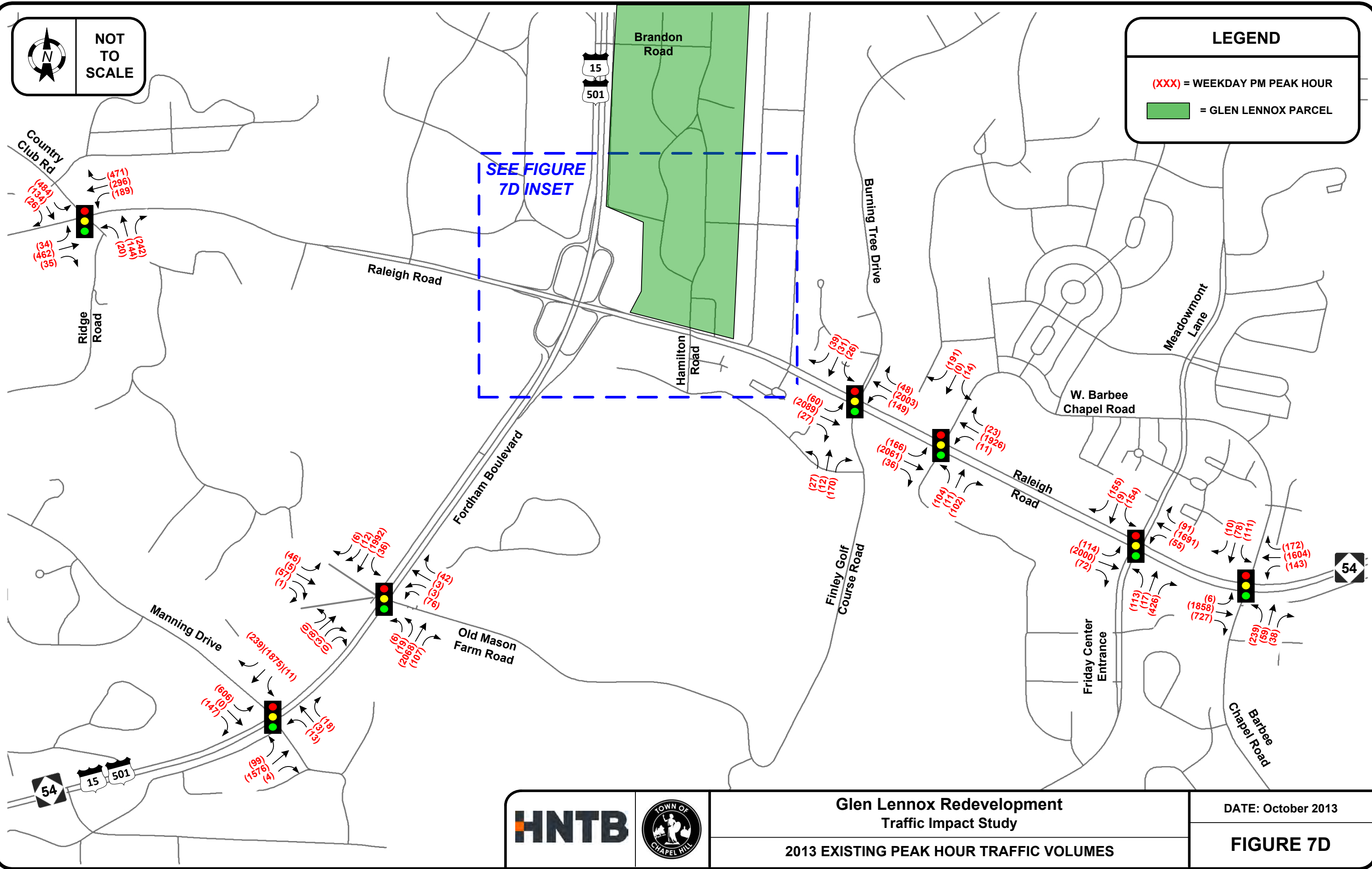


NOT
TO
SCALE

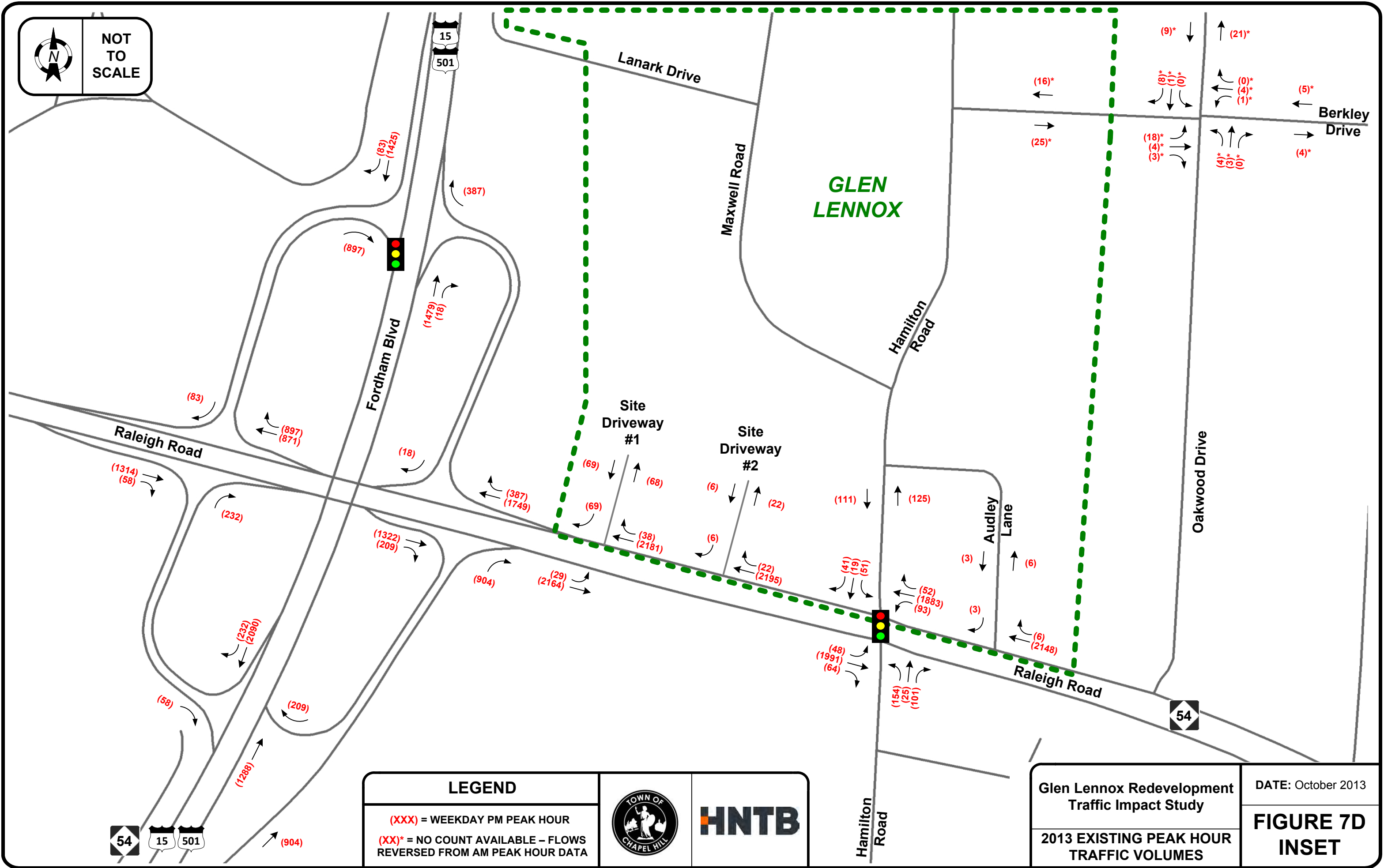
LEGEND

(XXX) = WEEKDAY PM PEAK HOUR

 = GLEN LENNOX PARCEL



NOT
TO
SCALE



LEGEND

(XXX) = WEEKDAY PM PEAK HOUR

(XX)* = NO COUNT AVAILABLE – FLOWS REVERSED FROM AM PEAK HOUR DATA

Glen Lennox Redevelopment
Traffic Impact Study

2013 EXISTING PEAK HOUR
TRAFFIC VOLUMES

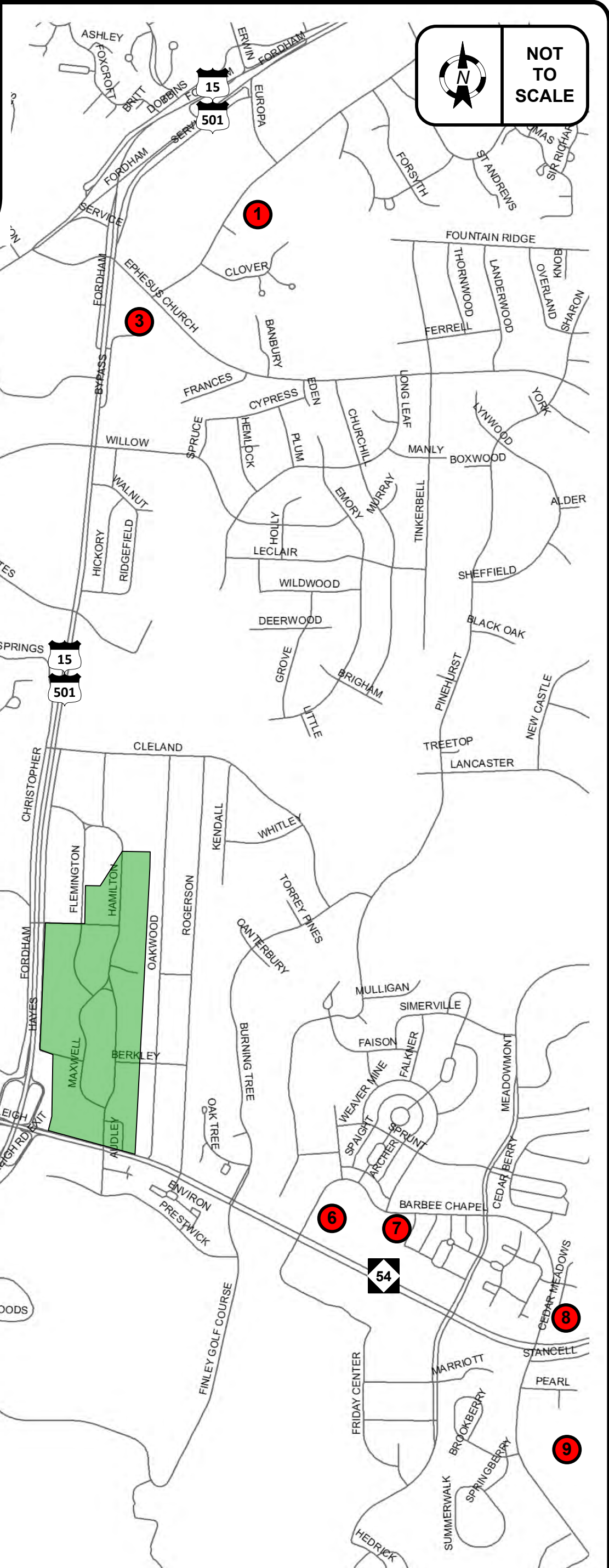
DATE: October 2013

FIGURE 7D
INSET

LEGEND

 = Background Development Location

- 1 – Sanctuary at Cobblestone
- 2 – Franklin Street Office Building
- 3 – The Park at Chapel Hill
- 4 – UNC Main Campus Development Plan
- 5 – SECU Family House
- 6 – Hultquist IP Office
- 7 – ARC Orange Apartments
- 8 – Learning Experience Day Care
- 9 – Hillmont (Woodmont)



Glen Lennox Redevelopment Traffic Impact Study	
POTENTIAL BACKGROUND STUDY LOCATIONS	

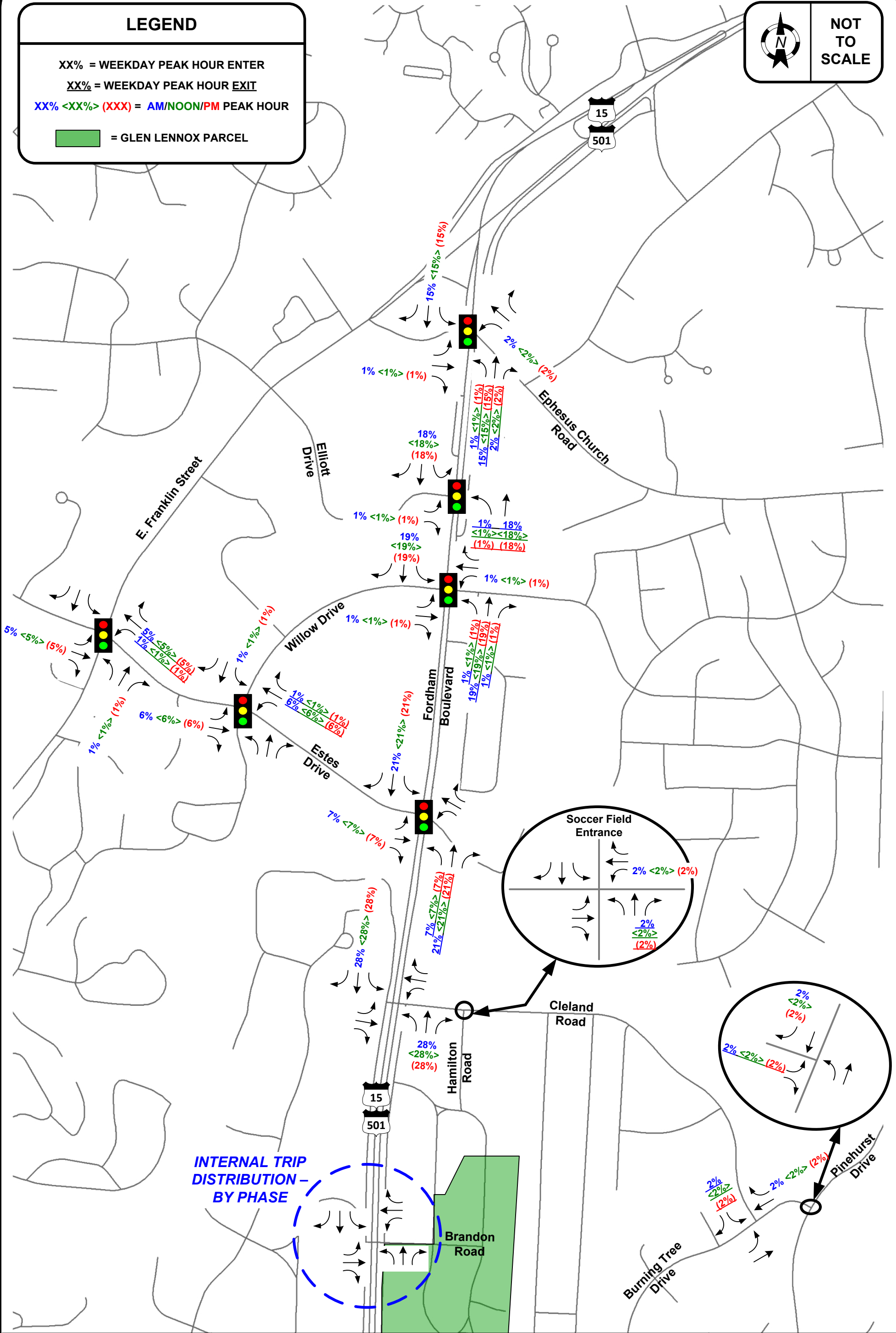
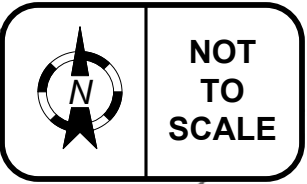
DATE: October 2013

FIGURE 8

FIGURE 8

LEGEND

XX% = WEEKDAY PEAK HOUR ENTER
XX% = WEEKDAY PEAK HOUR EXIT
XX% <XX%> (XXX) = AM/NOON/PM PEAK HOUR
= GLEN LENNOX PARCEL

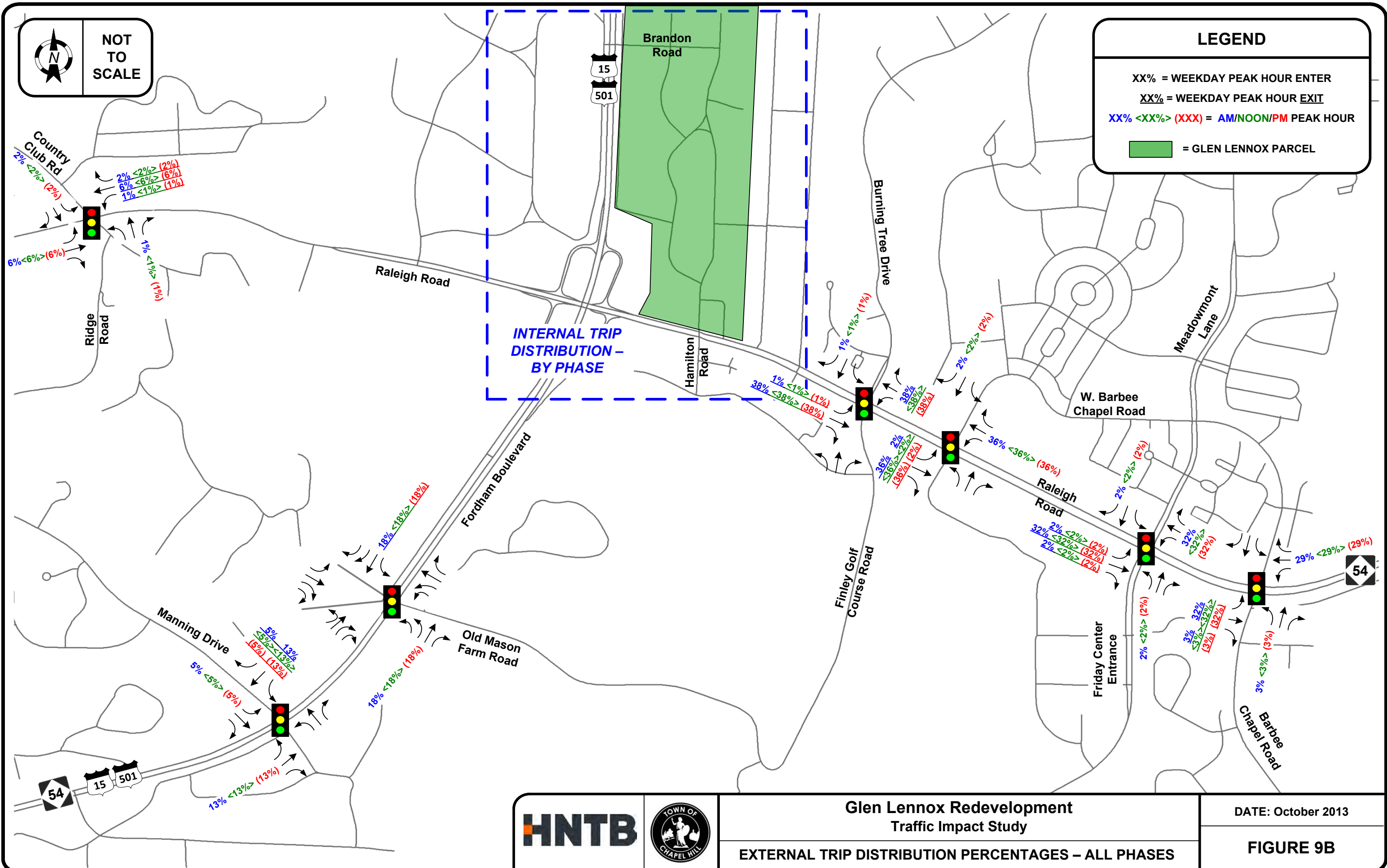
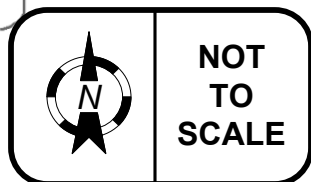


Glen Lennox Redevelopment
Traffic Impact Study

EXTERNAL TRIP DISTRIBUTION PERCENTAGES – ALL PHASES

DATE: October 2013

FIGURE 9A



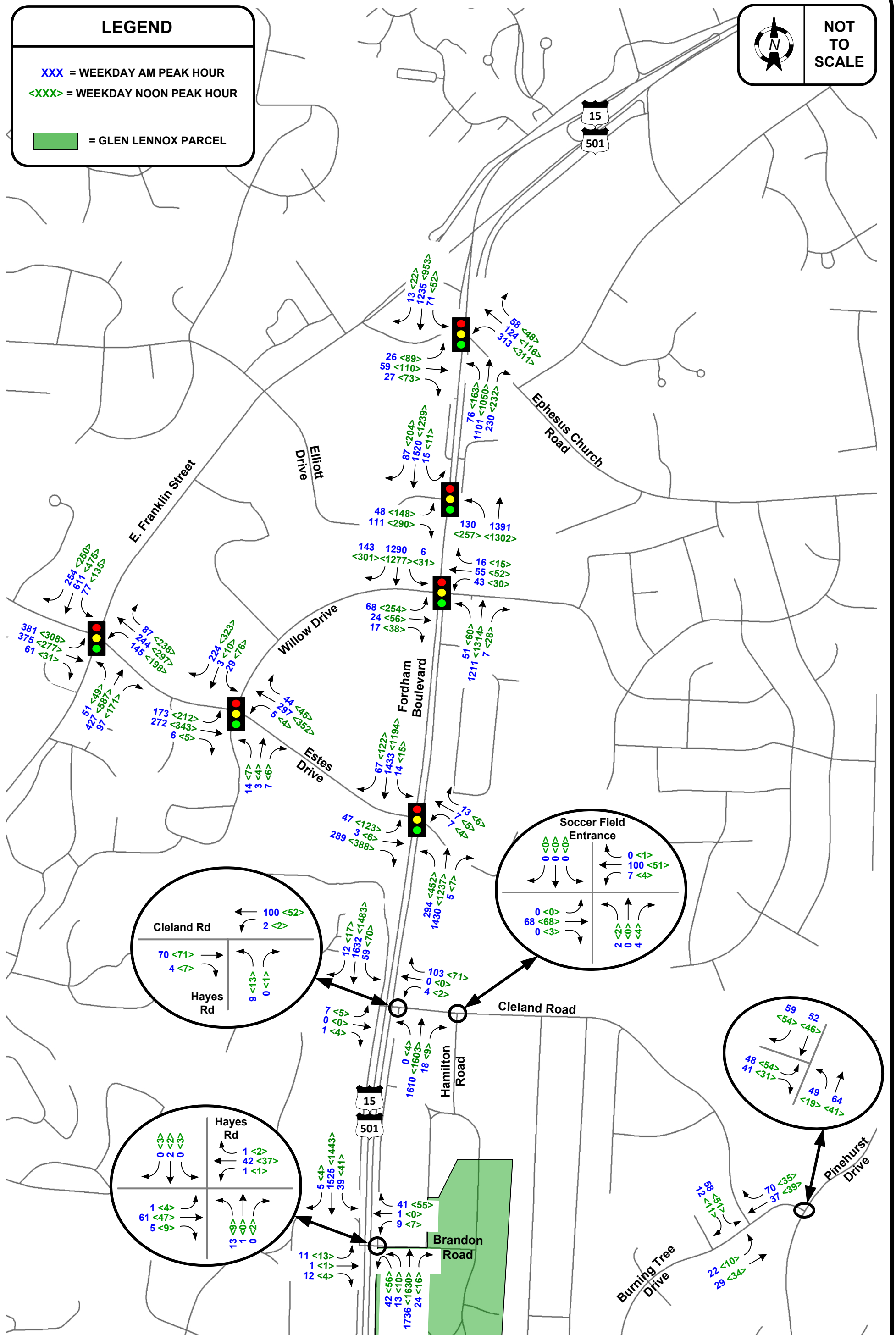
LEGEND

XXX = WEEKDAY AM PEAK HOUR
 <XXX> = WEEKDAY NOON PEAK HOUR

 = GLEN LENNOX PARCEL



NOT
TO
SCALE





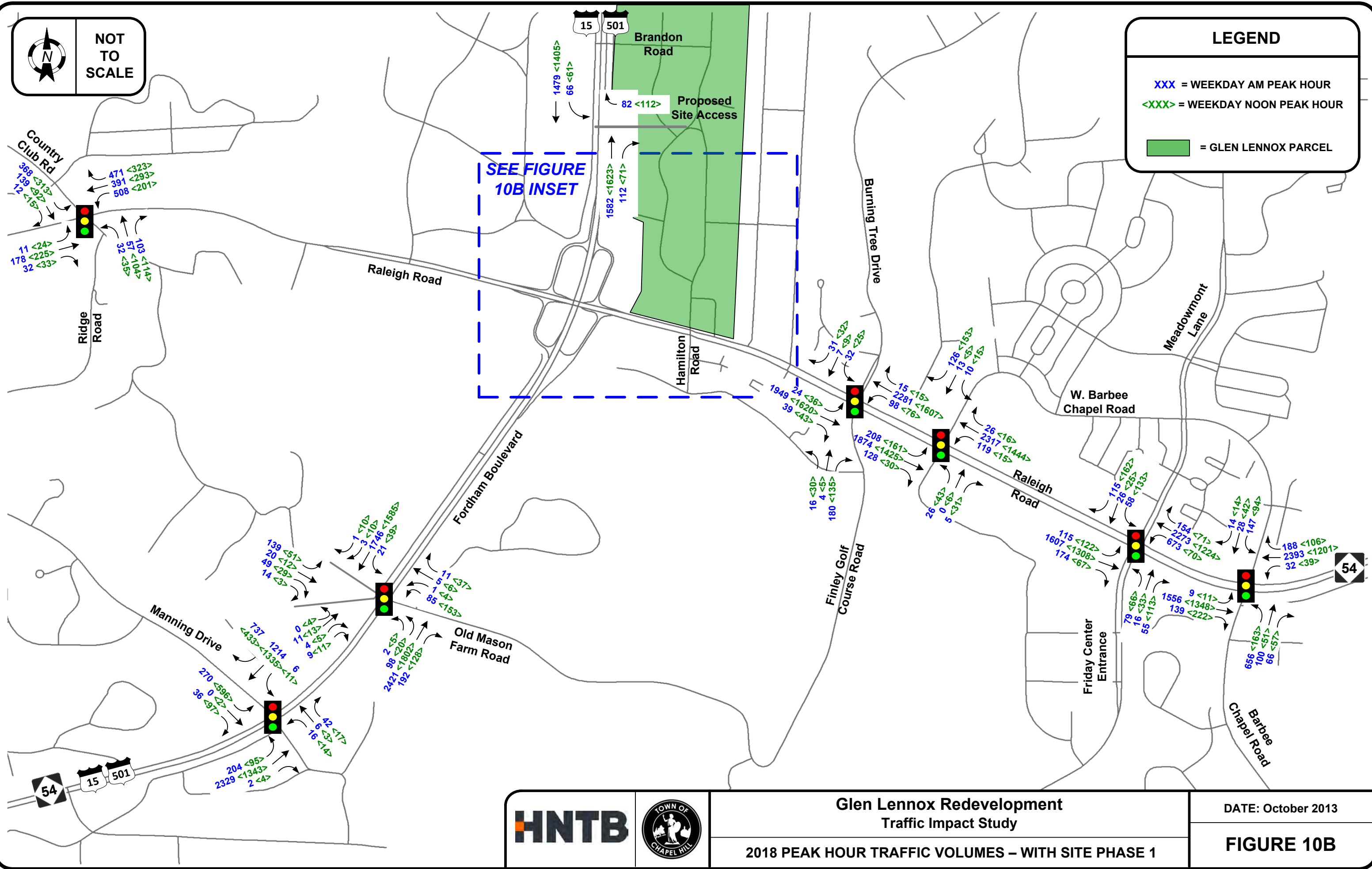
NOT
TO
SCALE

LEGEND

XXX
= WEEKDAY AM PEAK HOUR

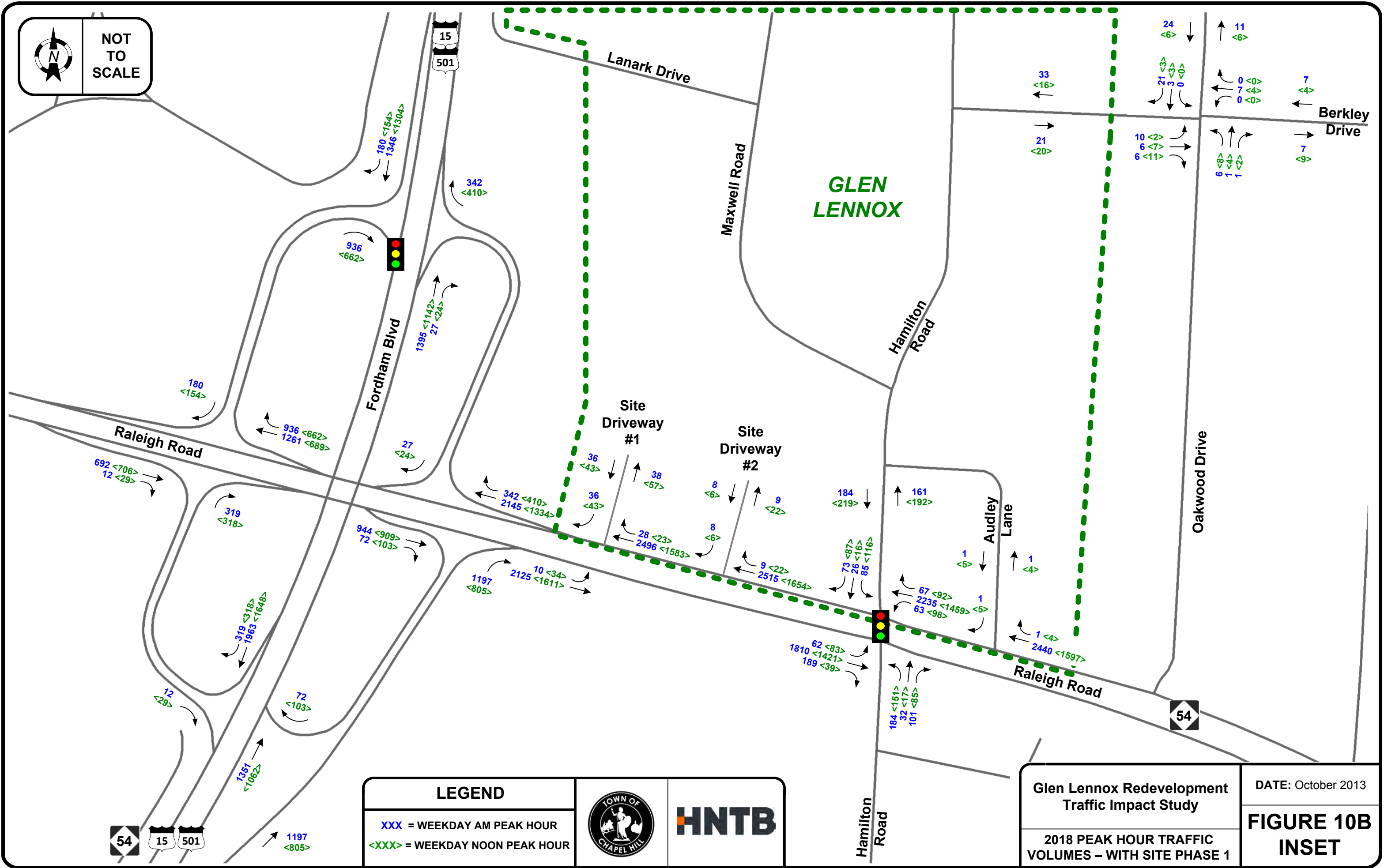
<XXX>
= WEEKDAY NOON PEAK HOUR


= GLEN LENNOX PARCEL





NOT
TO
SCALE



LEGEND

XXX = WEEKDAY AM PEAK HOUR

<XXX> = WEEKDAY NOON PEAK HOUR




Glen Lennox Redevelopment
Traffic Impact Study

2018 PEAK HOUR TRAFFIC
VOLUMES – WITH SITE PHASE 1

DATE: October 2013

FIGURE 10B
INSET

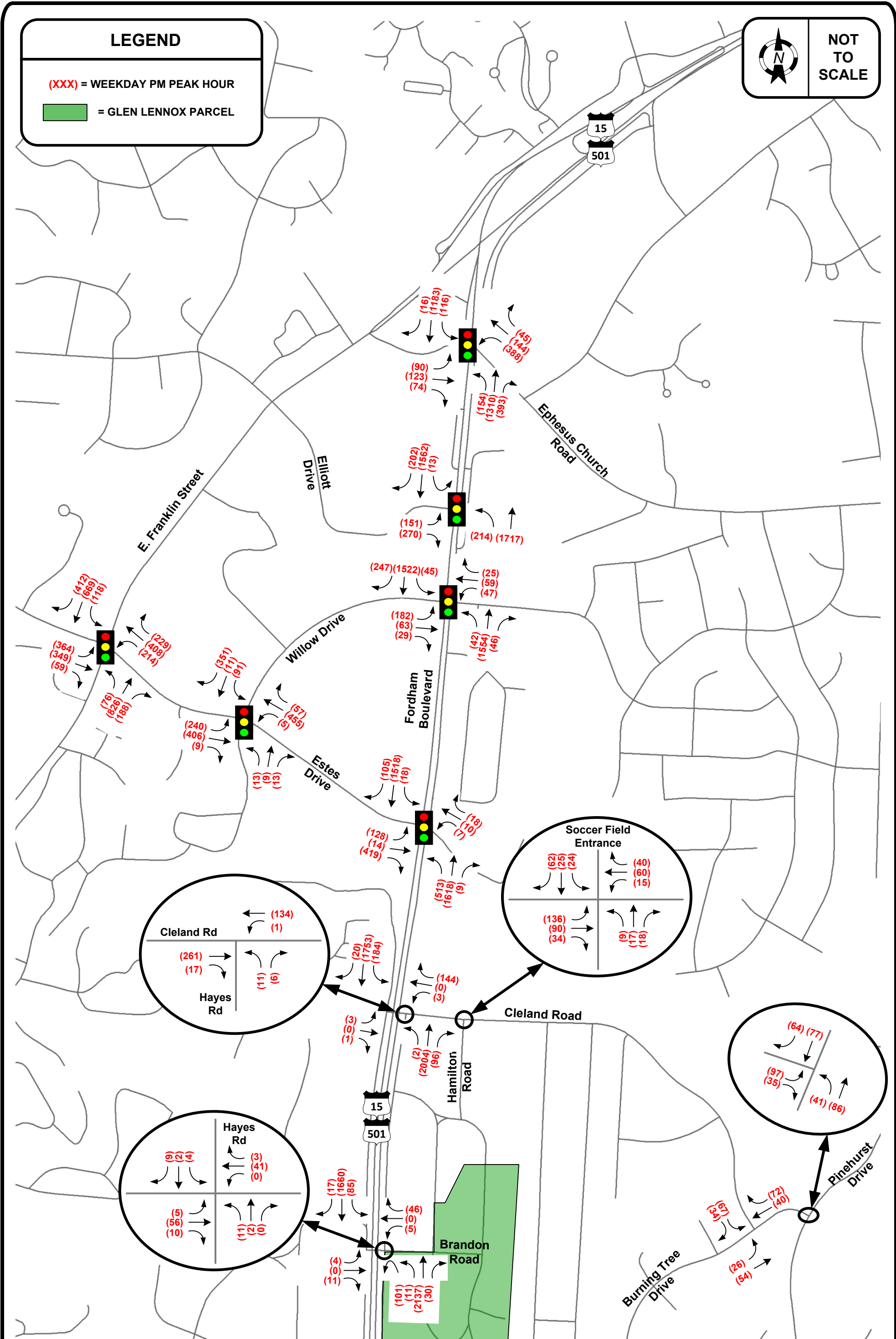
LEGEND

(XXX) = WEEKDAY PM PEAK HOUR

[Green Box] = GLEN LENNOX PARCEL



NOT
TO
SCALE



Glen Lennox Redevelopment
Traffic Impact Study

2018 PEAK HOUR TRAFFIC VOLUMES – WITH SITE PHASE 1

DATE: October 2013

FIGURE 10C

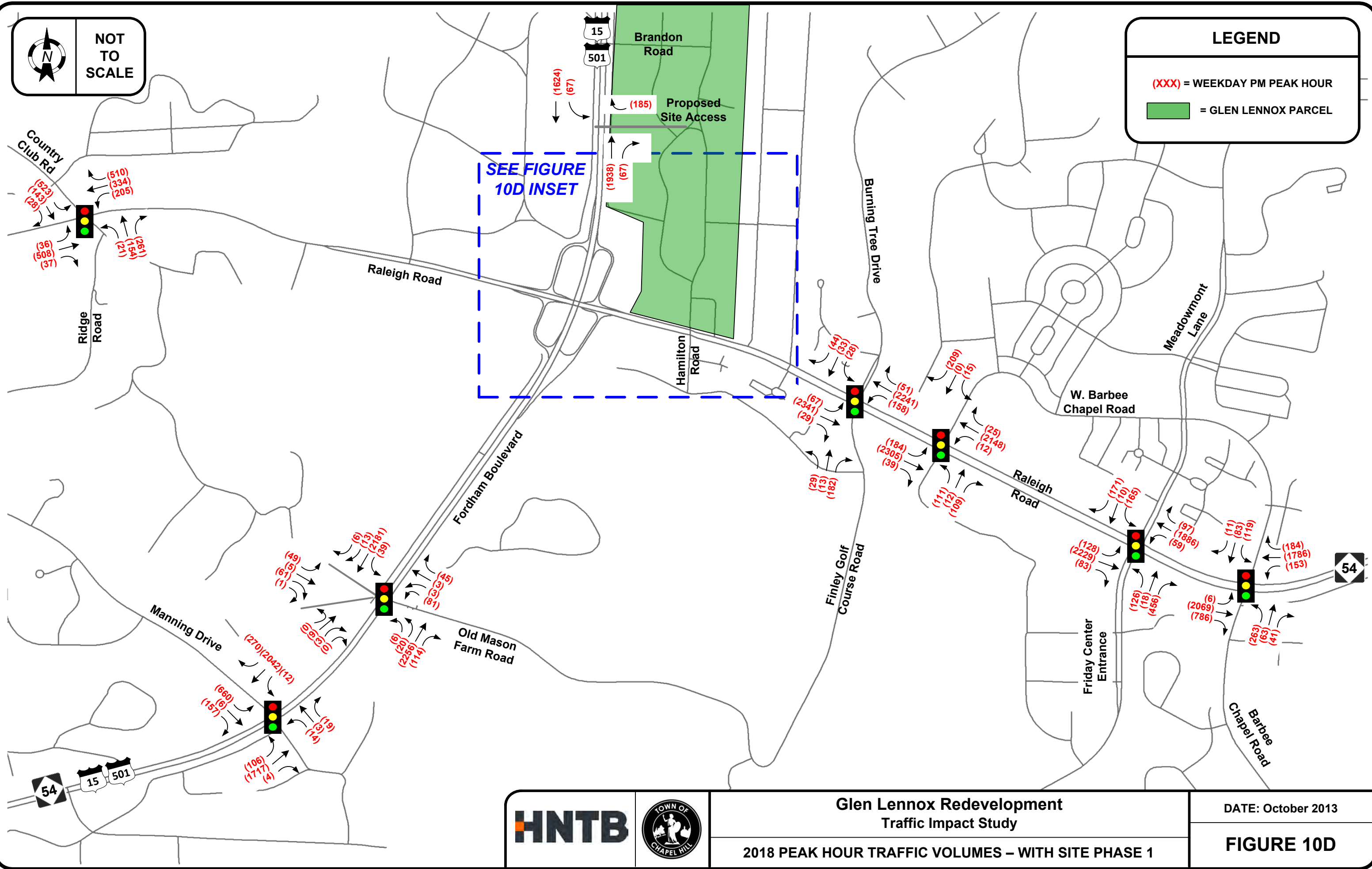


NOT
TO
SCALE

LEGEND

(XXX) = WEEKDAY PM PEAK HOUR

 = GLEN LENNOX PARCEL



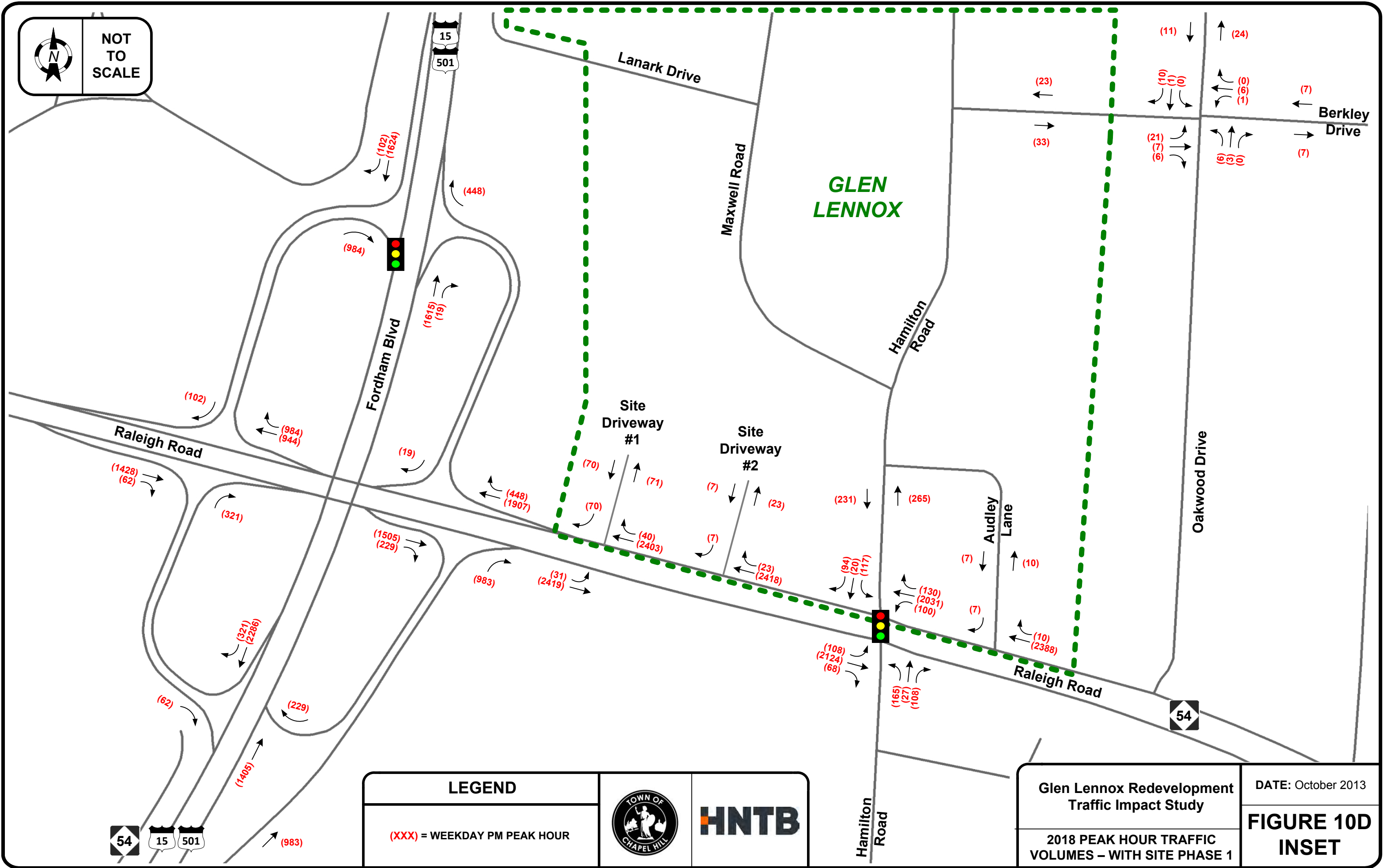



Glen Lennox Redevelopment
Traffic Impact Study

2018 PEAK HOUR TRAFFIC VOLUMES – WITH SITE PHASE 1

DATE: October 2013

FIGURE 10D



LEGEND

(XXX) = WEEKDAY PM PEAK HOUR

Glen Lennox Redevelopment Traffic Impact Study	DATE: October 2013
	FIGURE 10D INSET
2018 PEAK HOUR TRAFFIC VOLUMES – WITH SITE PHASE 1	

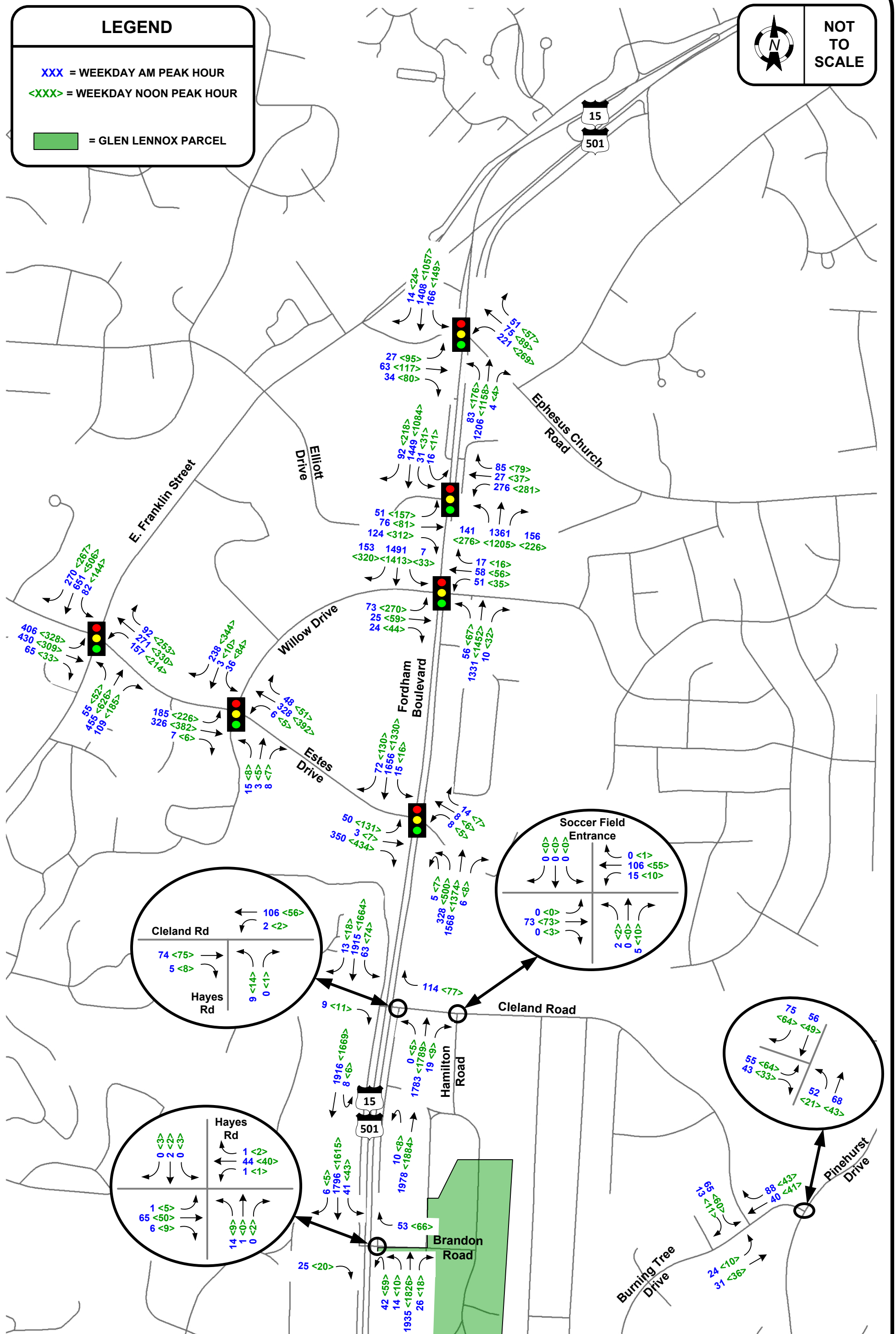
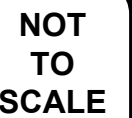
LEGEND

XXX = WEEKDAY AM PEAK HOUR

<XXX> = WEEKDAY NOON PEAK HOUR

 = GLEN LENNOX PARCEL

 = GLEN LENNOX PARCEL





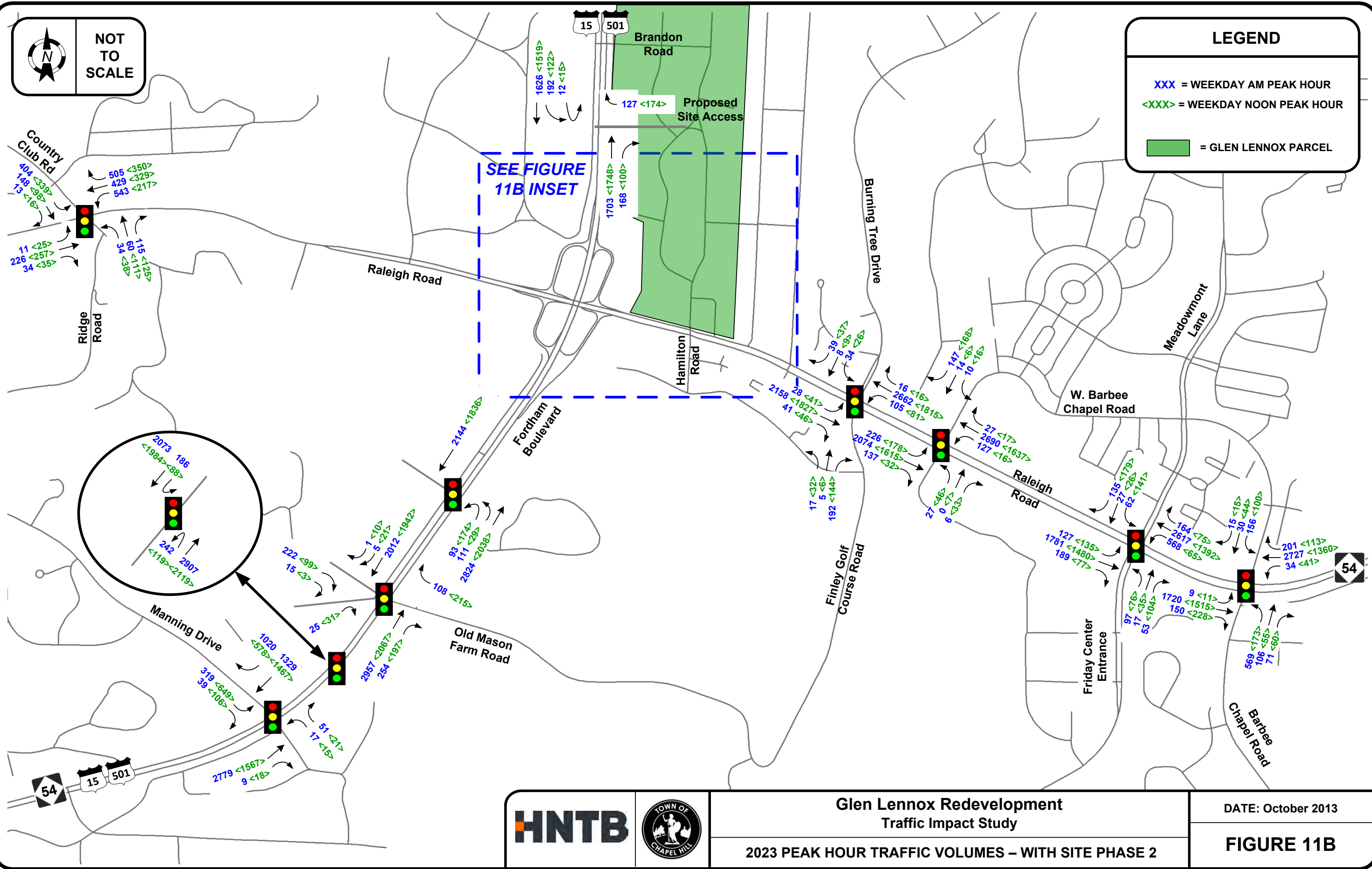
NOT
TO
SCALE

LEGEND

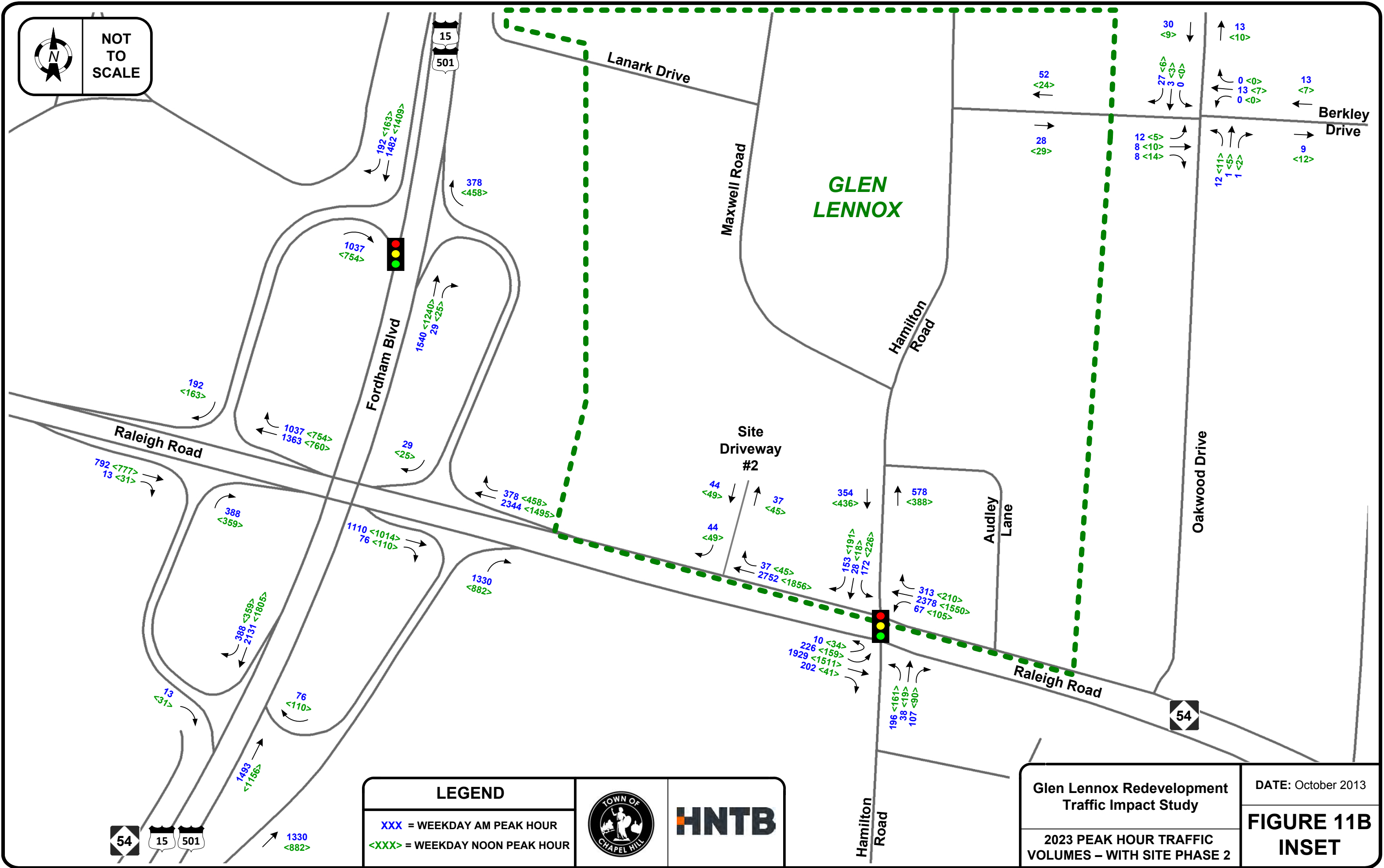
XXX
= WEEKDAY AM PEAK HOUR

<XXX>
= WEEKDAY NOON PEAK HOUR


= GLEN LENNOX PARCEL



NOT
TO
SCALE



LEGEND

XXX = WEEKDAY AM PEAK HOUR

<XXX> = WEEKDAY NOON PEAK HOUR

Glen Lennox Redevelopment
Traffic Impact Study

2023 PEAK HOUR TRAFFIC
VOLUMES – WITH SITE PHASE 2

DATE: October 2013

FIGURE 11B
INSET

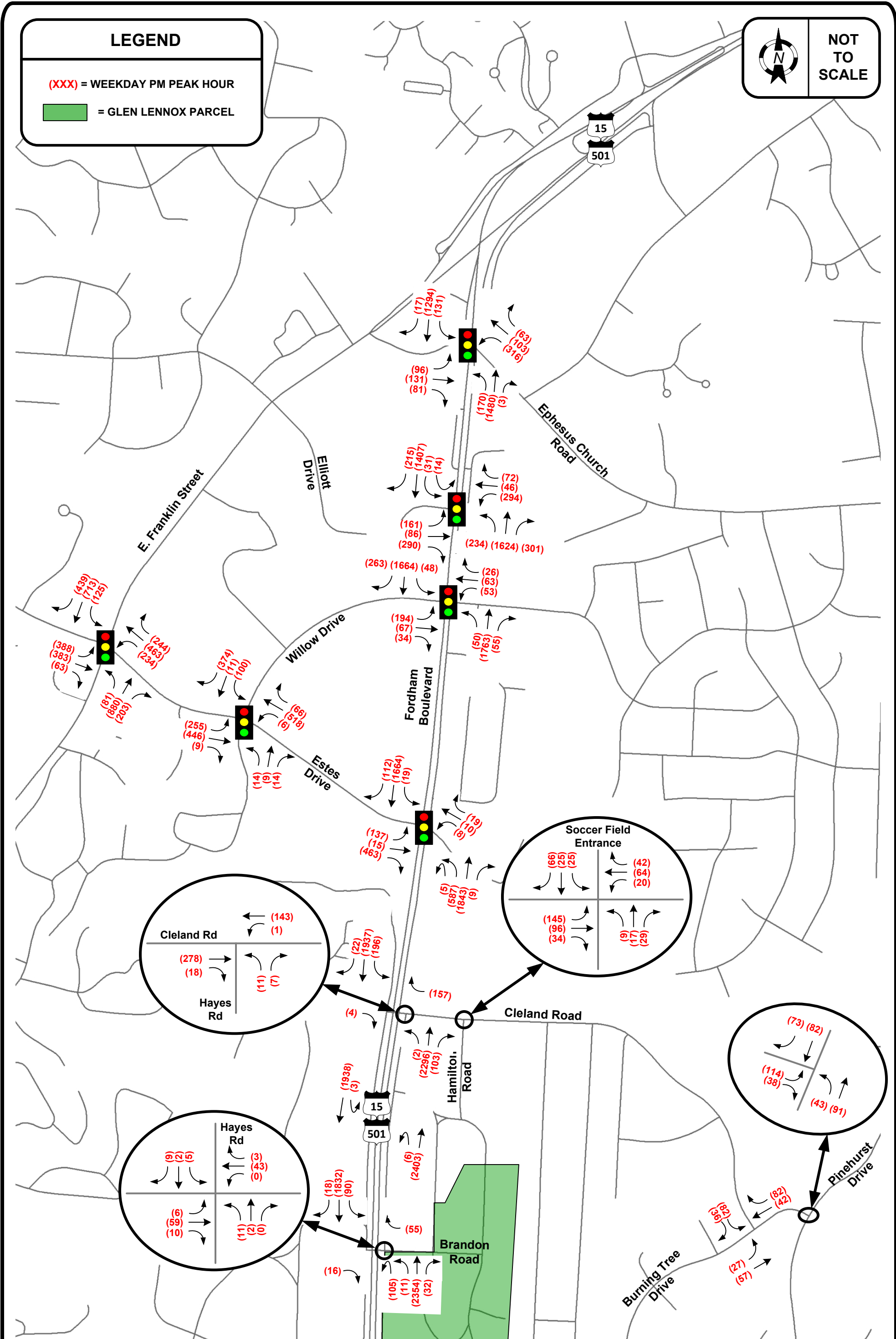
LEGEND

(XXX) = WEEKDAY PM PEAK HOUR

[Green Box] = GLEN LENNOX PARCEL



NOT
TO
SCALE



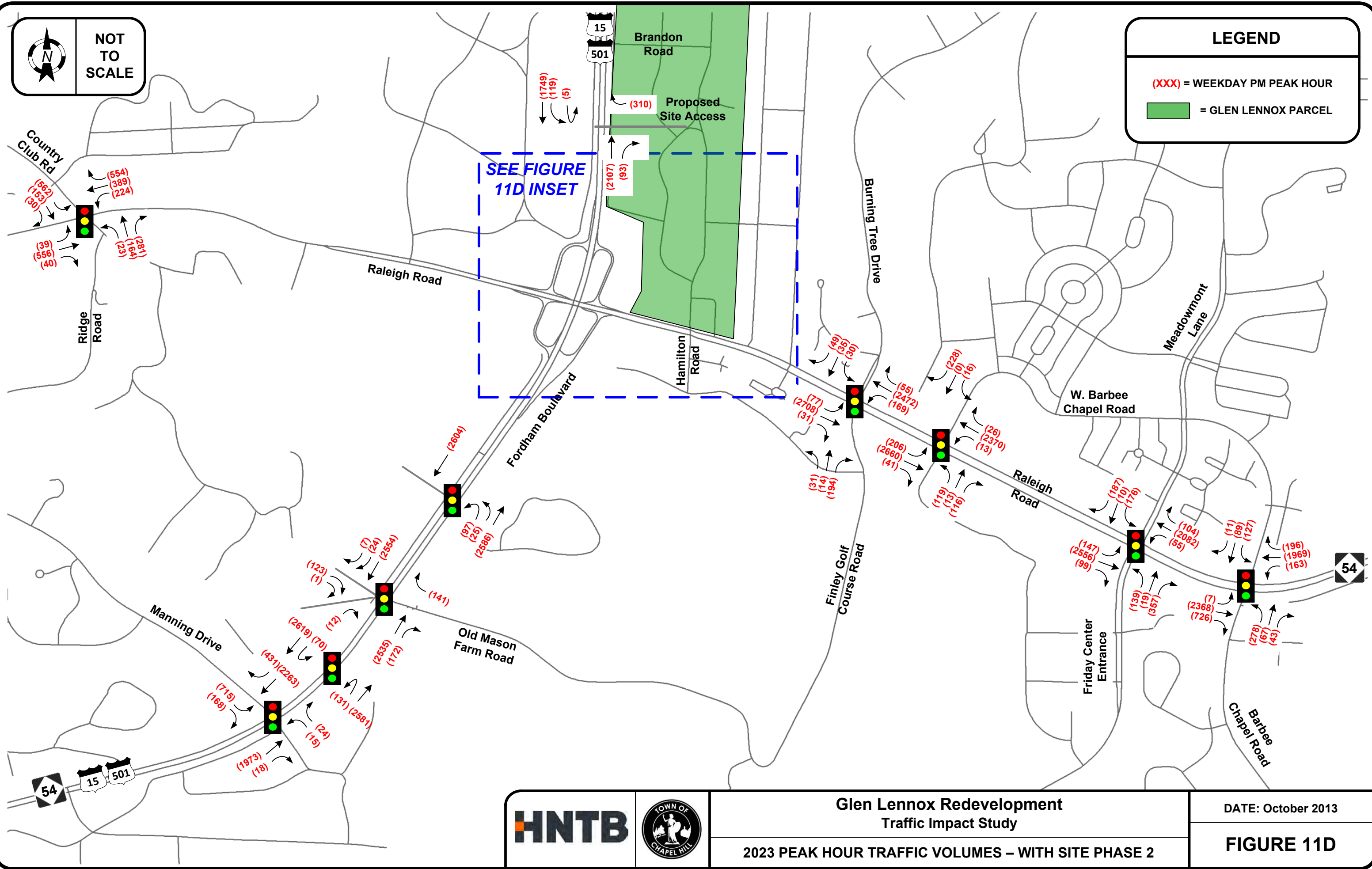


NOT
TO
SCALE

LEGEND

(XXX) = WEEKDAY PM PEAK HOUR

 = GLEN LENNOX PARCEL





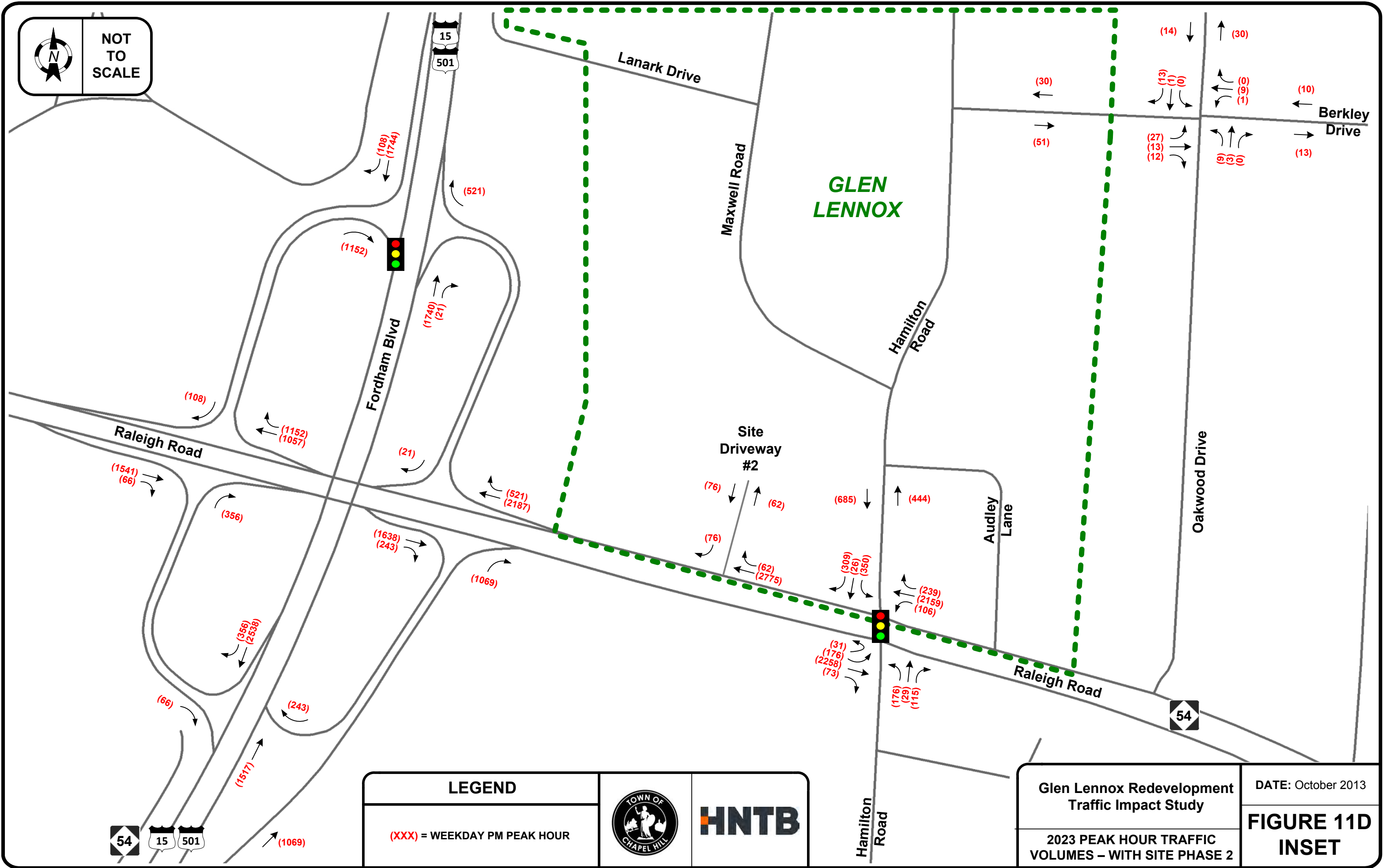

Glen Lennox Redevelopment
Traffic Impact Study

2023 PEAK HOUR TRAFFIC VOLUMES – WITH SITE PHASE 2

DATE: October 2013

FIGURE 11D

NOT
TO
SCALE



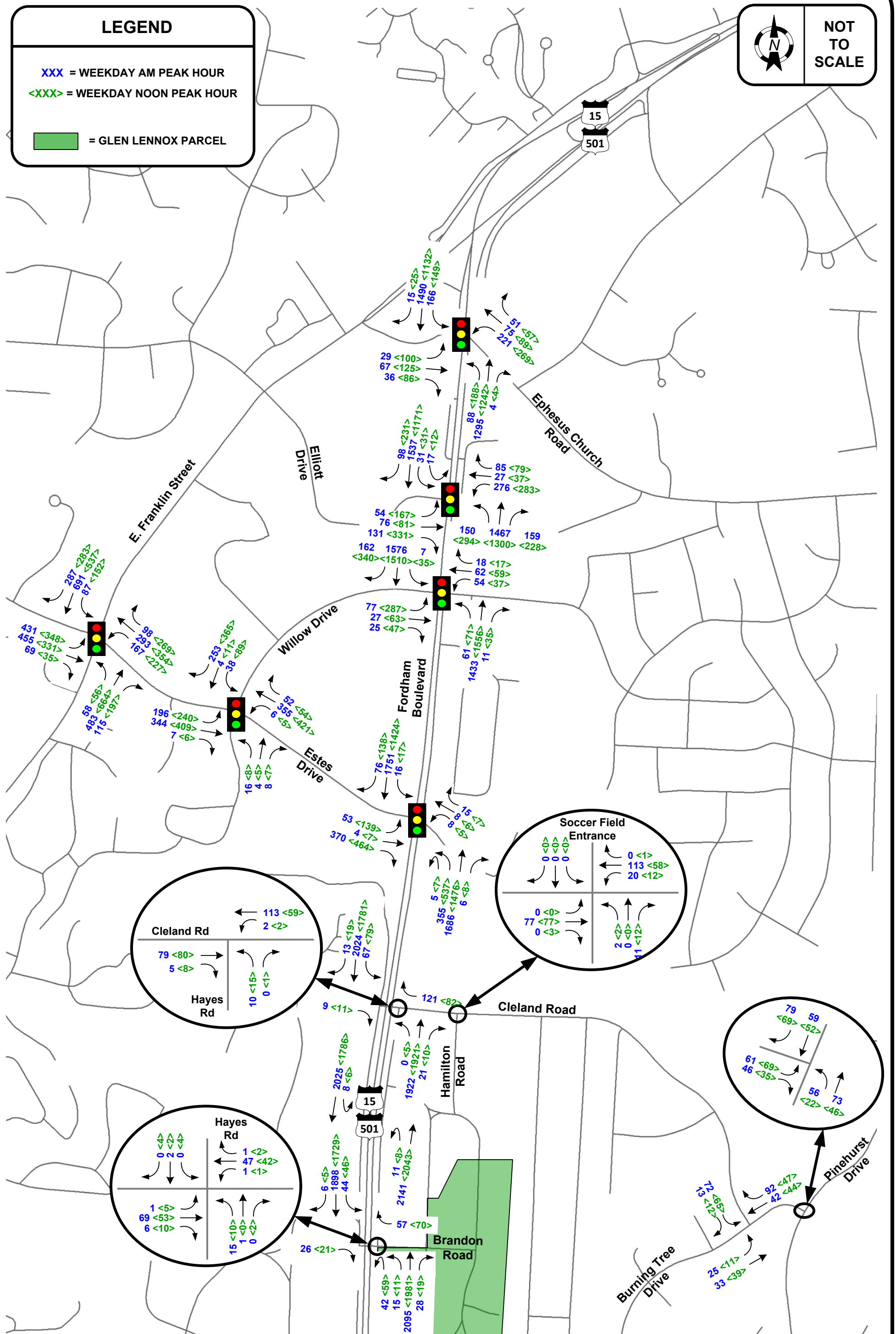
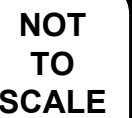
LEGEND

XXX = WEEKDAY AM PEAK HOUR

<XXX> = WEEKDAY NOON PEAK HOUR

 = GLEN LENNOX PARCEL

 = GLEN LENNOX PARCEL





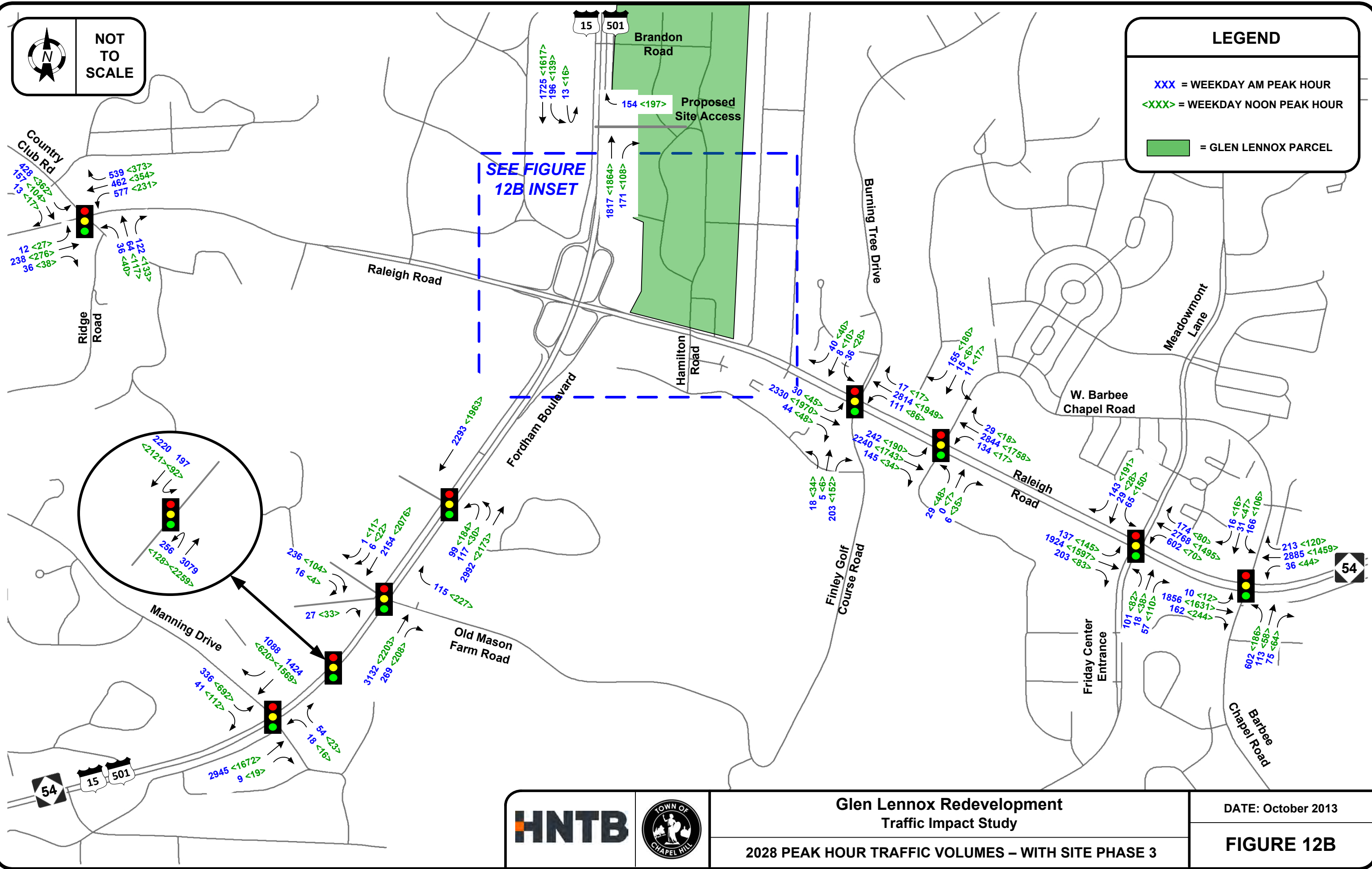
NOT
TO
SCALE

LEGEND

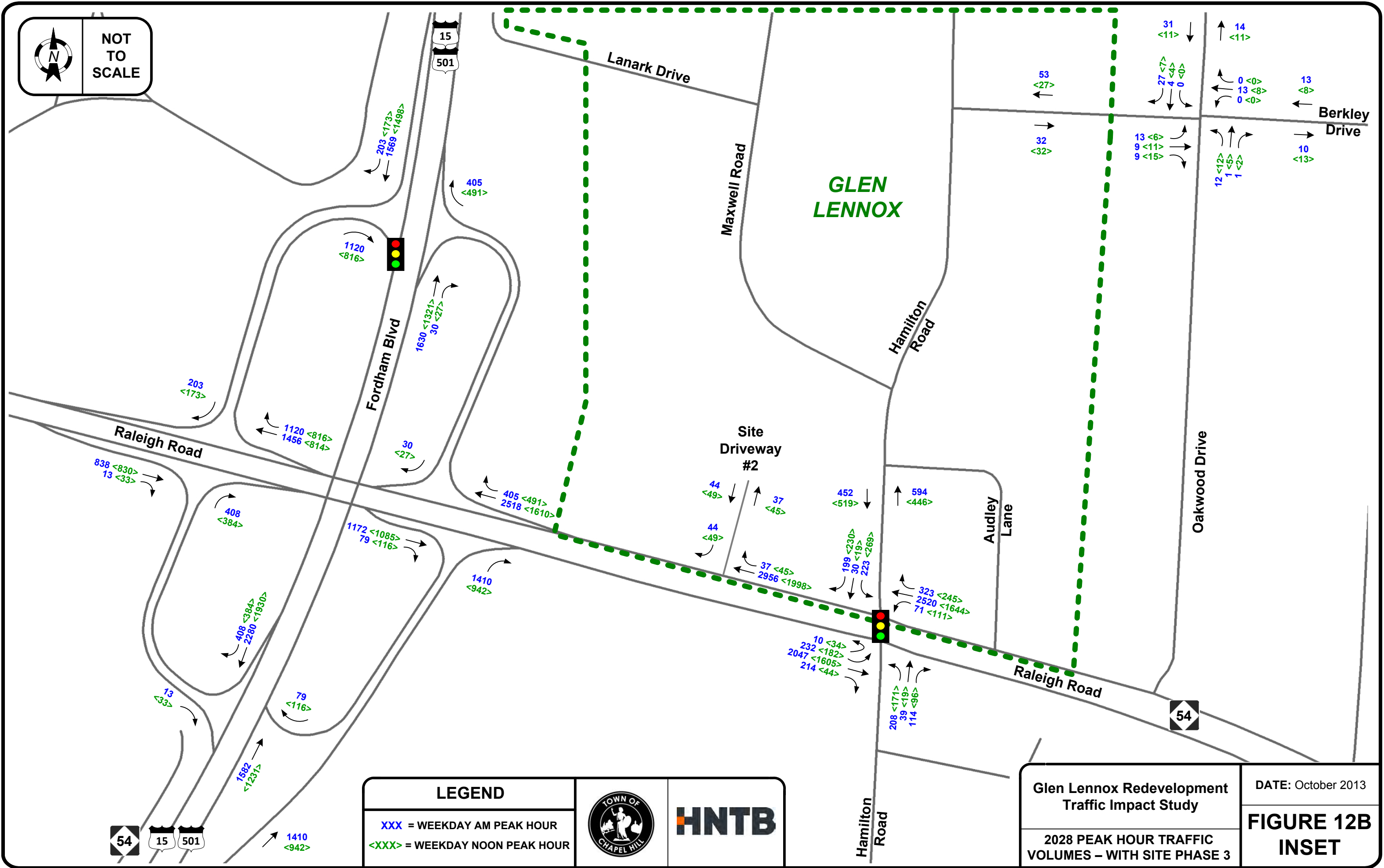
XXX
= WEEKDAY AM PEAK HOUR

<XXX>
= WEEKDAY NOON PEAK HOUR


= GLEN LENNOX PARCEL



NOT
TO
SCALE



LEGEND

XXX = WEEKDAY AM PEAK HOUR

<XXX> = WEEKDAY NOON PEAK HOUR

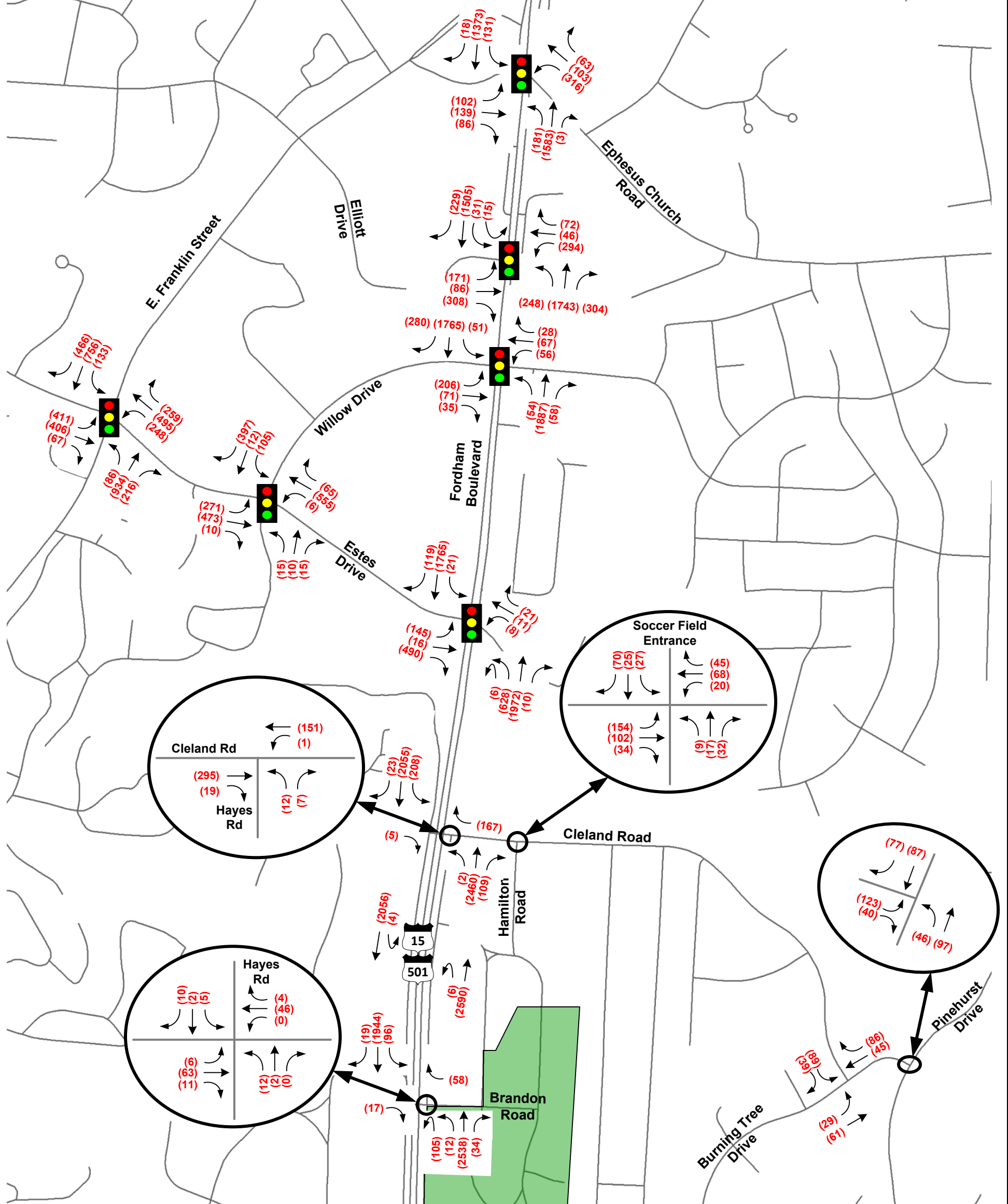
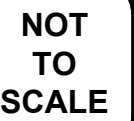
Glen Lennox Redevelopment Traffic Impact Study	DATE: October 2013
	FIGURE 12B INSET
2028 PEAK HOUR TRAFFIC VOLUMES – WITH SITE PHASE 3	

LEGEND

(XXX) = WEEKDAY PM PEAK HOUR

 = GLEN LENNOX PARCEL

= GLEN LENNOX PARCEL



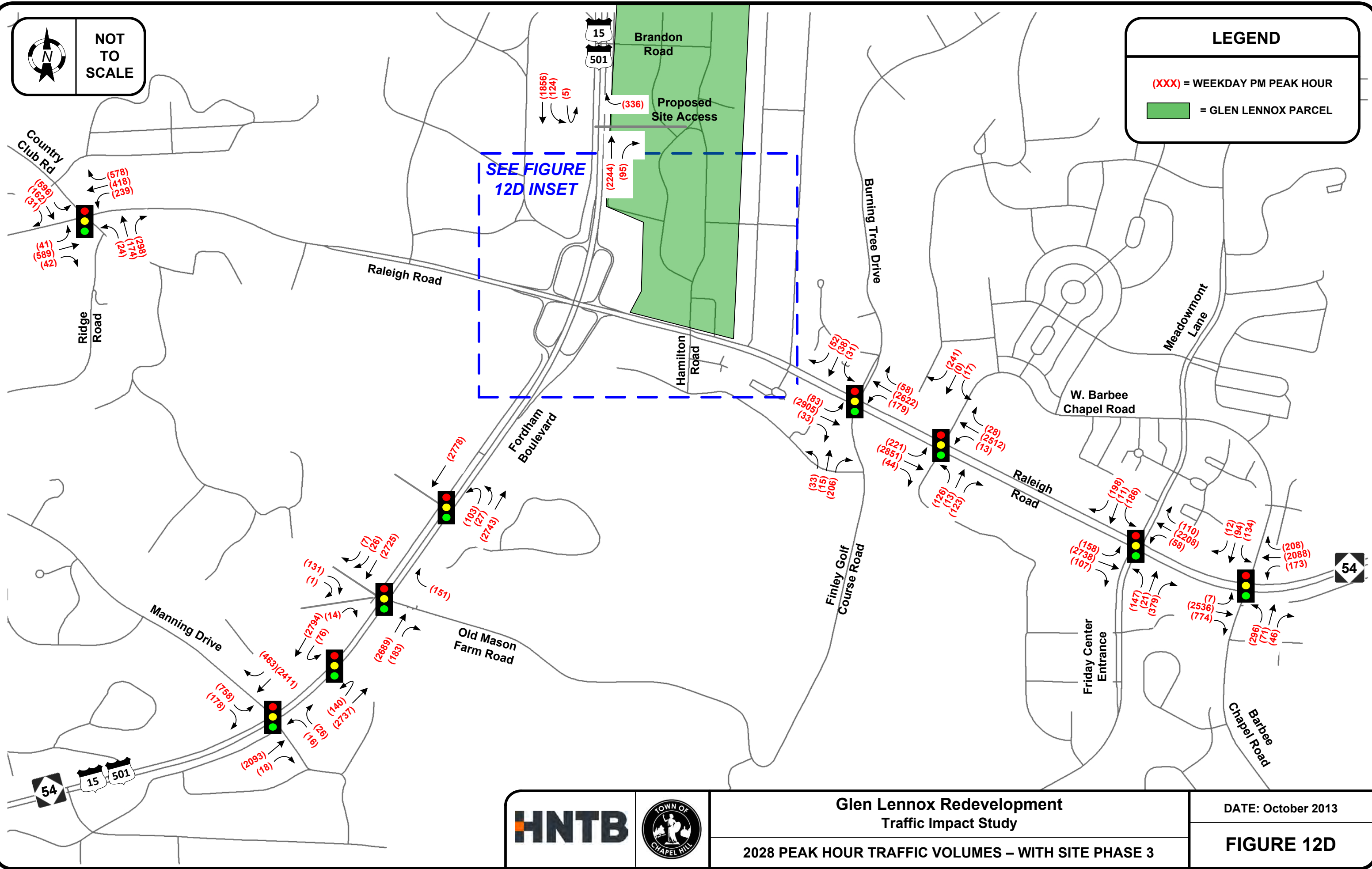


NOT
TO
SCALE

LEGEND

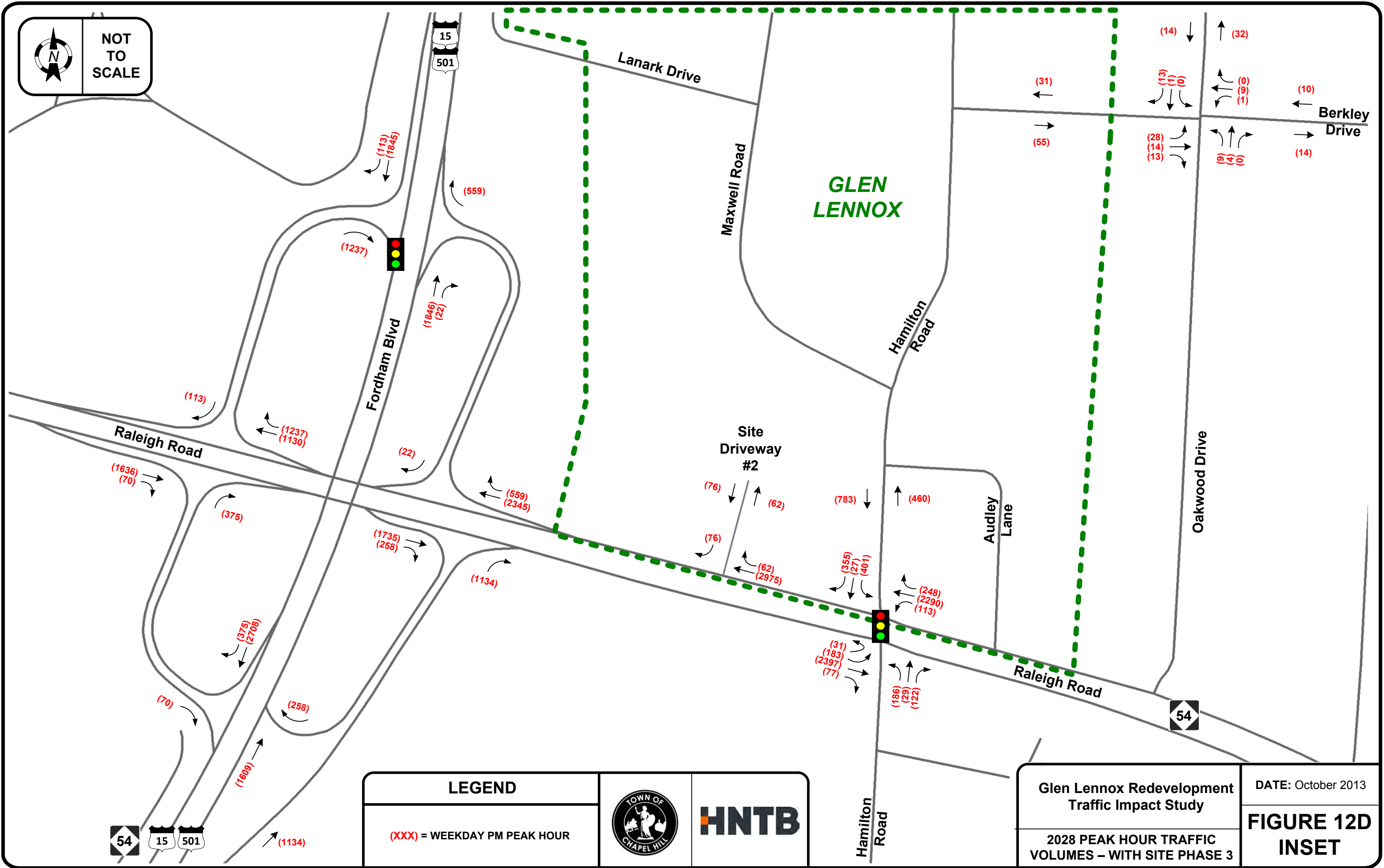
(XXX) = WEEKDAY PM PEAK HOUR

 = GLEN LENNOX PARCEL





NOT
TO
SCALE



LEGEND

(XXX) = WEEKDAY PM PEAK HOUR




Glen Lennox Redevelopment Traffic Impact Study	DATE: October 2013
	FIGURE 12D INSET
2028 PEAK HOUR TRAFFIC VOLUMES – WITH SITE PHASE 3	

LEGEND

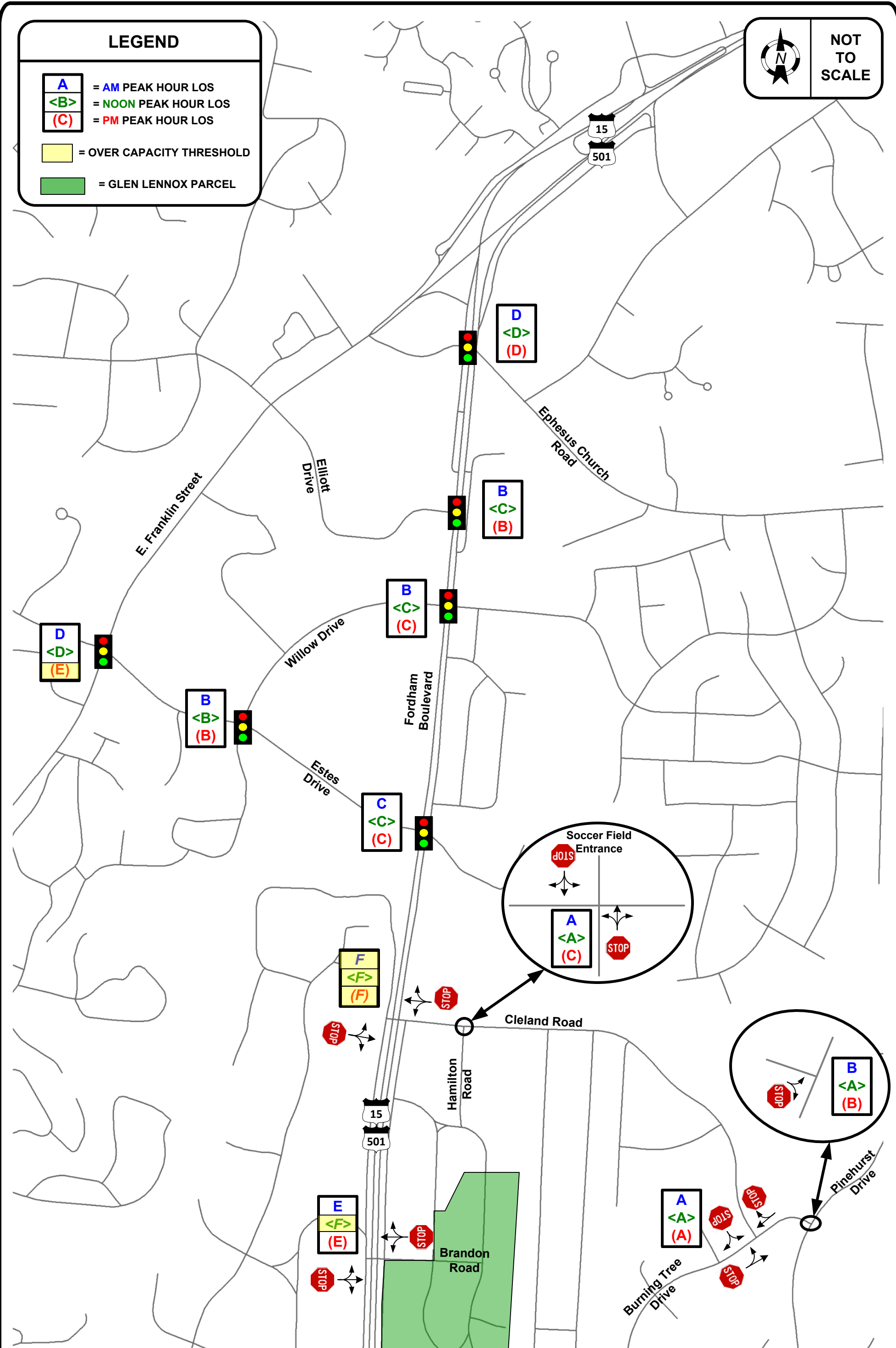
- A

(C)

 = AM PEAK HOUR LOS
= NOON PEAK HOUR LOS
= PM PEAK HOUR LOS
- = OVER CAPACITY THRESHOLD
- = GLEN LENNOX PARCEL

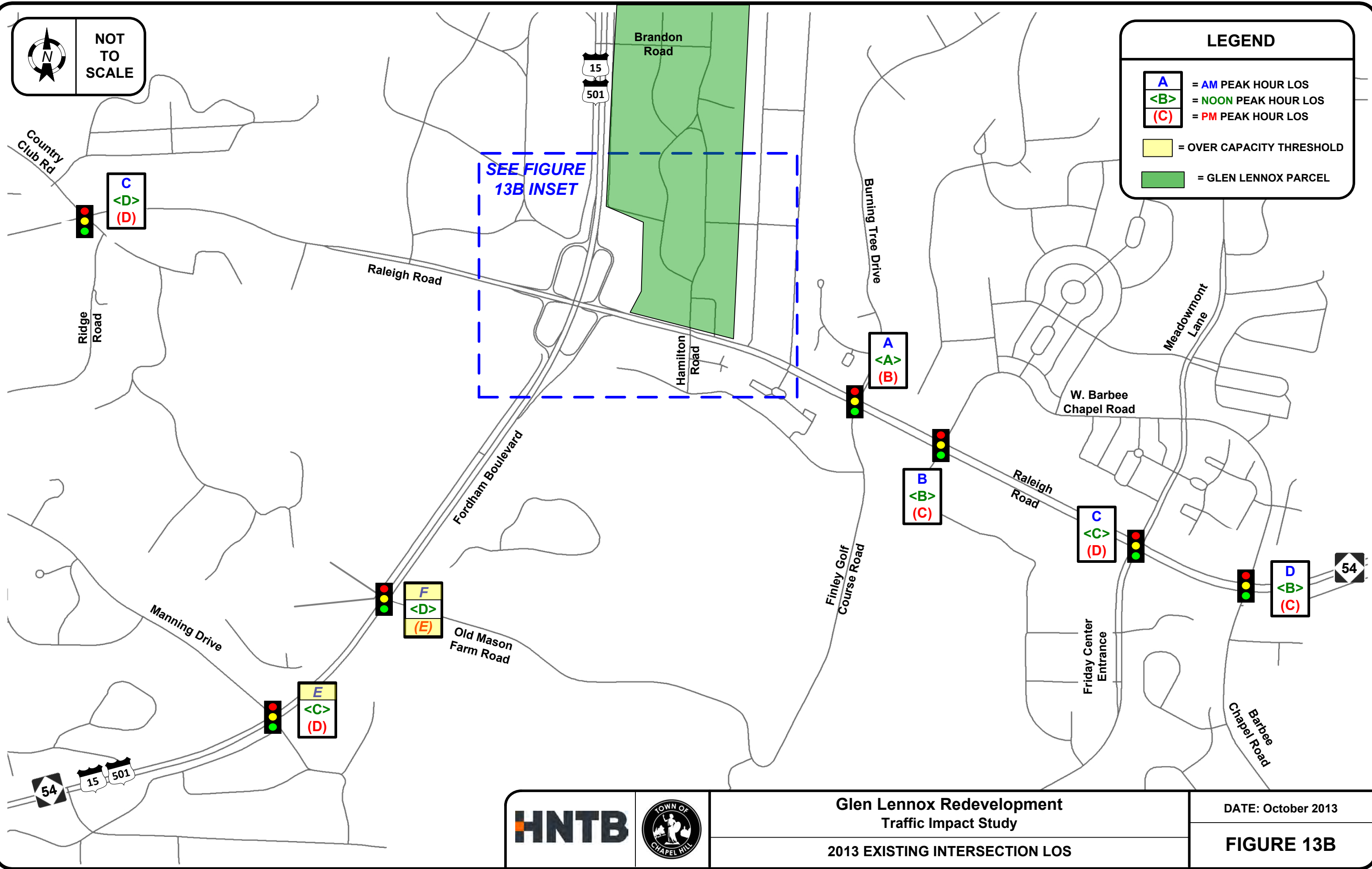


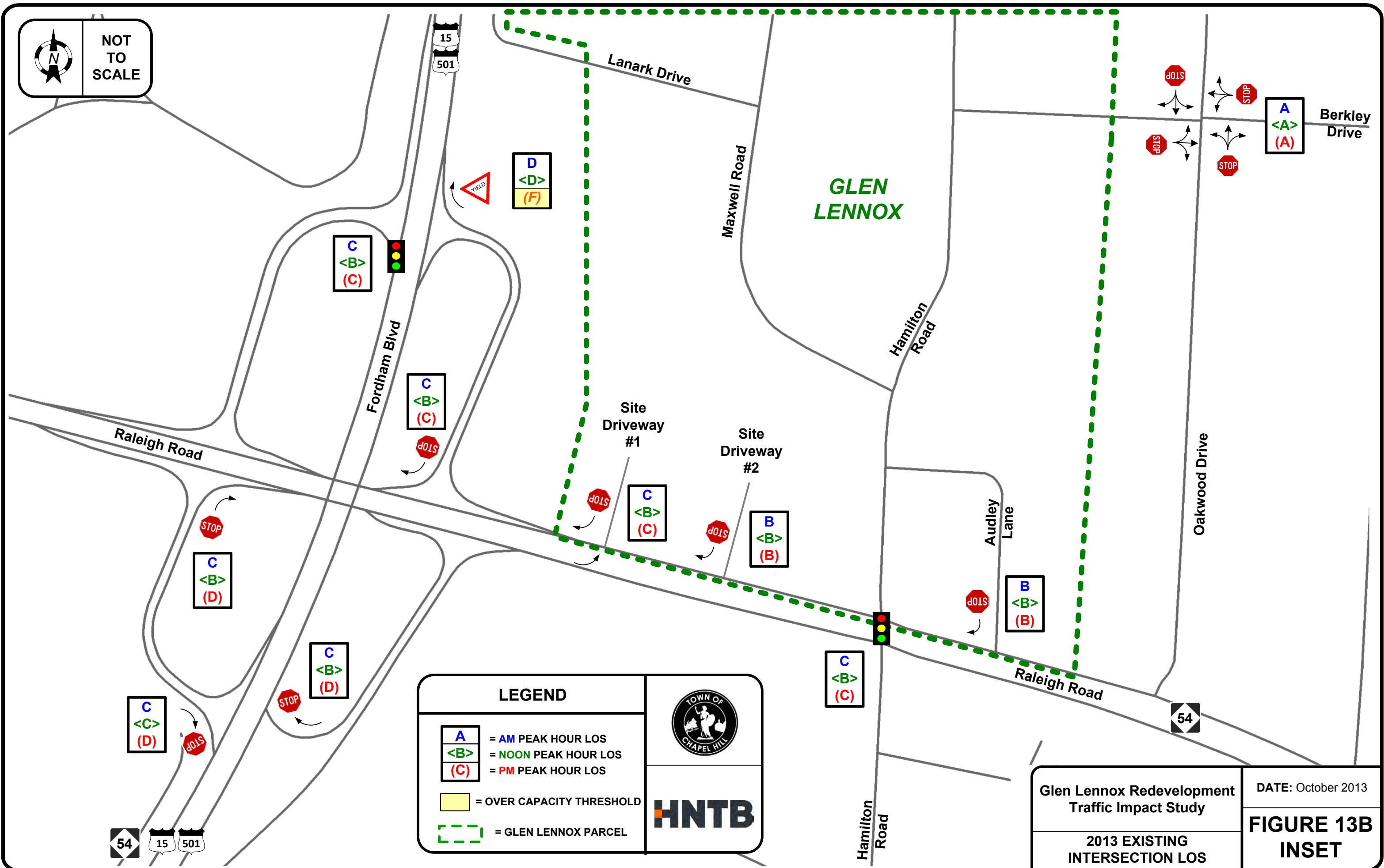
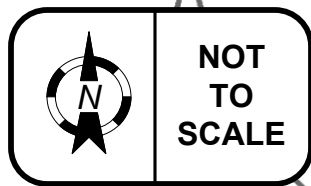
NOT
TO
SCALE

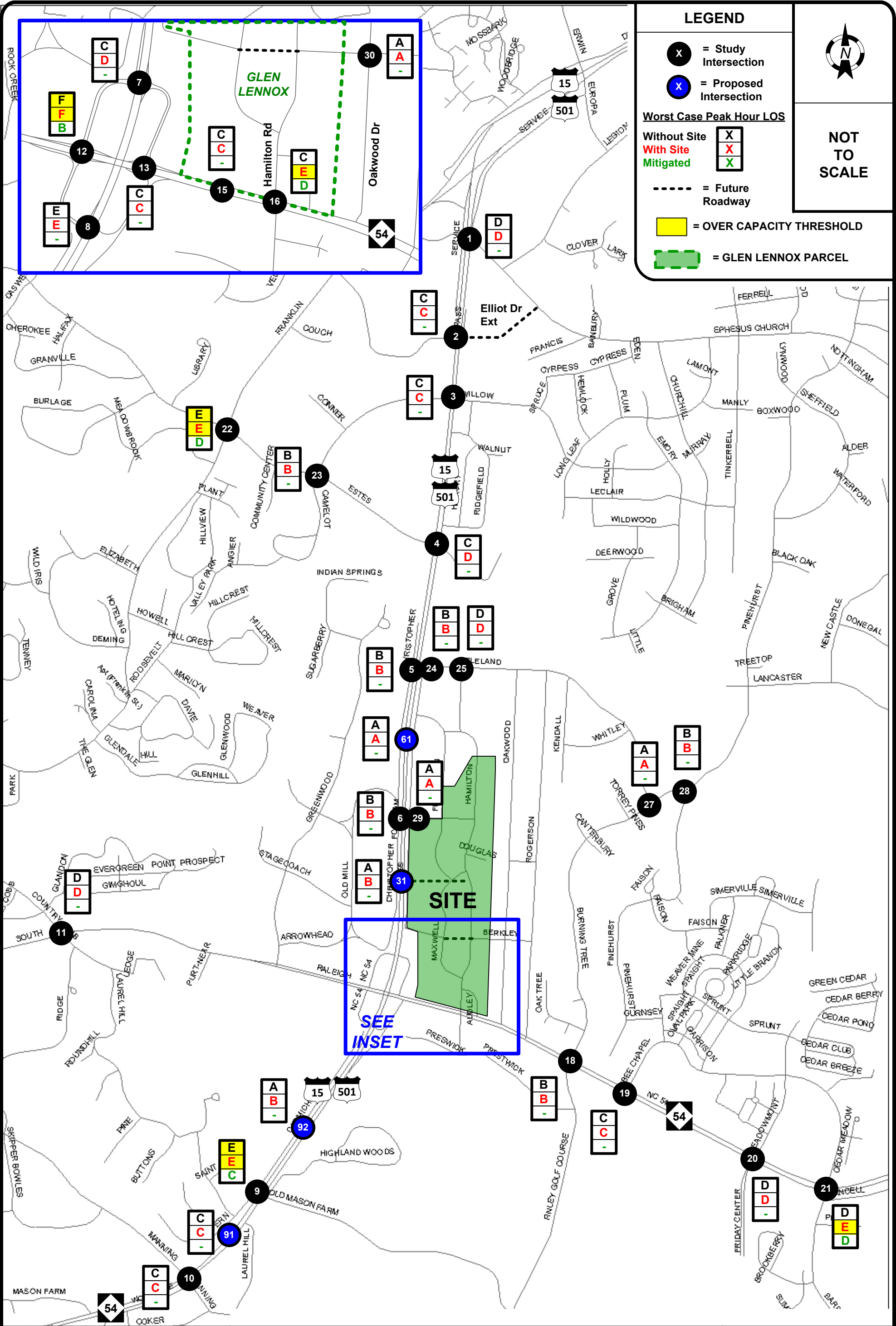


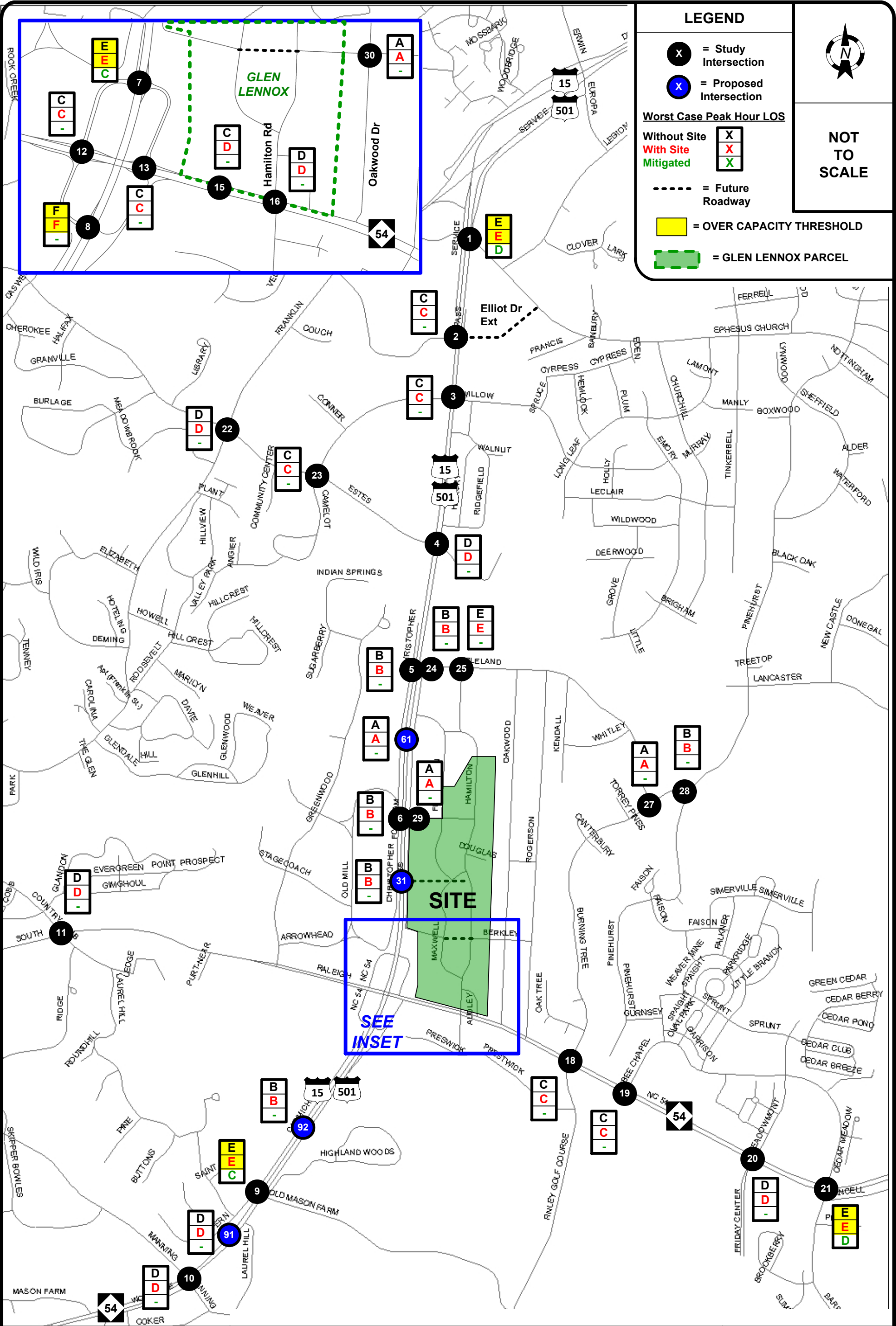


NOT
TO
SCALE









LEGEND

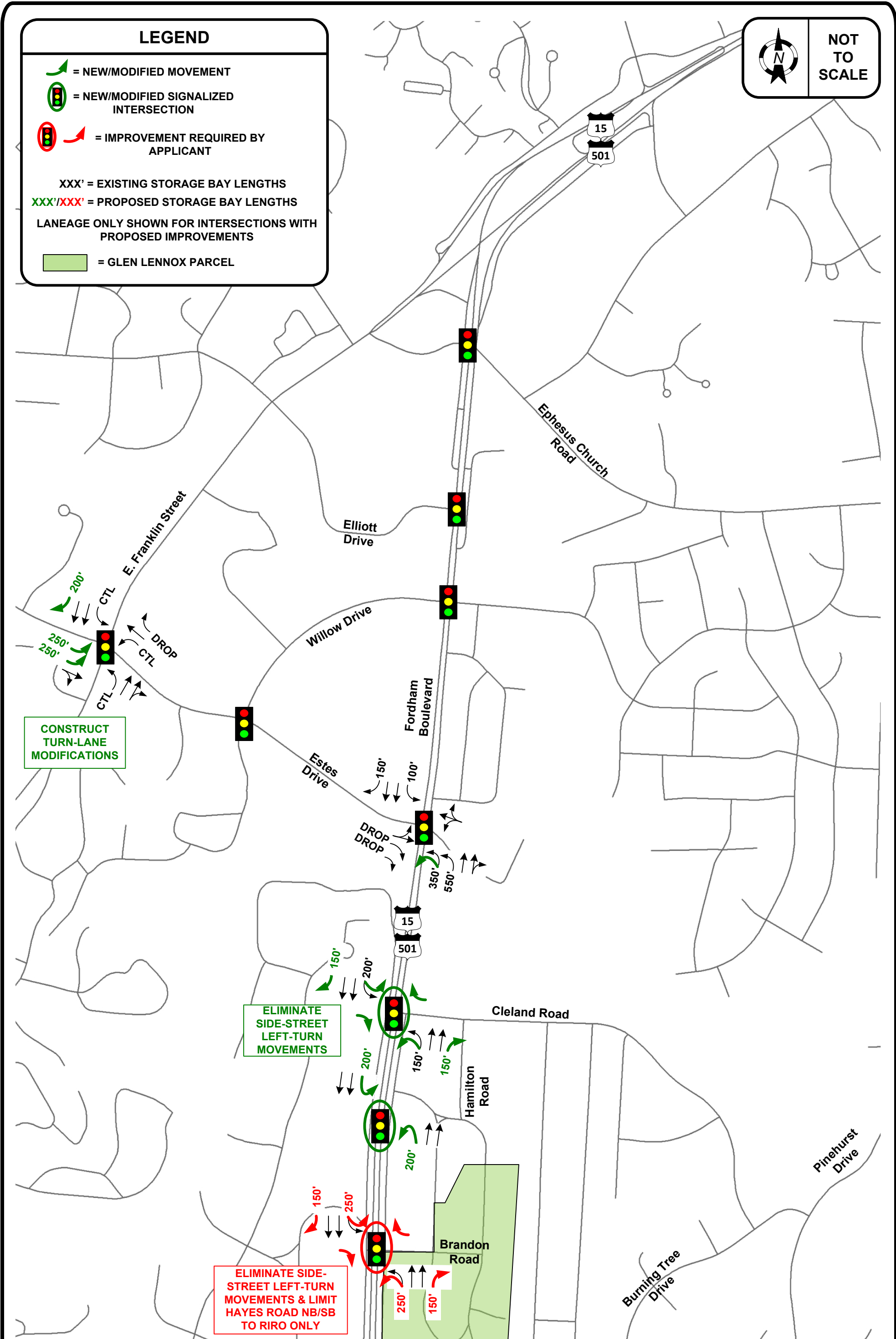
- = NEW/MODIFIED MOVEMENT
- = NEW/MODIFIED SIGNALIZED INTERSECTION
- = IMPROVEMENT REQUIRED BY APPLICANT

XXX' = EXISTING STORAGE BAY LENGTHS
XXX'/XXX' = PROPOSED STORAGE BAY LENGTHS
LANEAGE ONLY SHOWN FOR INTERSECTIONS WITH PROPOSED IMPROVEMENTS

= GLEN LENNOX PARCEL



NOT
TO
SCALE



Glen Lennox Redevelopment
Traffic Impact Study

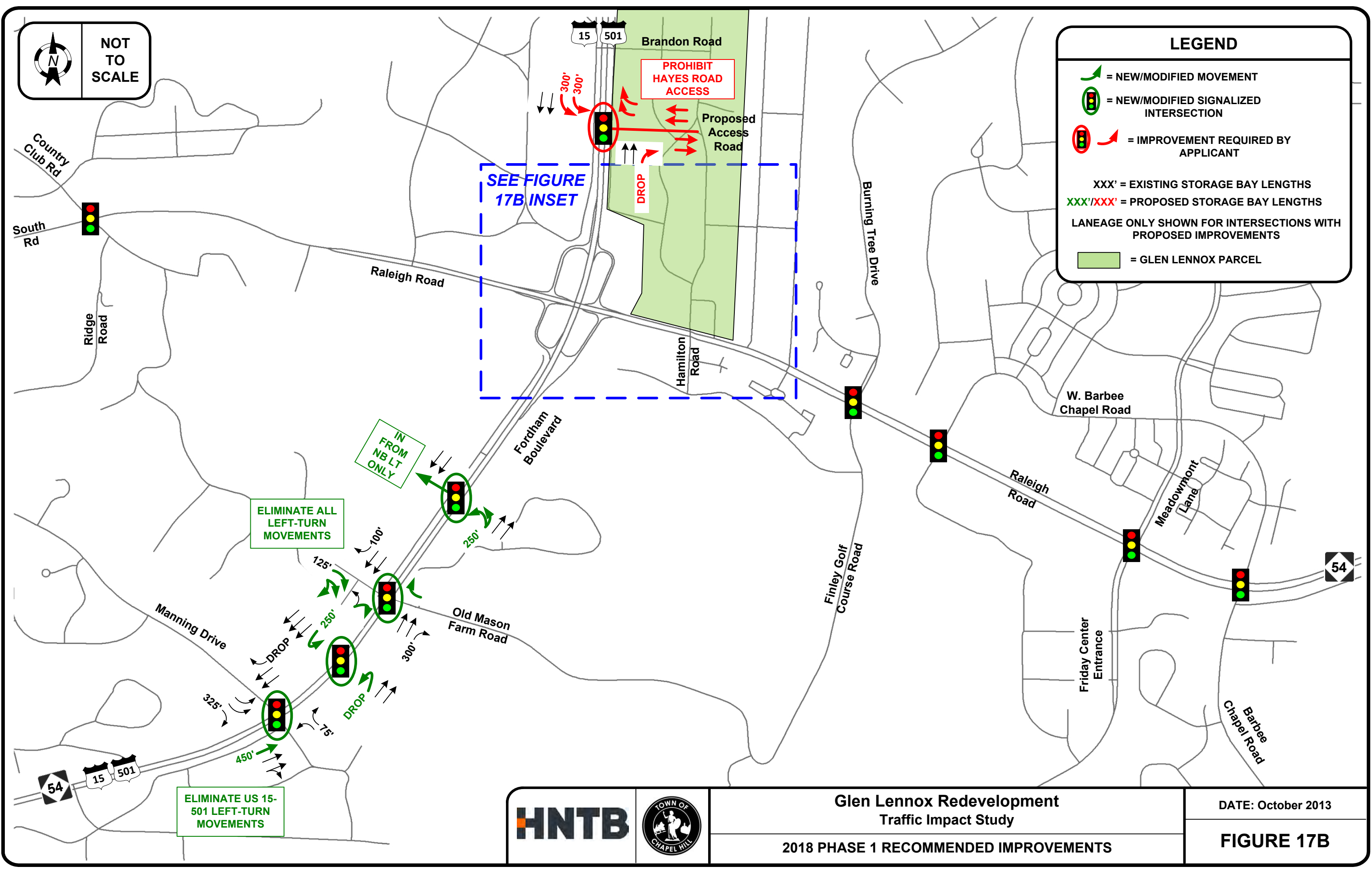
2018 PHASE 1 RECOMMENDED IMPROVEMENTS

DATE: October 2013

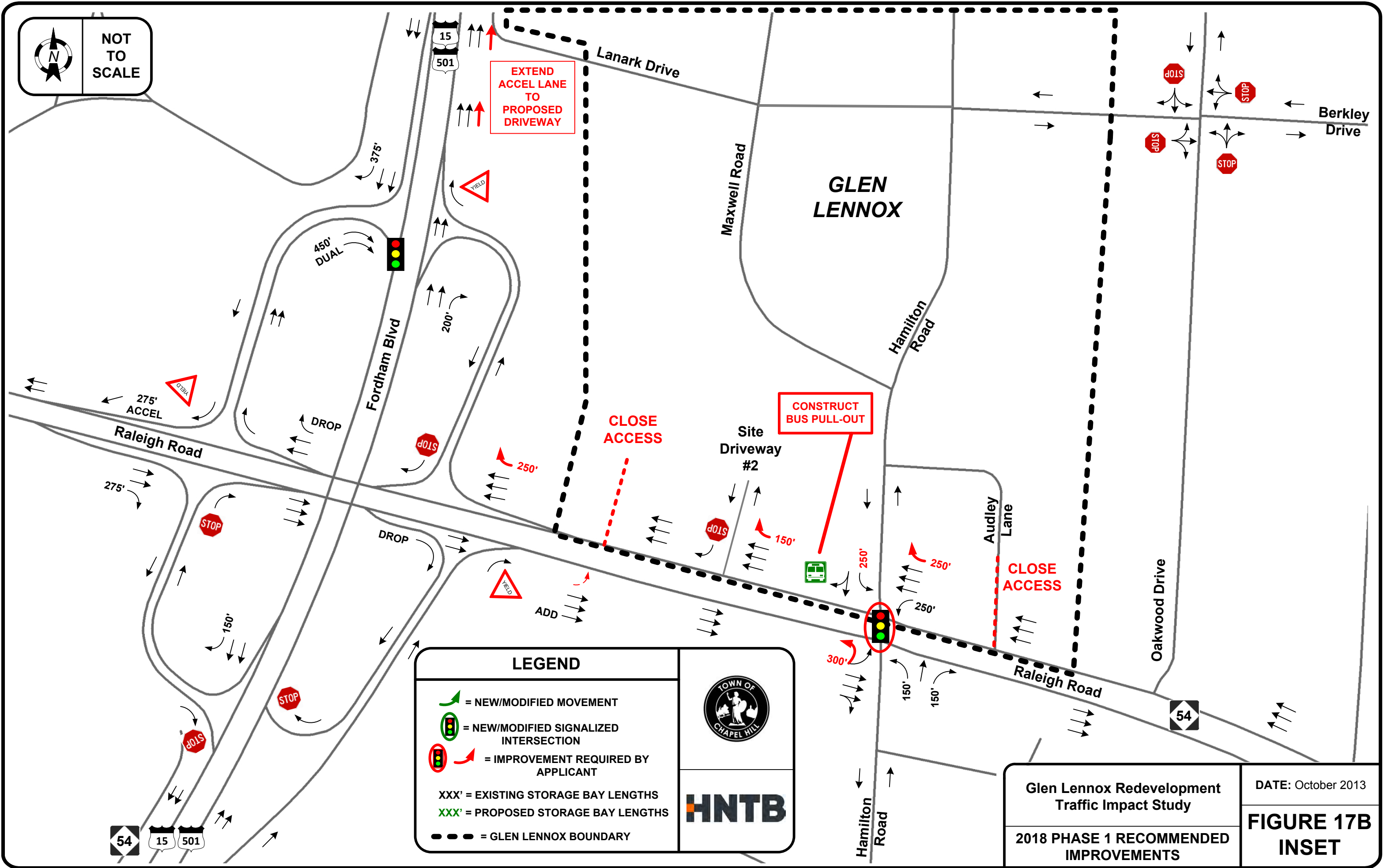
FIGURE 17A



NOT
TO
SCALE



NOT
TO
SCALE



LEGEND

= NEW/MODIFIED MOVEMENT

= NEW/MODIFIED SIGNALIZED INTERSECTION

= IMPROVEMENT REQUIRED BY APPLICANT

XXX' = EXISTING STORAGE BAY LENGTHS

XXX' = PROPOSED STORAGE BAY LENGTHS

--- = GLEN LENNOX BOUNDARY

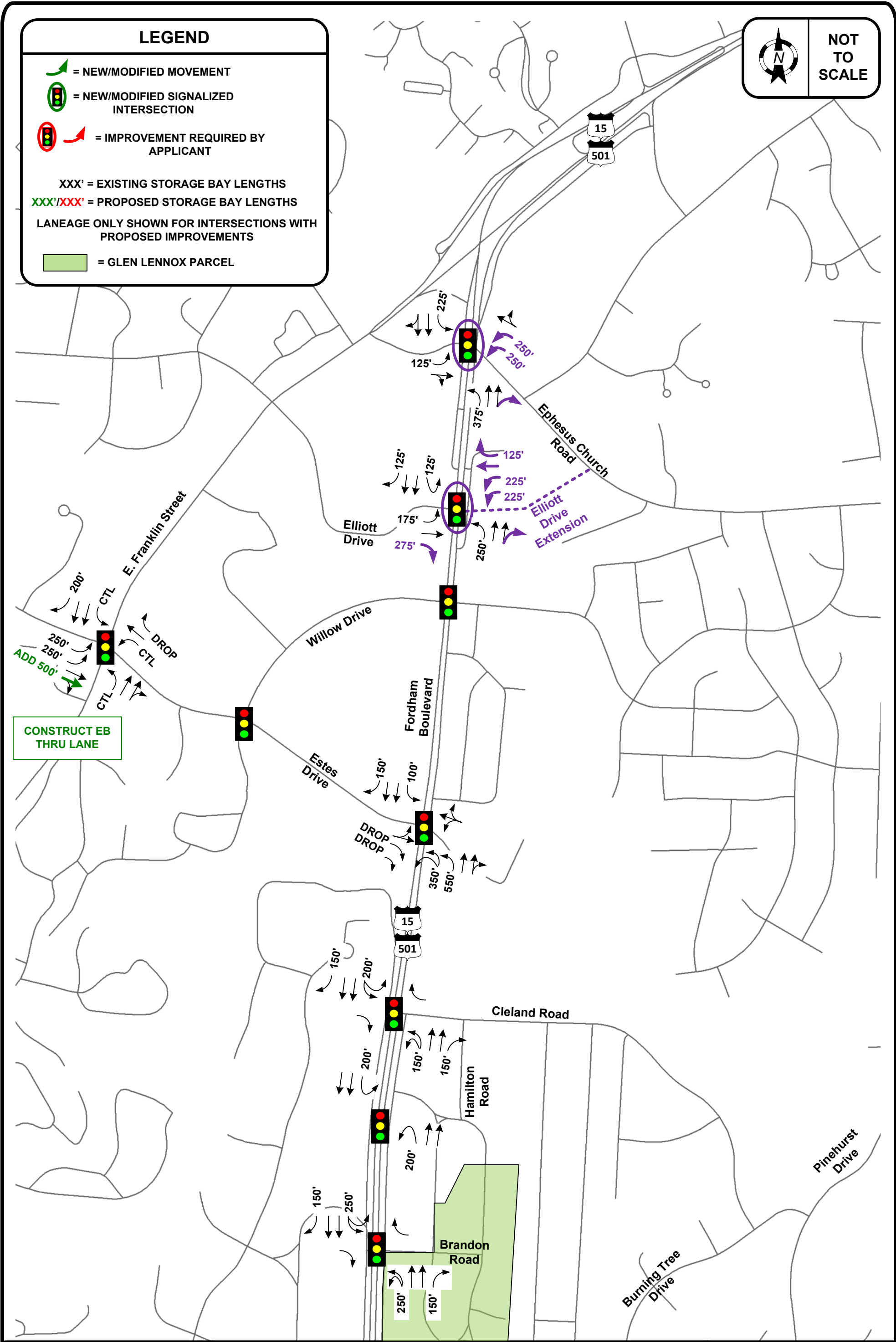
HNTB

Glen Lennox Redevelopment
Traffic Impact Study

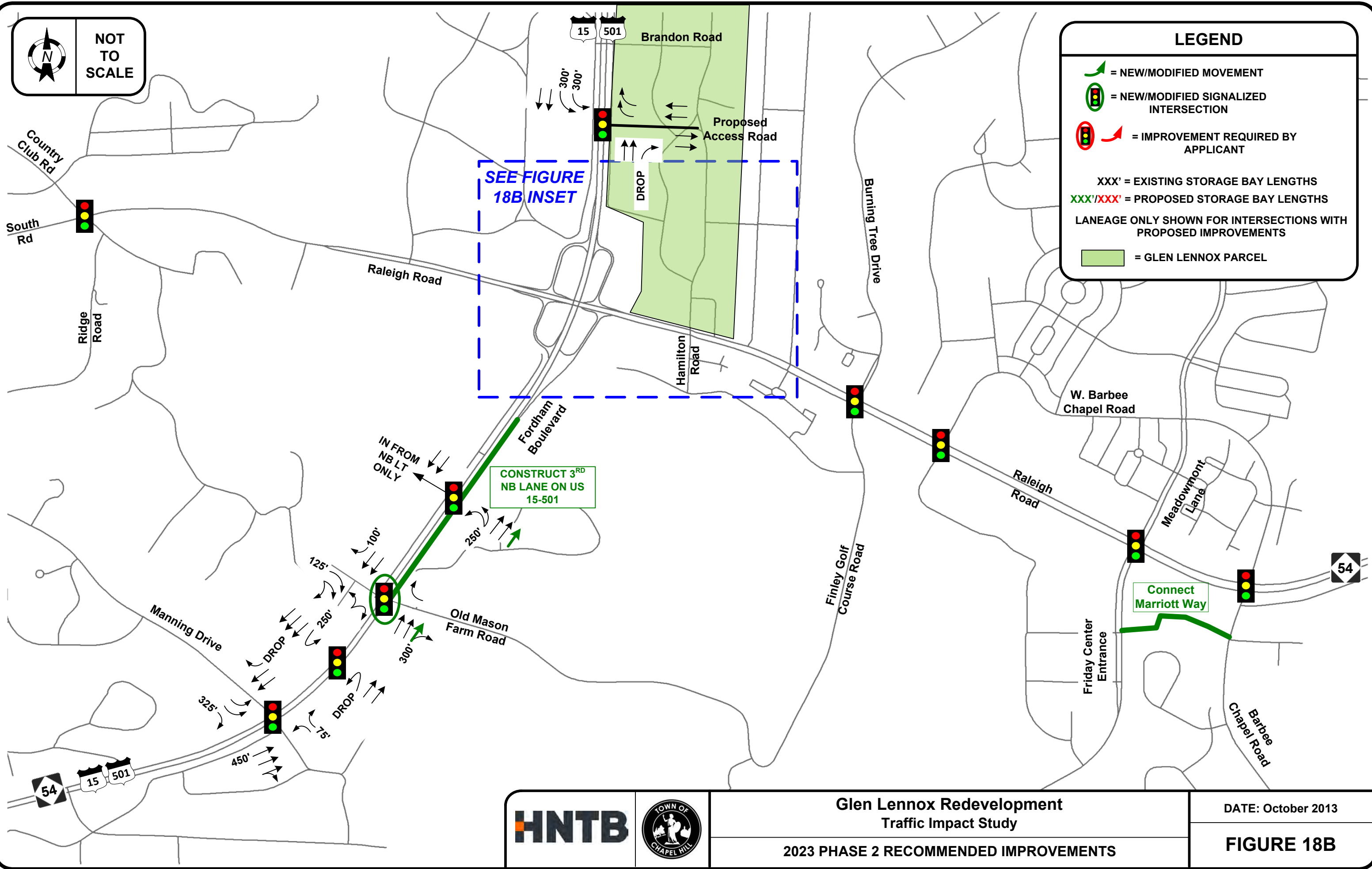
2018 PHASE 1 RECOMMENDED
IMPROVEMENTS

DATE: October 2013

FIGURE 17B
INSET

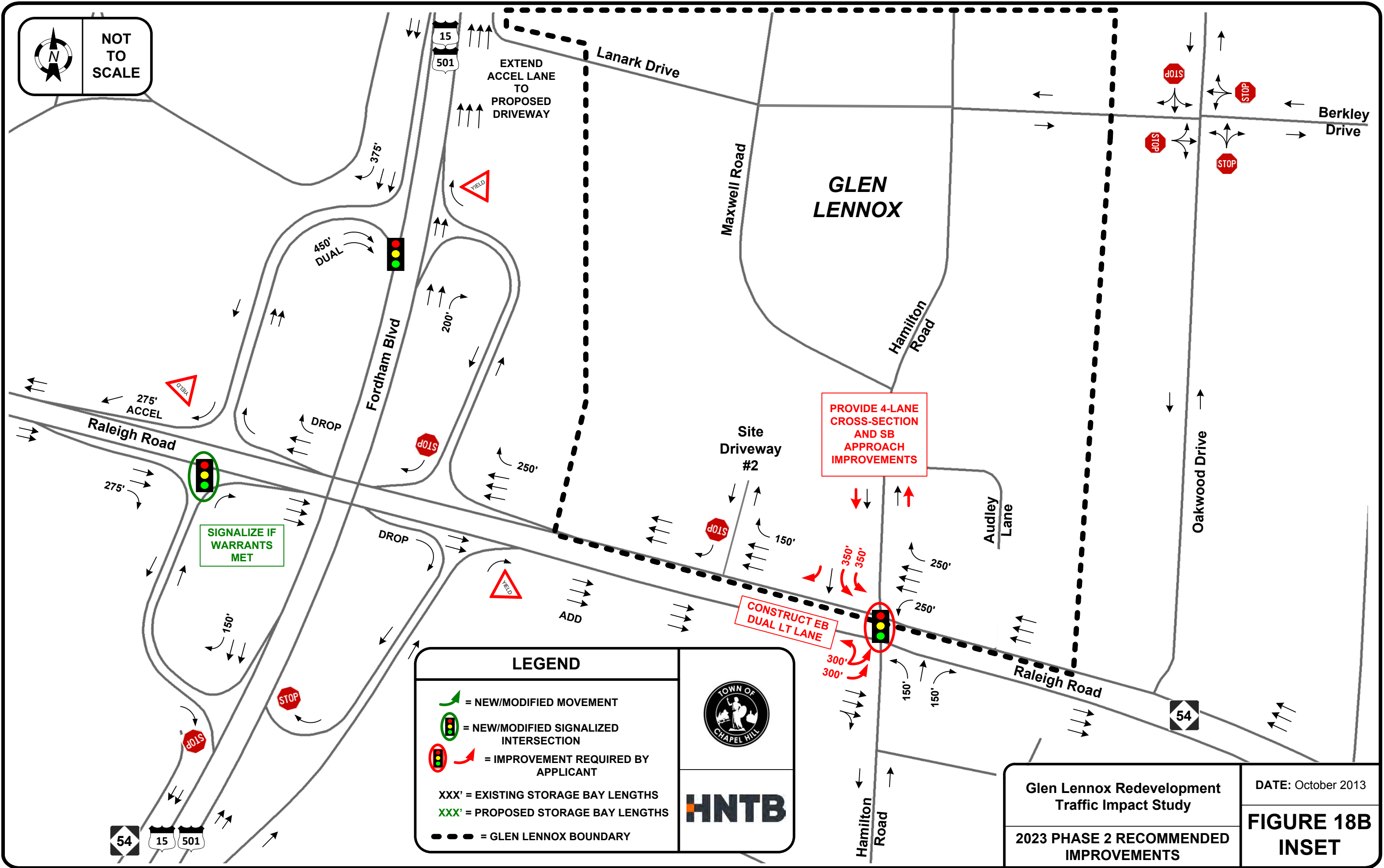


NOT
TO
SCALE





NOT
TO
SCALE



Glen Lennox Redevelopment Traffic Impact Study 2023 PHASE 2 RECOMMENDED IMPROVEMENTS	DATE: October 2013
	FIGURE 18B INSET

LEGEND

-  = NEW/MODIFIED MOVEMENT
-  = NEW/MODIFIED SIGNALIZED INTERSECTION
-   = IMPROVEMENT REQUIRED BY APPLICANT

XXX' = EXISTING STORAGE BAY LENGTHS

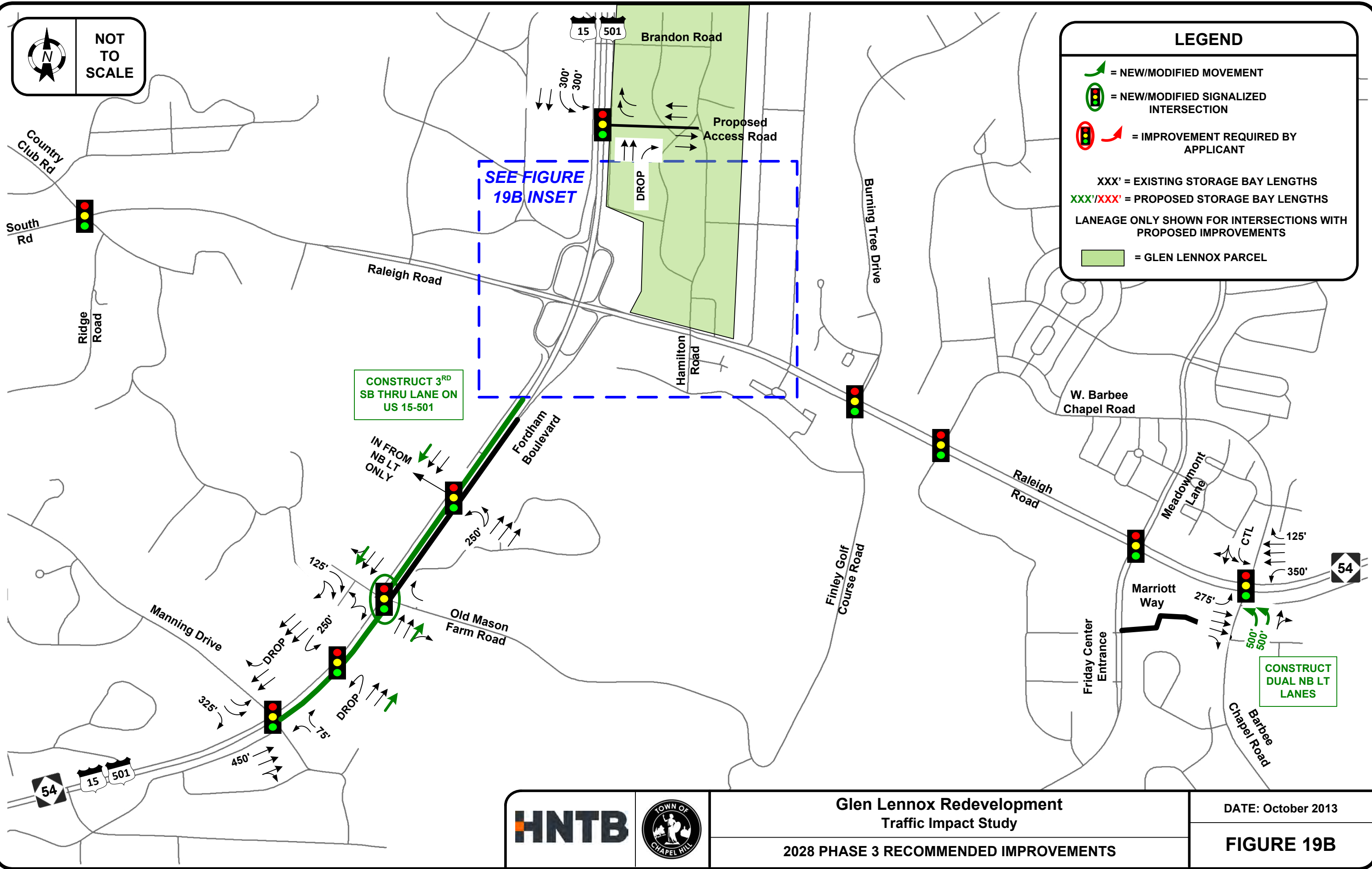
XXX'/XXX' = PROPOSED STORAGE BAY LENGTHS

LANEAGE ONLY SHOWN FOR INTERSECTIONS WITH PROPOSED IMPROVEMENTS

-  = GLEN LENNOX PARCEL

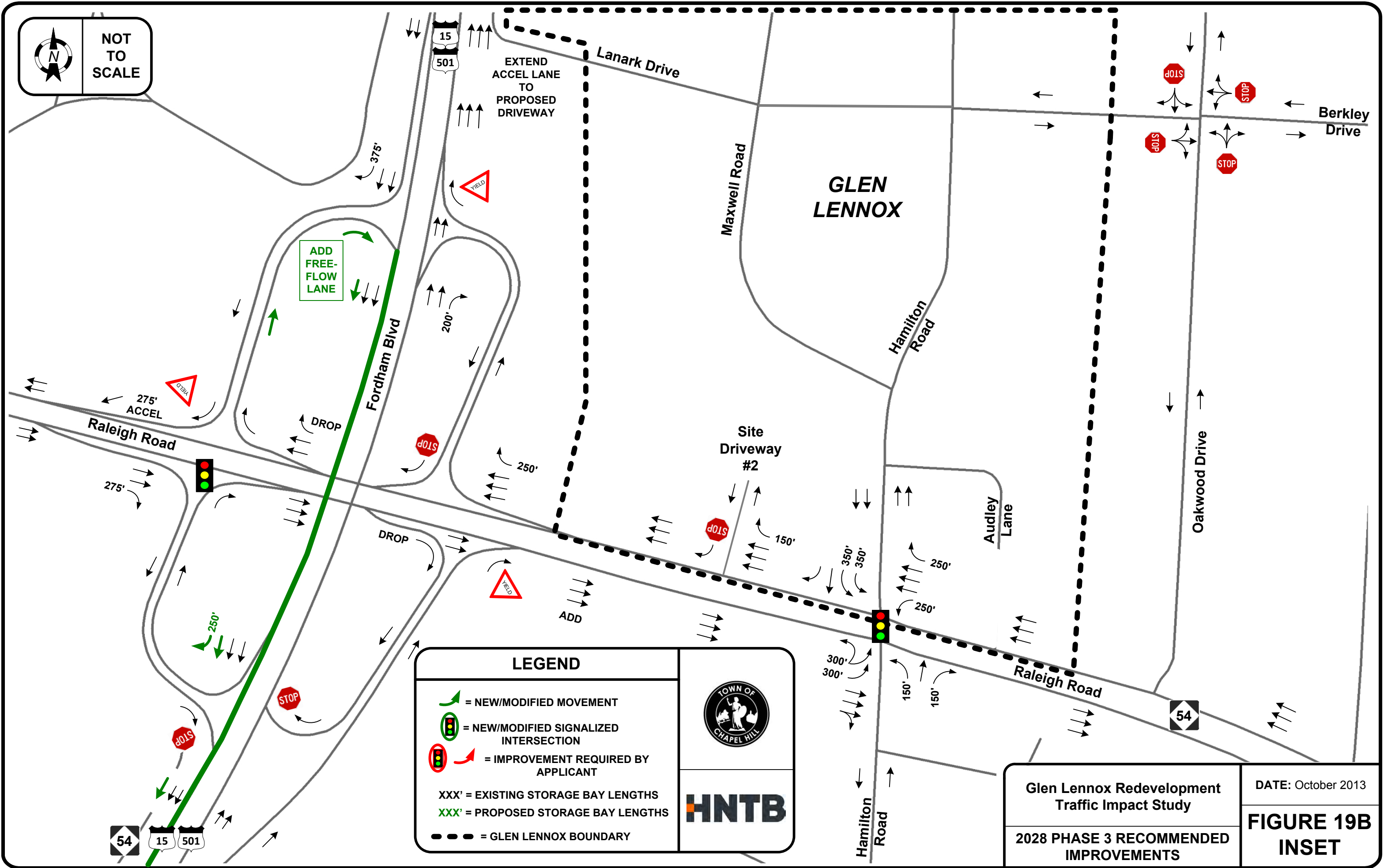


NOT
TO
SCALE





NOT
TO
SCALE



Glen Lennox Redevelopment
Traffic Impact Study

2028 PHASE 3 RECOMMENDED
IMPROVEMENTS

DATE: October 2013

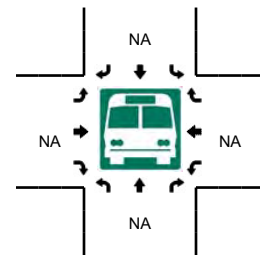
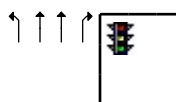
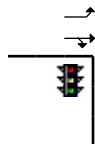
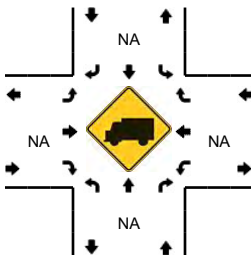
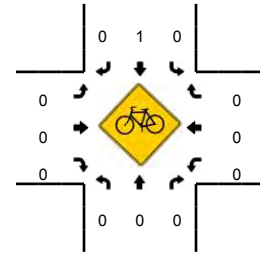
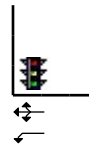
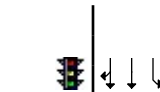
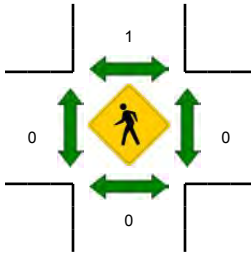
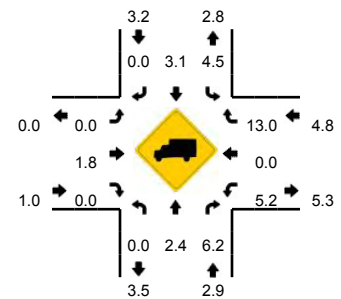
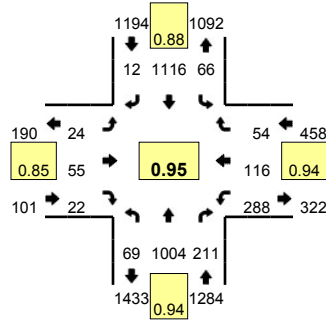
FIGURE 19B
INSET

Appendix B – Traffic Count Data

LOCATION: US 15-501 -- Ephesus Church Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941440
DATE: Wed, Apr 24 2013

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



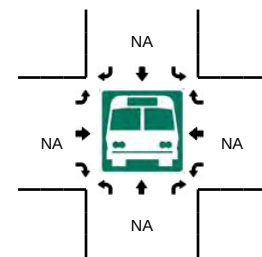
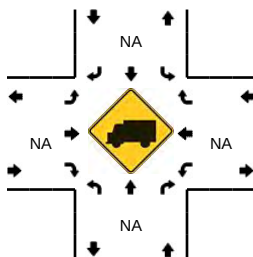
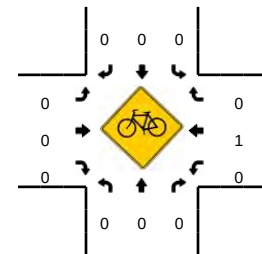
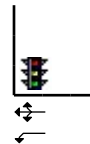
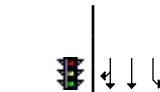
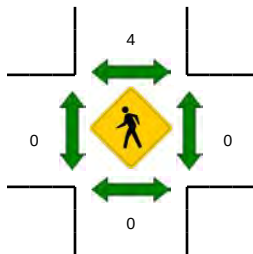
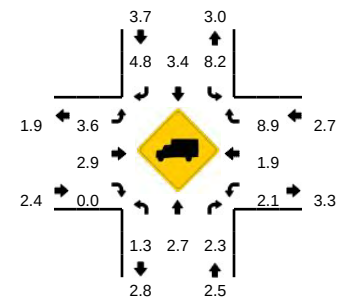
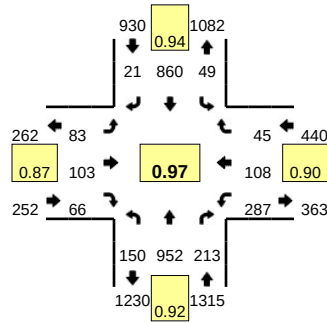
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Ephesus Church Rd (Eastbound)				Ephesus Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	8	161	20	0	3	162	2	1	0	3	2	0	30	15	6	0	413	
7:15 AM	16	228	37	0	25	231	4	0	1	7	5	0	40	13	7	0	614	
7:30 AM	13	273	48	0	14	321	3	1	2	10	4	0	77	26	9	0	801	
7:45 AM	15	274	48	3	12	274	4	2	6	11	7	0	70	27	12	0	765	2593
8:00 AM	15	211	49	3	18	250	2	2	8	13	6	0	71	31	12	0	691	2871
8:15 AM	19	246	66	1	12	271	3	5	8	21	5	0	70	32	21	0	780	3037
8:30 AM	6	278	56	4	17	259	2	1	6	13	8	1	85	23	9	0	768	3004
8:45 AM	13	252	58	0	21	276	2	4	5	15	7	0	69	24	7	0	753	2992
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	52	1092	192	0	56	1284	12	4	8	40	16	0	308	104	36	0	3204	
Heavy Trucks	0	8	8		0	24	0		0	0	0		12	0	4		56	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- Ephesus Church Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941442
DATE: Wed, Apr 24 2013

Peak-Hour: 11:45 AM -- 12:45 PM
Peak 15-Min: 12:15 PM -- 12:30 PM



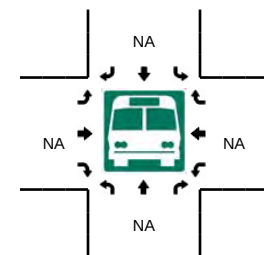
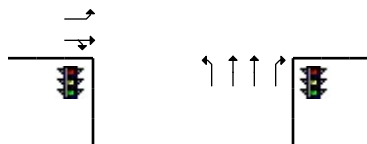
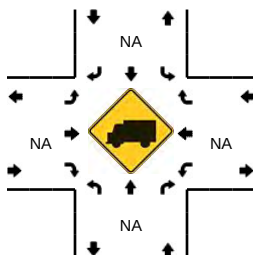
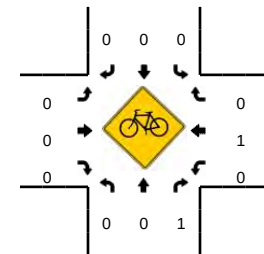
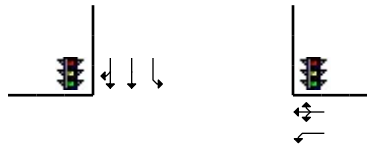
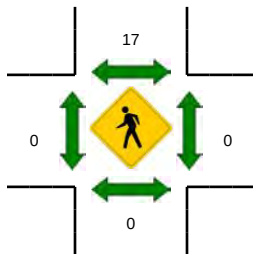
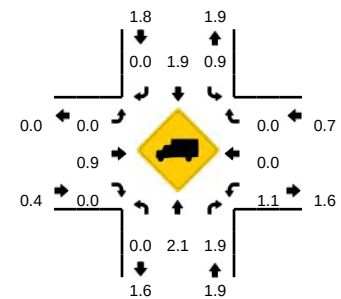
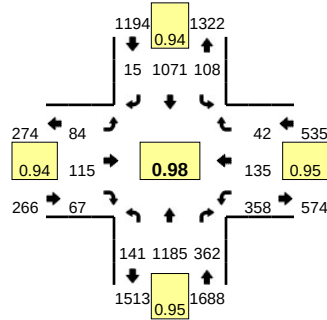
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Ephesus Church Rd (Eastbound)				Ephesus Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	34	195	43	5	7	176	18	1	15	16	11	0	61	31	14	0	627	
11:15 AM	22	206	32	2	10	216	9	2	18	13	25	0	55	34	18	0	662	
11:30 AM	27	190	59	1	15	190	9	0	15	18	10	0	59	20	15	0	628	
11:45 AM	27	229	64	2	6	221	6	1	14	17	20	0	70	29	10	0	716	2633
12:00 PM	28	251	45	6	12	201	5	0	17	33	14	0	78	30	14	0	734	2740
12:15 PM	44	260	49	6	12	208	9	1	26	21	14	0	68	23	14	0	755	2833
12:30 PM	34	212	55	3	17	230	1	0	26	32	18	0	71	26	7	0	732	2937
12:45 PM	29	231	64	5	9	197	4	2	19	25	19	0	69	30	8	0	711	2932
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	176	1040	196	24	48	832	36	4	104	84	56	0	272	92	56	0	3020	
Heavy Trucks	4	52	4		4	28	4		8	8	0		4	4	12		132	
Pedestrians		0				16				0				0			16	
Bicycles	0	0	0		0	0	0		0	0	0		0	1	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- Ephesus Church Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941441
DATE: Wed, Apr 24 2013

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



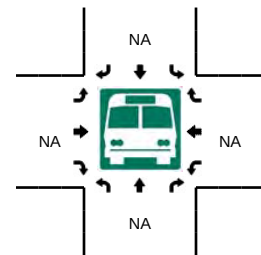
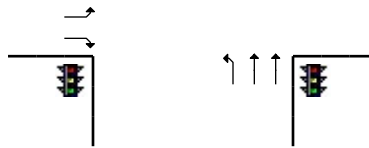
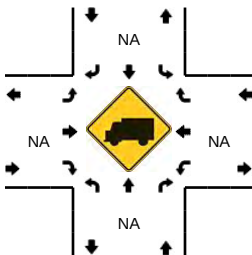
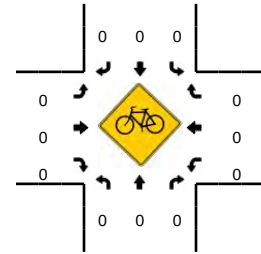
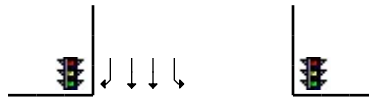
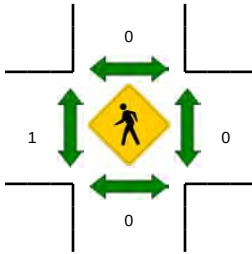
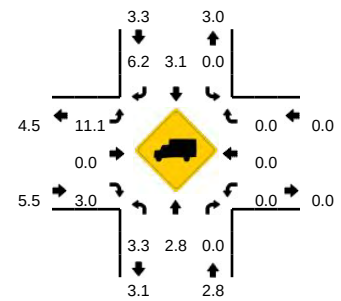
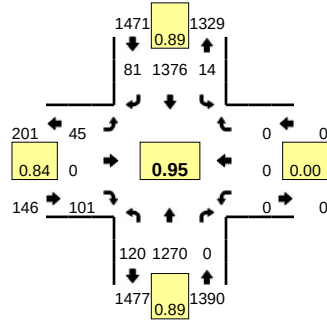
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Ephesus Church Rd (Eastbound)				Ephesus Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	22	249	66	2	31	233	4	1	15	22	11	0	69	24	10	0	759	
4:15 PM	37	260	67	5	16	256	5	0	21	17	12	0	92	20	11	0	819	
4:30 PM	23	287	75	5	7	266	3	3	28	28	15	0	70	23	6	0	839	
4:45 PM	23	307	91	5	19	289	5	2	21	36	8	0	100	29	9	0	944	3361
5:00 PM	37	281	84	2	32	253	3	0	19	23	20	0	91	36	14	0	895	3497
5:15 PM	31	315	90	8	21	247	3	3	20	31	17	0	73	34	13	0	906	3584
5:30 PM	33	282	97	2	25	282	4	6	24	25	22	0	94	36	6	0	938	3683
5:45 PM	31	294	87	0	13	263	5	2	22	26	19	0	71	31	13	0	877	3616
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	92	1228	364	20	76	1156	20	8	84	144	32	0	400	116	36	0	3776	
Heavy Trucks	0	20	0		0	16	0		0	4	0		4	0	0		44	
Pedestrians		0				8				0				0			8	
Bicycles	0	0	1		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- S Elliott Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941443
DATE: Wed, Apr 24 2013

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



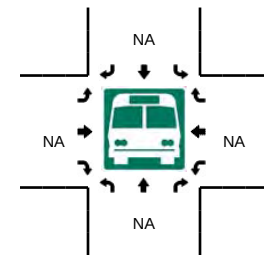
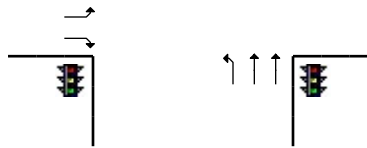
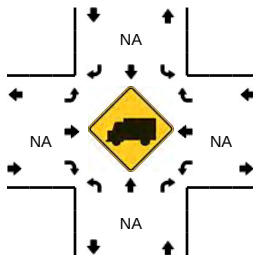
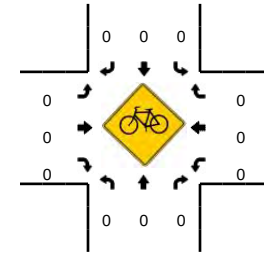
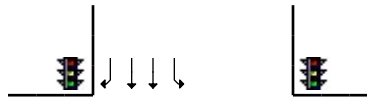
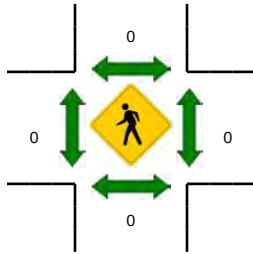
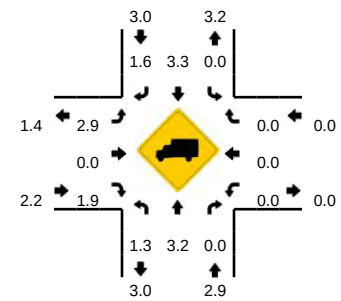
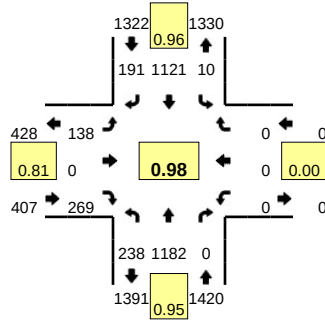
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				S Elliott Rd (Eastbound)				S Elliott Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	13	199	0	0	0	196	8	0	7	0	12	0	0	0	0	0	435	
7:15 AM	20	244	0	0	0	274	12	1	5	0	18	0	0	0	0	0	574	
7:30 AM	21	322	0	0	0	396	12	3	14	0	22	0	0	0	0	0	790	
7:45 AM	33	305	0	0	0	349	20	6	8	0	27	0	0	0	0	0	748	2547
8:00 AM	29	290	0	0	0	310	21	2	12	0	21	0	0	0	0	0	685	2797
8:15 AM	37	353	0	0	0	321	28	3	11	0	31	0	0	0	0	0	784	3007
8:30 AM	32	300	0	1	0	322	25	0	16	0	32	0	0	0	0	0	728	2945
8:45 AM	38	299	0	0	0	338	22	3	16	0	36	0	0	0	0	0	752	2949
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	84	1288	0	0	0	1584	48	12	56	0	88	0	0	0	0	0	3160	
Heavy Trucks	0	20	0	0	0	40	0	0	4	0	0	0	0	0	0	0	64	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: US 15-501 -- S Elliott Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941445
DATE: Wed, Apr 24 2013

Peak-Hour: 11:45 AM -- 12:45 PM
Peak 15-Min: 12:30 PM -- 12:45 PM



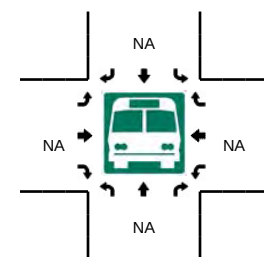
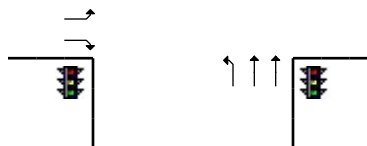
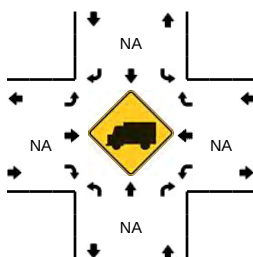
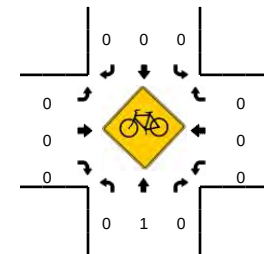
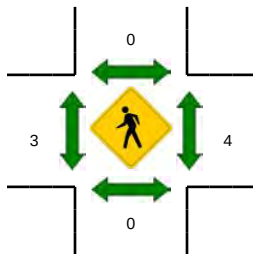
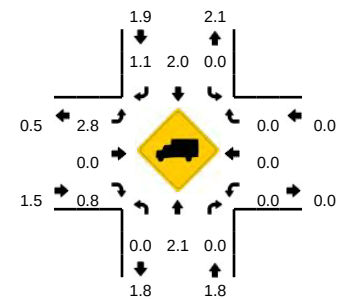
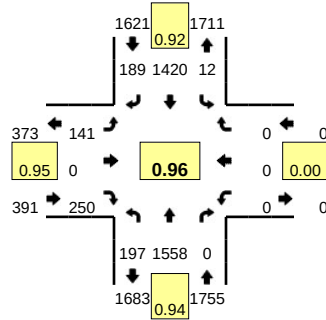
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				S Elliott Rd (Eastbound)				S Elliott Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	50	258	0	0	0	253	33	3	25	0	63	0	0	0	0	0	685	
11:15 AM	47	241	0	0	0	278	31	0	19	0	59	0	0	0	0	0	675	
11:30 AM	35	269	0	0	0	254	36	3	25	0	62	0	0	0	0	0	684	
11:45 AM	46	308	0	0	0	276	49	3	36	0	56	0	0	0	0	0	774	2818
12:00 PM	55	317	0	0	0	268	54	5	25	0	64	0	0	0	0	0	788	2921
12:15 PM	66	303	0	0	0	275	45	1	34	0	60	0	0	0	0	0	784	3030
12:30 PM	70	254	0	1	0	302	43	1	43	0	89	0	0	0	0	0	803	3149
12:45 PM	48	265	0	0	0	283	35	1	45	0	96	0	0	0	0	0	773	3148
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	280	1016	0	4	0	1208	172	4	172	0	356	0	0	0	0	0	3212	
Heavy Trucks	4	28	0		0	40	4		0	0	8		0	0	0		84	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- S Elliott Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941444
DATE: Wed, Apr 24 2013

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



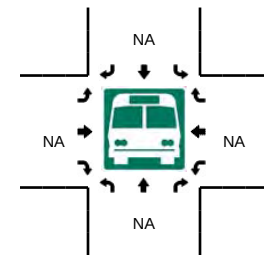
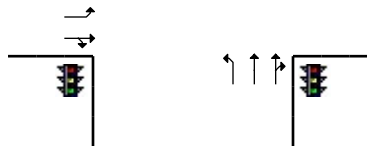
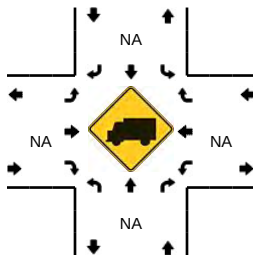
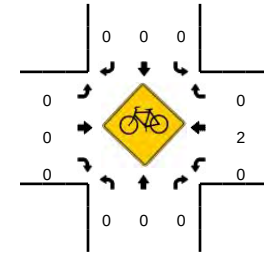
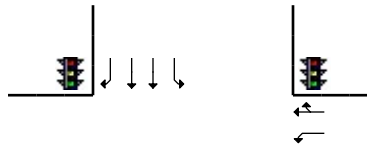
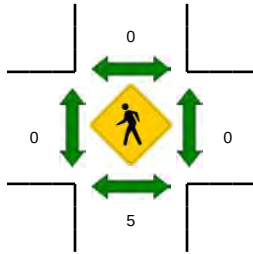
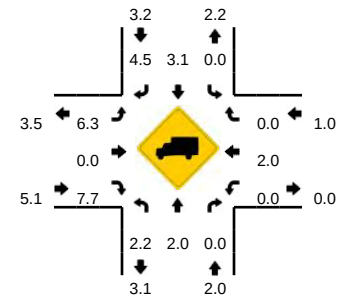
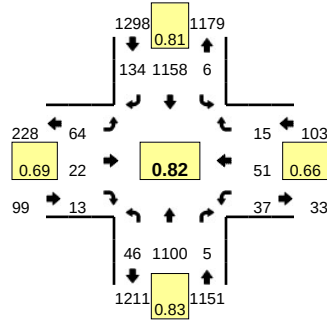
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				S Elliott Rd (Eastbound)				S Elliott Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	50	318	0	0	0	317	34	3	29	0	69	0	0	0	0	0	820	
4:15 PM	43	338	0	1	0	357	31	2	32	0	61	0	0	0	0	0	865	
4:30 PM	53	342	0	0	0	345	37	3	35	0	65	0	0	0	0	0	880	
4:45 PM	53	382	0	2	0	377	61	4	41	0	63	0	0	0	0	0	983	3548
5:00 PM	45	382	0	4	0	339	46	2	36	0	59	0	0	0	0	0	913	3641
5:15 PM	51	412	0	2	0	337	34	4	29	0	64	0	0	0	0	0	933	3709
5:30 PM	35	382	0	5	0	367	48	2	35	0	64	0	0	0	0	0	938	3767
5:45 PM	51	367	0	5	0	331	43	0	33	0	58	0	0	0	0	0	888	3672
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	212	1528	0	8	0	1508	244	16	164	0	252	0	0	0	0	0	3932	
Heavy Trucks	0	16	0		0	28	4		4	0	4		0	0	0		56	
Pedestrians		0				0				8				8			16	
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- Willow Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941446
DATE: Wed, Apr 24 2013

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



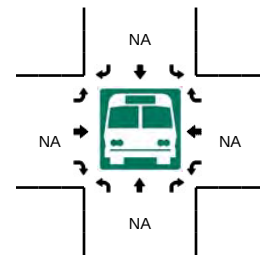
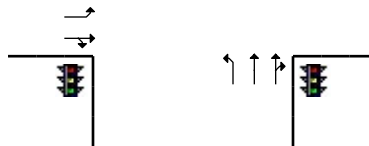
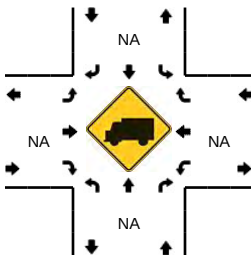
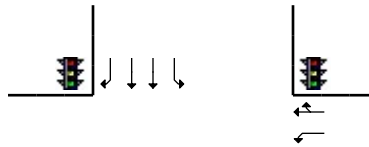
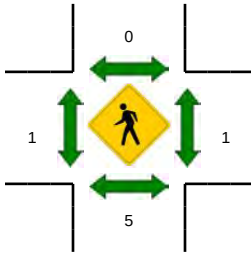
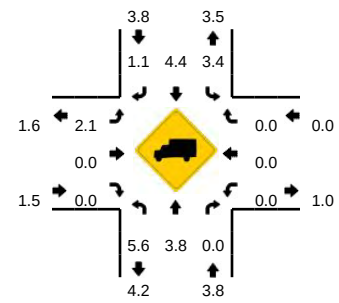
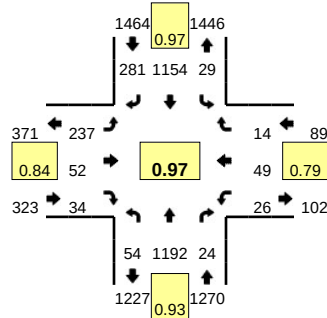
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Willow Dr (Eastbound)				Willow Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	10	202	0	1	0	180	20	0	5	2	2	0	1	6	5	0	434	
7:15 AM	5	253	0	1	2	277	22	0	13	5	2	0	10	10	5	0	605	
7:30 AM	10	331	4	1	1	372	29	0	15	10	5	0	13	7	3	0	801	
7:45 AM	18	314	1	0	3	329	63	0	31	5	4	0	13	28	2	0	811	2651
8:00 AM	4	133	5	1	1	148	17	0	14	7	0	0	7	12	4	0	353	2570
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1965
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1164
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	353
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	72	1256	4	0	12	1316	252	0	124	20	16	0	52	112	8	0	3244	
Heavy Trucks	0	28	0		0	44	8		4	0	0		0	0	0		84	
Pedestrians		4				0				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- Willow Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941448
DATE: Thu, Apr 25 2013

Peak-Hour: 11:45 AM -- 12:45 PM
Peak 15-Min: 12:00 PM -- 12:15 PM



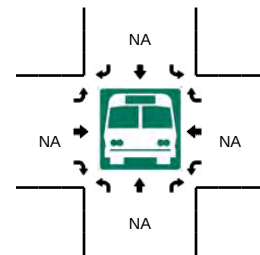
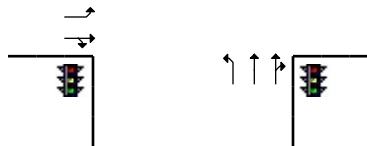
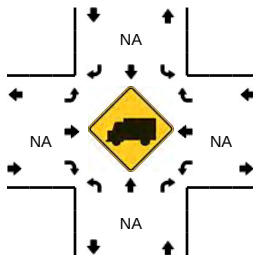
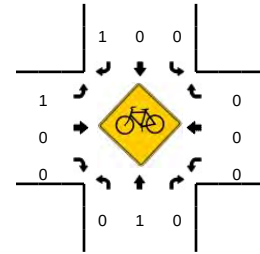
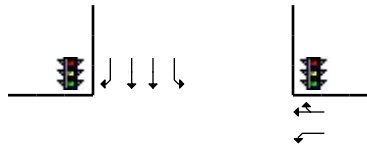
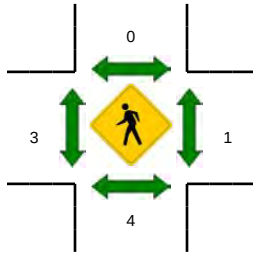
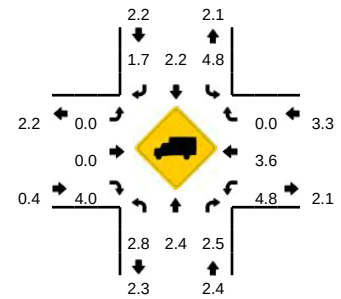
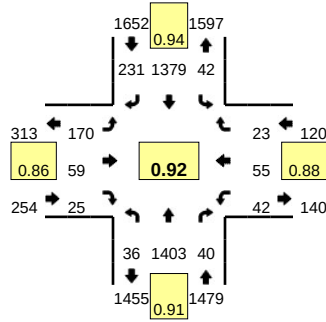
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Willow Dr (Eastbound)				Willow Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	7	252	2	1	3	234	61	1	50	8	16	0	3	11	7	0	656	
11:15 AM	9	234	4	2	5	248	58	1	66	11	10	0	5	9	3	0	665	
11:30 AM	19	271	2	2	6	289	73	0	51	11	3	0	3	9	4	0	743	
11:45 AM	13	272	3	3	13	287	78	1	66	15	15	0	8	17	4	0	795	2859
12:00 PM	10	325	3	4	5	295	79	0	48	12	8	0	7	13	2	0	811	3014
12:15 PM	10	302	10	4	6	263	61	1	63	14	7	0	7	13	5	0	766	3115
12:30 PM	8	293	8	2	2	309	63	1	60	11	4	0	4	6	3	0	774	3146
12:45 PM	4	65	1	0	2	88	36	1	18	4	2	0	3	0	0	0	224	2575
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	40	1300	12	16	20	1180	316	0	192	48	32	0	28	52	8	0	3244	
Heavy Trucks	4	44	0		0	40	4		8	0	0		0	0	0		100	
Pedestrians		4				0				4				4			12	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- Willow Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941447
DATE: Wed, Apr 24 2013

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



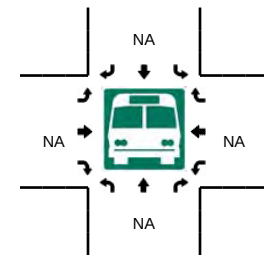
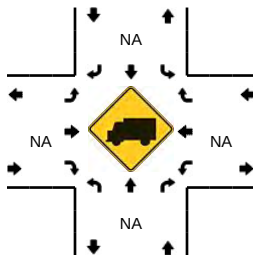
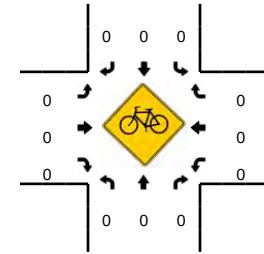
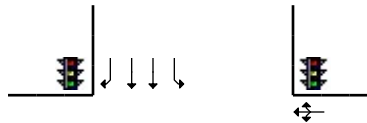
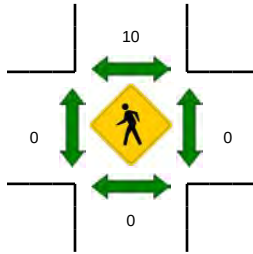
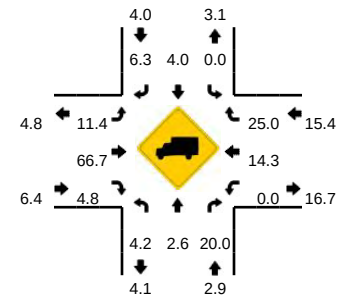
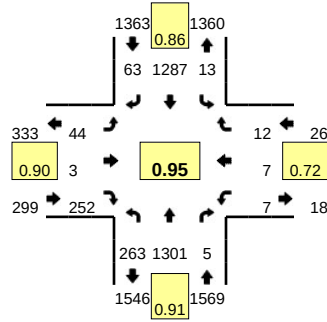
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Willow Dr (Eastbound)				Willow Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	320	7	2	15	324	54	0	42	14	6	0	8	12	7	0	816	
4:15 PM	4	342	9	2	9	339	69	0	36	7	3	0	12	14	4	0	850	
4:30 PM	9	355	15	3	8	338	56	1	47	16	9	0	10	15	4	0	886	
4:45 PM	9	386	9	2	9	378	52	0	45	22	7	0	12	14	8	0	953	3505
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2689
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1839
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	953
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	36	1544	36	8	36	1512	208	0	180	88	28	0	48	56	32	0	3812	
Heavy Trucks	0	12	0		0	24	0		0	0	0		4	0	0		40	
Pedestrians		8				0				12				4			24	
Bicycles	0	0	0		0	0	0		1	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- S Estes Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941449
DATE: Wed, Apr 24 2013

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



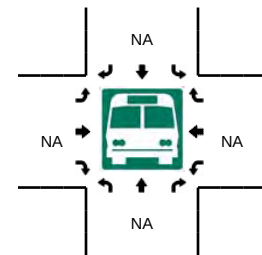
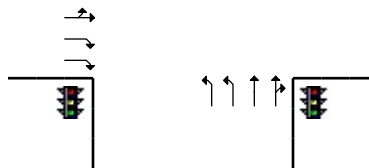
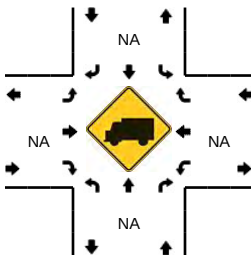
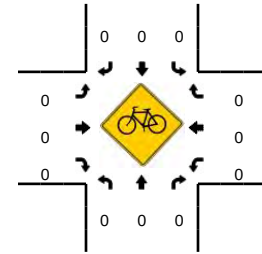
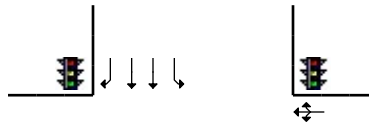
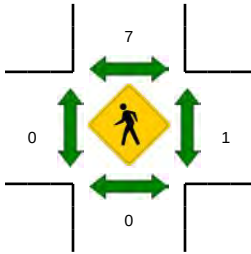
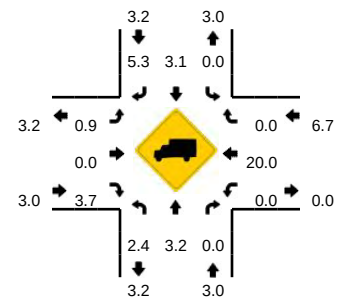
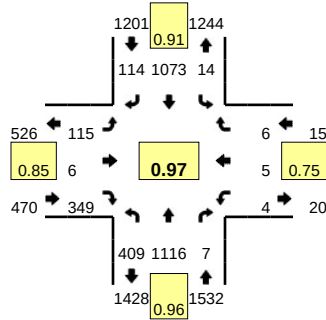
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				S Estes Dr (Eastbound)				S Estes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	28	206	4	0	0	161	5	0	4	1	36	0	1	0	2	0	448	
7:15 AM	55	246	2	0	1	254	6	2	8	0	52	0	1	1	1	0	629	
7:30 AM	47	313	1	0	1	384	8	1	6	1	70	0	1	3	5	0	841	
7:45 AM	85	325	1	0	6	297	13	0	11	0	57	0	2	3	2	0	802	2720
8:00 AM	58	295	3	0	2	300	15	2	14	2	60	0	0	0	3	0	754	3026
8:15 AM	73	368	0	0	1	306	27	0	13	0	65	0	4	1	2	0	860	3257
8:30 AM	68	324	1	2	0	268	21	1	14	1	49	0	2	1	0	0	752	3168
8:45 AM	82	332	0	0	1	349	13	0	18	0	66	0	0	1	4	0	866	3232
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	292	1472	0	0	4	1224	108	0	52	0	260	0	16	4	8	0	3440	
Heavy Trucks	4	56	0		0	32	4		4	0	20		0	0	4		124	
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- S Estes Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941451
DATE: Wed, Apr 24 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:15 PM -- 12:30 PM



15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				S Estes Dr (Eastbound)				S Estes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	94	240	2	1	1	237	24	2	21	1	85	0	0	4	3	0	715	
11:15 AM	94	215	3	0	1	250	23	3	23	1	74	0	1	2	1	0	691	
11:30 AM	109	277	1	0	1	234	25	2	19	0	73	0	1	1	2	0	745	
11:45 AM	102	271	0	0	2	243	30	1	28	2	89	0	1	3	2	0	774	2925
12:00 PM	103	290	3	2	2	232	26	4	29	2	71	0	0	1	1	0	766	2976
12:15 PM	106	300	1	0	1	264	24	2	32	1	88	0	2	3	3	0	827	3112
12:30 PM	96	278	1	0	1	296	34	0	29	1	79	0	1	0	0	0	816	3183
12:45 PM	102	248	2	0	3	281	30	1	25	2	111	0	1	1	2	0	809	3218

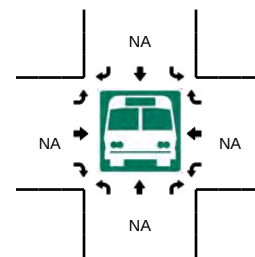
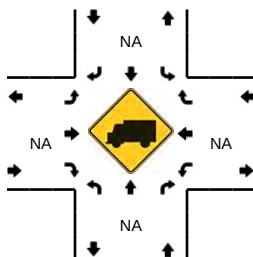
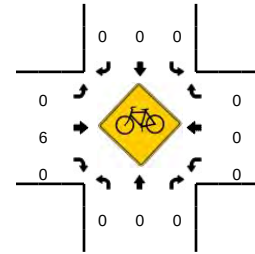
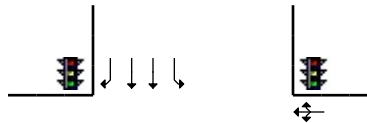
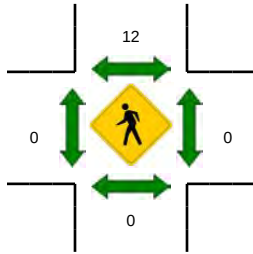
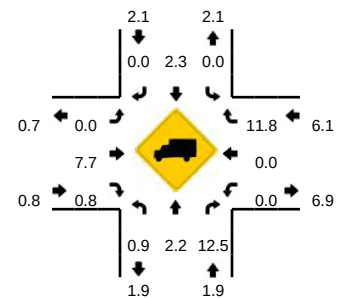
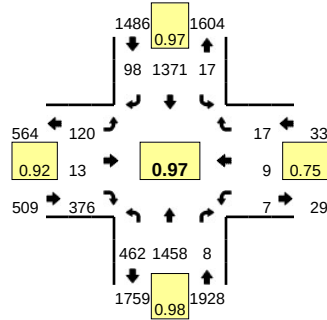
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	424	1200	4	0	4	1056	96	8	128	4	352	0	8	12	12	0	3308
Heavy Trucks	0	52	0		0	28	20		0	0	20		0	4	0		124
Pedestrians	0	0	0		0	4	0		0	0	0		0	0	0		4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: US 15-501 -- S Estes Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941450
DATE: Wed, Apr 24 2013

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



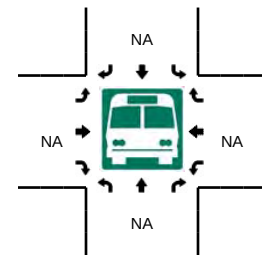
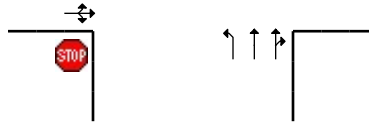
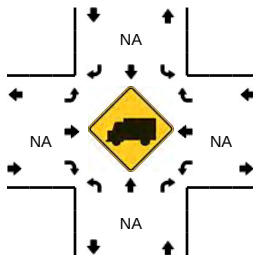
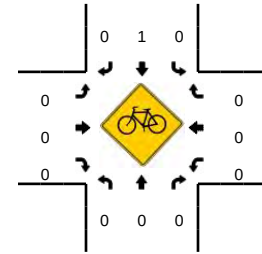
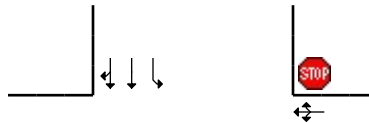
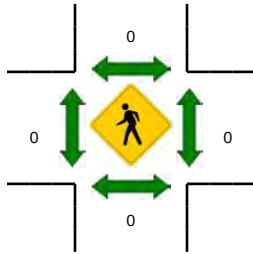
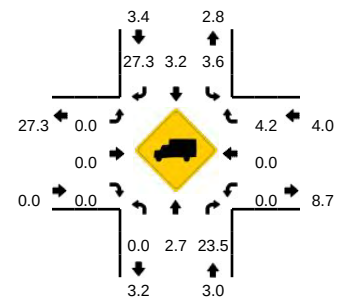
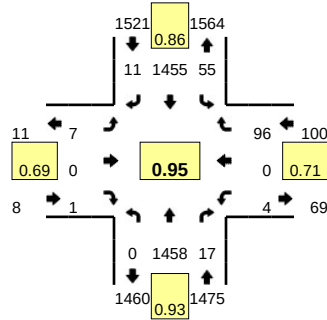
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				S Estes Dr (Eastbound)				S Estes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	96	296	0	2	2	286	25	1	44	1	106	0	1	2	1	0	863	
4:15 PM	112	315	2	0	2	296	27	1	27	5	101	0	0	4	2	0	894	
4:30 PM	103	353	2	1	1	335	22	3	29	3	102	0	1	3	7	0	965	
4:45 PM	123	372	2	0	5	348	25	4	31	1	106	0	0	4	2	0	1023	3745
5:00 PM	123	351	3	3	2	337	24	0	30	5	92	0	5	0	5	0	980	3862
5:15 PM	108	382	1	1	0	351	27	2	30	4	76	0	1	2	3	0	988	3956
5:30 PM	116	356	0	0	1	319	20	0	28	2	87	0	0	2	1	0	932	3923
5:45 PM	109	363	2	1	3	315	37	1	29	2	79	0	2	4	0	0	947	3847
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	492	1488	8	0	20	1392	100	16	124	4	424	0	0	16	8	0	4092	
Heavy Trucks	0	20	0		0	20	0		0	0	0		0	0	0		40	
Pedestrians		0				8				0				0			8	
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 -- Cleland Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941425
DATE: Wed, Apr 24 2013

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

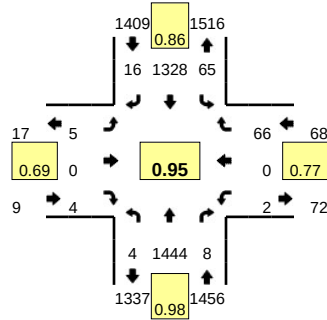


15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Cleland Rd (Eastbound)				Cleland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	225	1	0	3	197	0	0	0	0	0	0	1	0	12	0	439	
7:15 AM	0	291	0	0	15	280	2	0	0	0	0	0	0	0	9	0	597	
7:30 AM	0	343	4	0	17	425	1	1	1	0	0	0	1	0	19	0	812	
7:45 AM	0	368	5	0	10	340	5	1	2	0	0	0	1	0	34	0	766	2614
8:00 AM	0	340	4	0	9	330	4	0	3	0	0	0	1	0	15	0	706	2881
8:15 AM	0	407	4	0	16	360	1	1	1	0	1	0	1	0	28	0	820	3104
8:30 AM	0	385	2	0	14	299	3	3	3	0	1	0	0	0	14	1	725	3017
8:45 AM	0	384	3	0	10	403	1	0	1	0	0	0	0	0	8	0	810	3061
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	1628	16	0	64	1440	4	4	4	0	4	0	4	0	112	0	3280	
Heavy Trucks	0	64	0		4	36	0		0	0	0		0	0	4		108	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

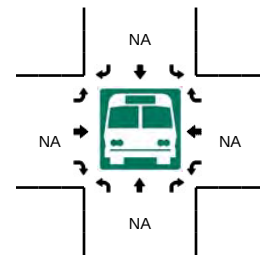
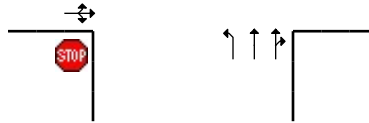
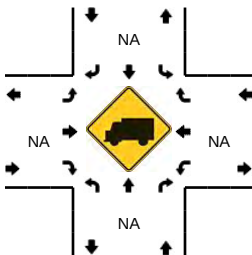
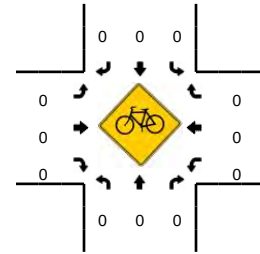
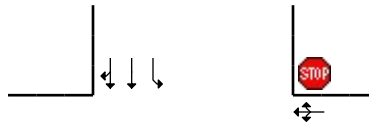
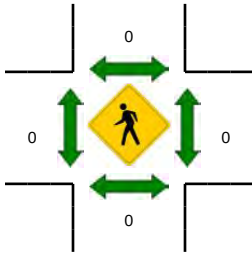
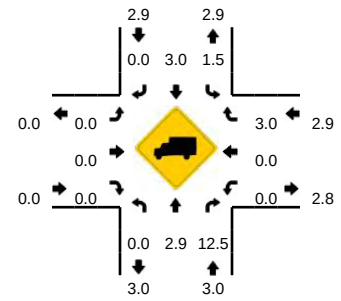
Comments:

LOCATION: US 15-501 -- Cleland Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941427
DATE: Wed, Apr 24 2013



Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:45 PM -- 1:00 PM



15-Min Count Period Beginning At	US 15-501 (Northbound)					US 15-501 (Southbound)					Cleland Rd (Eastbound)					Cleland Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U		Left	Thru	Right	U		Left	Thru	Right	U		Left	Thru	Right	U			
11:00 AM	0	306	2	0		20	296	1	0		0	0	0	0		0	0	11	0		636	
11:15 AM	0	306	2	0		12	314	0	0		0	0	0	0		1	0	10	0		645	
11:30 AM	0	369	0	0		19	281	0	2		0	0	0	0		1	0	16	0		688	
11:45 AM	0	382	3	1		13	321	0	1		2	0	2	0		1	0	8	0		734	2703
12:00 PM	0	379	1	1		12	288	0	0		1	0	0	0		0	0	12	0		694	2761
12:15 PM	0	388	2	1		17	328	5	1		1	0	1	0		1	0	13	0		758	2874
12:30 PM	0	339	3	0		14	329	7	0		2	0	2	0		0	0	20	0		716	2902
12:45 PM	1	338	2	1		21	383	4	0		1	0	1	0		1	0	21	0		774	2942

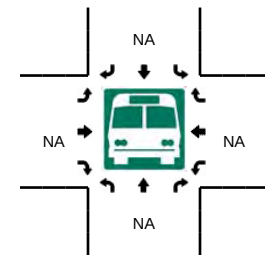
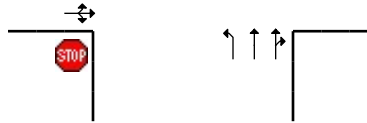
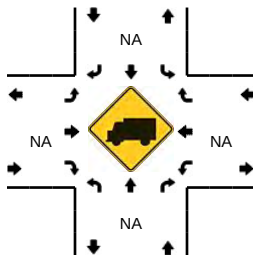
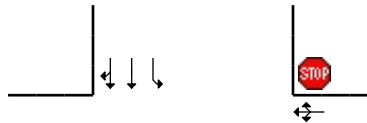
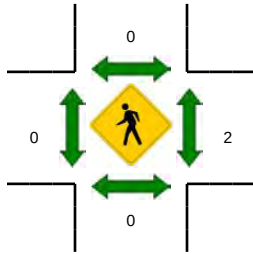
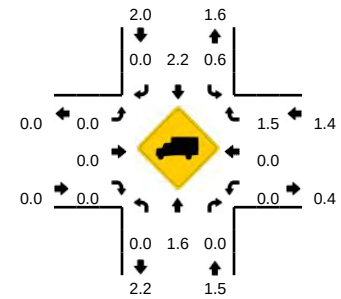
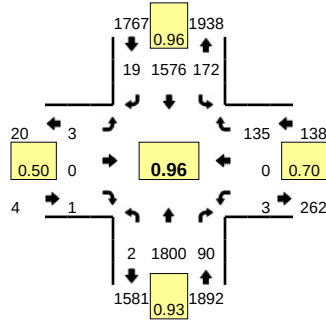
[illegible]

Comments:

LOCATION: US 15-501 -- Cleland Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941426
DATE: Wed, Apr 24 2013

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



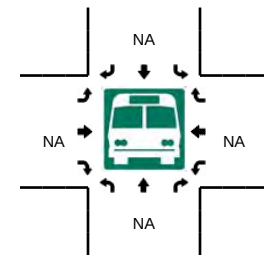
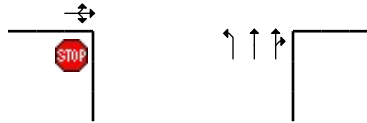
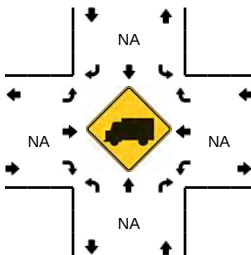
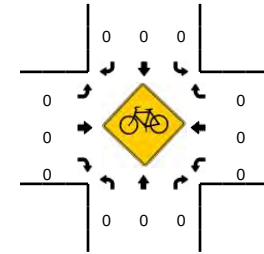
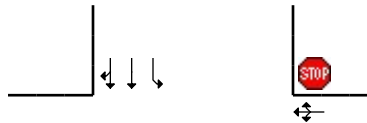
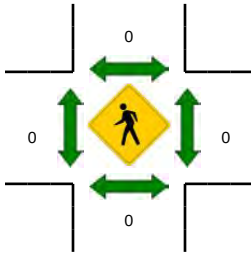
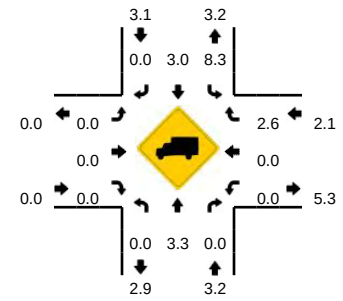
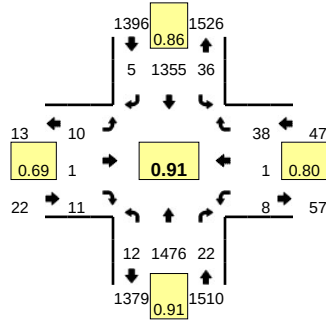
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Cleland Rd (Eastbound)				Cleland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	370	8	0	28	351	7	0	2	0	1	0	1	0	23	0	791	
4:15 PM	1	414	5	1	22	369	5	3	1	0	0	0	0	0	14	0	835	
4:30 PM	0	432	7	0	29	391	12	0	3	0	1	0	0	0	17	0	892	
4:45 PM	0	462	48	0	55	393	0	0	0	0	0	0	0	0	29	0	987	3505
5:00 PM	1	441	25	0	59	401	2	0	0	0	0	0	1	0	49	0	979	3693
5:15 PM	0	465	10	1	29	391	5	0	0	0	0	0	2	0	40	0	943	3801
5:30 PM	1	448	2	0	32	359	1	0	1	0	1	0	1	0	18	0	864	3773
5:45 PM	0	448	12	0	49	352	6	0	0	0	0	0	0	0	16	0	883	3669
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	1848	192	0	220	1572	0	0	0	0	0	0	0	0	116	0	3948	
Heavy Trucks	0	12	0	0	0	16	0	0	0	0	0	0	0	0	0	0	28	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: US 15-501 -- Brandon Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941428
DATE: Wed, Apr 24 2013

Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM



15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Brandon Rd (Eastbound)				Brandon 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	209	1	3	6	198	1	0	0	0	1	0	2	0	7	0	428	
7:15 AM	2	283	1	0	7	277	1	0	1	0	0	0	2	0	4	0	578	
7:30 AM	0	349	3	0	9	412	0	0	2	0	0	0	0	0	6	0	781	
7:45 AM	3	362	5	0	3	338	2	0	4	2	3	0	1	0	9	0	732	2519
8:00 AM	2	325	4	0	10	311	1	0	0	1	2	0	0	0	12	0	668	2759
8:15 AM	2	402	8	2	6	346	3	1	5	0	3	0	2	1	8	0	789	2970
8:30 AM	0	360	6	3	4	302	1	1	3	0	2	0	2	0	13	0	697	2886
8:45 AM	3	389	4	0	14	396	0	0	2	0	4	0	4	0	5	0	821	2975

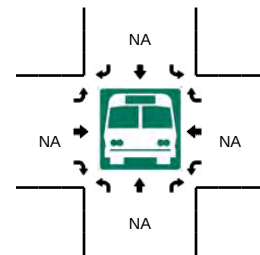
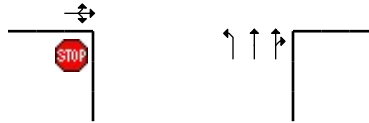
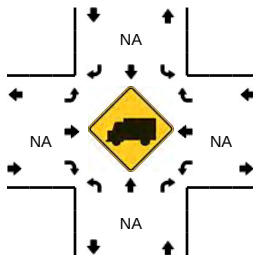
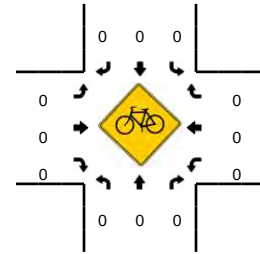
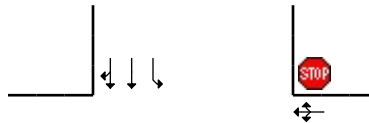
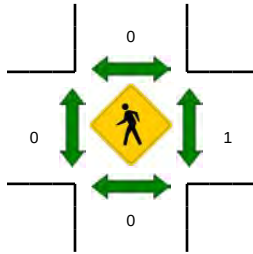
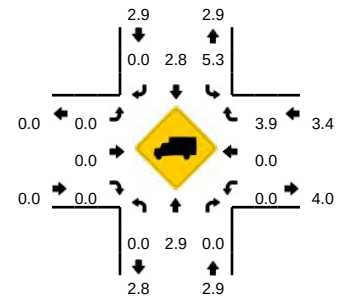
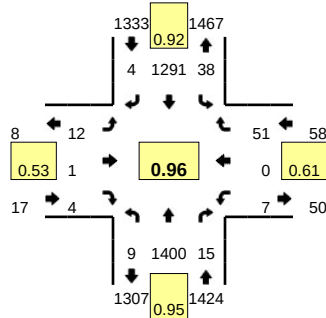
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	1556	16	0	56	1584	0	0	8	0	16	0	16	0	20	0	3284
Heavy Trucks	0	36	0		4	36	0		0	0	0		0	0	0		76
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: US 15-501 -- Brandon Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941430
DATE: Wed, Apr 24 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:15 PM -- 12:30 PM



15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Brandon Rd (Eastbound)				Brandon Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	1	306	3	2	9	287	0	1	2	0	0	0	1	0	6	0	618	
11:15 AM	2	308	1	2	6	298	1	0	1	0	2	0	1	0	5	0	627	
11:30 AM	1	348	1	3	4	269	3	0	2	0	0	0	0	0	11	0	642	
11:45 AM	0	367	5	0	9	304	3	1	2	0	0	0	1	1	9	0	702	2589
12:00 PM	1	350	8	1	5	305	0	0	3	0	0	0	2	0	23	0	698	2669
12:15 PM	0	385	1	2	10	315	3	1	3	0	2	0	2	0	11	0	735	2777
12:30 PM	0	334	5	2	11	320	0	1	1	0	0	0	2	0	10	0	686	2821
12:45 PM	3	331	1	0	8	351	1	2	5	1	2	0	1	0	7	0	713	2832

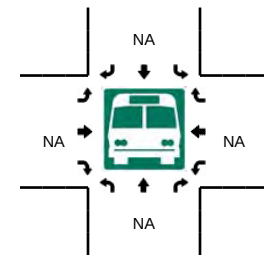
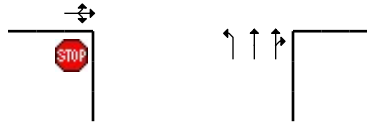
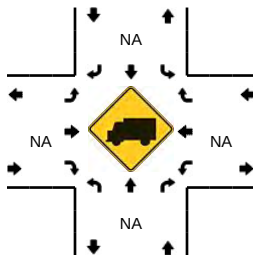
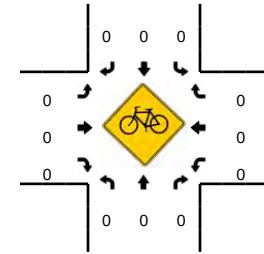
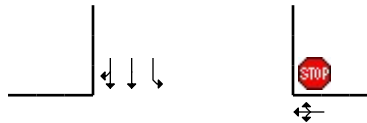
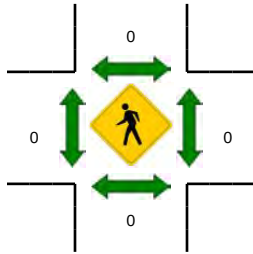
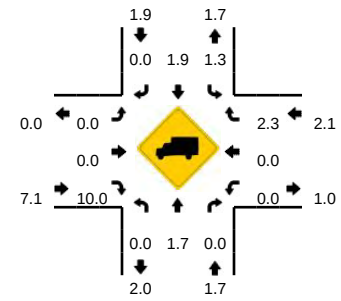
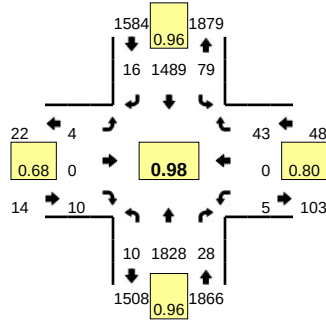
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1540	4	8	40	1260	12	4	12	0	8	0	8	0	44	0	2940
Heavy Trucks	0	56	0		4	44	0		0	0	0		0	0	0		104
Pedestrians	0				0				0				0				0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: US 15-501 -- Brandon Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941429
DATE: Wed, Apr 24 2013

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



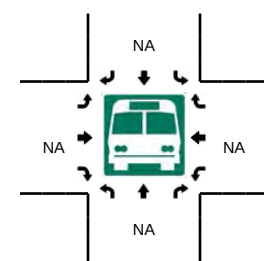
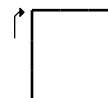
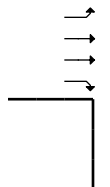
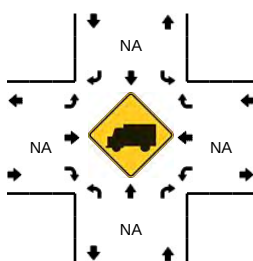
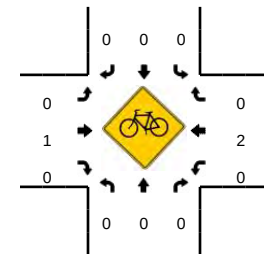
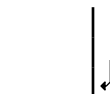
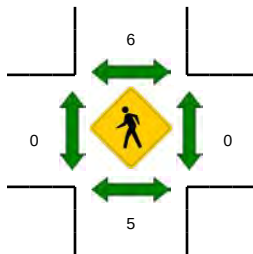
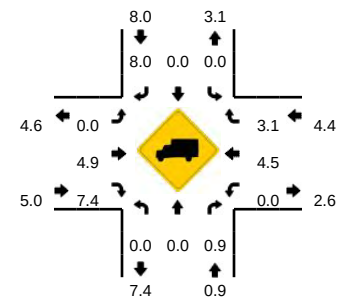
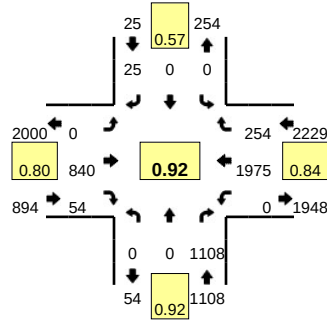
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Brandon Rd (Eastbound)				Brandon Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	369	3	2	12	343	3	2	3	0	3	0	0	0	9	0	750	
4:15 PM	2	426	2	1	7	370	1	2	2	0	2	0	0	0	7	0	822	
4:30 PM	0	432	3	2	13	383	3	2	0	0	2	0	1	0	12	0	853	
4:45 PM	0	482	6	2	20	370	4	1	1	0	4	0	1	0	6	0	897	3322
5:00 PM	4	452	11	0	21	388	4	1	1	0	3	0	3	0	10	0	898	3470
5:15 PM	2	462	8	0	21	348	5	0	2	0	1	0	0	0	15	0	864	3512
5:30 PM	0	441	2	0	20	317	15	3	2	0	5	0	1	0	10	0	816	3475
5:45 PM	0	445	8	1	26	326	5	2	1	0	0	0	0	0	9	0	823	3401
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	16	1808	44	0	84	1552	16	4	4	0	12	0	12	0	40	0	3592	
Heavy Trucks	0	28	0		0	16	0		0	0	0		0	0	0		44	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 Bypass/Fordham Blvd NB -- NC 54/Raleigh Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940919
DATE: Thu, Apr 25 2013

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



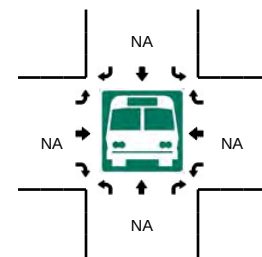
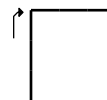
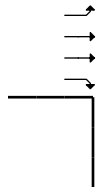
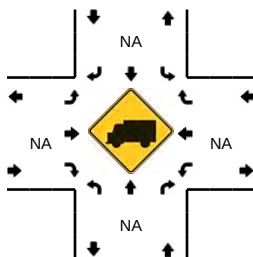
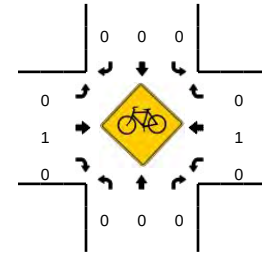
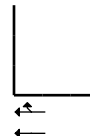
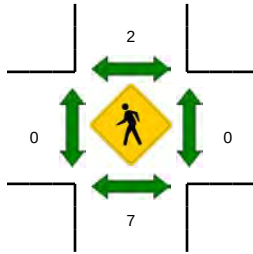
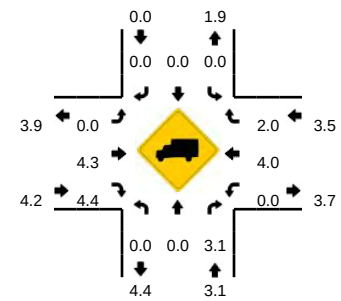
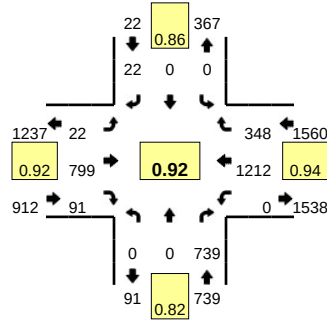
15-Min Count Period Beginning At	15-501 Bypass/Fordham Blvd NB (Northbound)				15-501 Bypass/Fordham Blvd NB (Southbound)				NC 54/Raleigh Rd (Eastbound)				NC 54/Raleigh Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	178	0	0	0	2	0	0	96	9	0	0	266	31	0	582	
7:15 AM	0	0	315	0	0	0	6	0	0	133	6	1	0	421	36	0	918	
7:30 AM	0	0	276	0	0	0	5	0	0	268	11	0	0	507	57	0	1124	
7:45 AM	0	0	275	0	0	0	5	0	0	200	12	0	0	587	80	0	1159	3783
8:00 AM	0	0	295	0	0	0	8	0	0	184	18	0	0	423	54	0	982	4183
8:15 AM	0	0	262	0	0	0	7	0	0	188	13	0	0	458	63	0	991	4256
8:30 AM	0	0	284	0	0	0	3	0	0	165	9	1	0	432	50	0	944	4076
8:45 AM	0	0	252	0	0	0	14	0	0	162	7	0	0	469	58	0	962	3879
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	1100	0	0	0	20	0	0	800	48	0	0	2348	320	0	4636	
Heavy Trucks	0	0	12		0	0	0		0	40	4		0	104	12		172	
Pedestrians						4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 Bypass/Fordham Blvd NB -- NC 54/Raleigh Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940921
DATE: Thu, Apr 25 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:30 PM -- 12:45 PM



15-Min Count Period Beginning At	US 15-501 Bypass/Fordham Blvd NB (Northbound)				US 15-501 Bypass/Fordham Blvd SB (Southbound)				NC 54/Raleigh Rd (Eastbound)				NC 54/Raleigh Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	189	0	0	0	3	0	2	157	18	1	0	234	72	0	676	
11:15 AM	0	0	155	0	0	0	4	0	5	156	11	1	0	264	98	0	694	
11:30 AM	0	0	157	0	0	0	2	0	3	157	16	1	0	284	77	0	697	
11:45 AM	0	0	192	0	0	0	5	0	2	163	20	3	0	305	86	0	776	2843
12:00 PM	0	0	176	0	0	0	5	0	1	179	30	2	0	280	80	0	753	2920
12:15 PM	0	0	175	0	0	0	7	0	8	216	24	0	0	293	87	0	810	3036
12:30 PM	0	0	237	0	0	0	7	0	5	206	22	1	0	311	94	0	883	3222
12:45 PM	0	0	151	0	0	0	3	0	5	198	15	0	0	328	87	0	787	3233

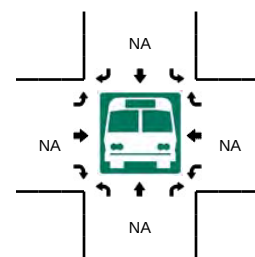
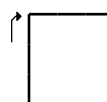
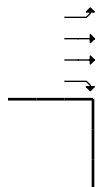
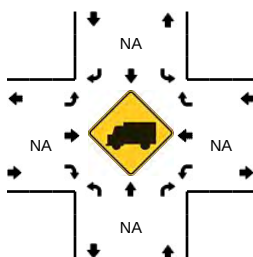
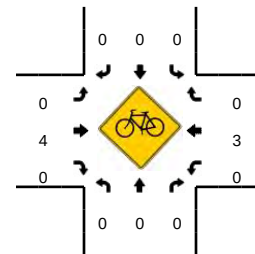
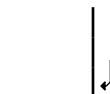
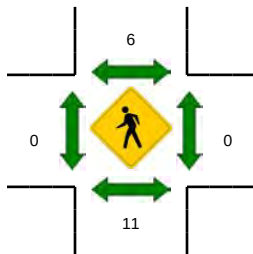
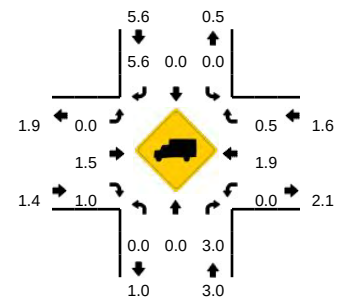
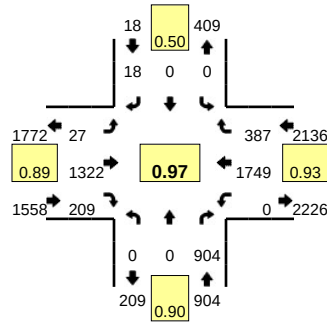
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	948	0	0	0	28	0	20	824	88	4	0	1244	376	0	3532
Heavy Trucks	0	0	52	0	0	0	0	0	0	20	4	0	0	44	8	0	128
Pedestrians	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

LOCATION: US 15-501 Bypass/Fordham Blvd NB -- NC 54/Raleigh Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940920
DATE: Thu, Apr 25 2013

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



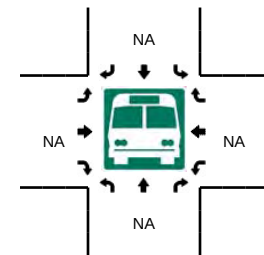
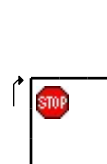
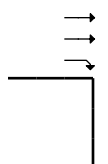
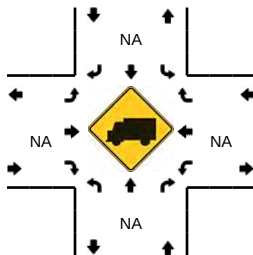
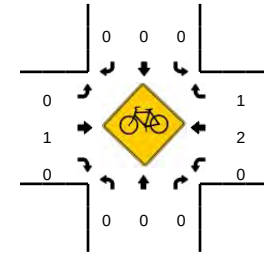
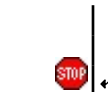
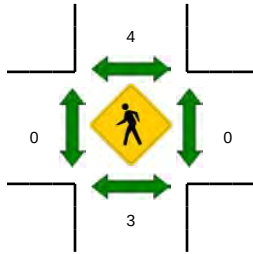
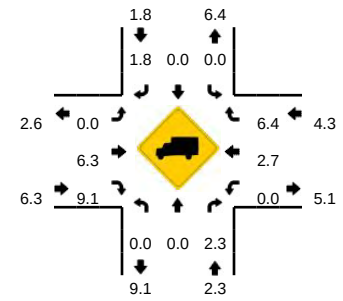
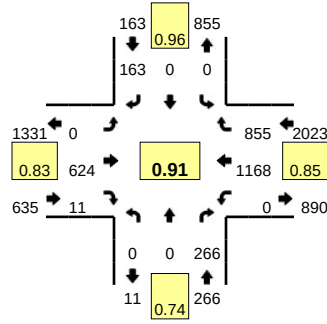
15-Min Count Period Beginning At	US 15-501 Bypass/Fordham Blvd NB (Northbound)				US 15-501 Bypass/Fordham Blvd NB (Southbound)				NC 54/Raleigh Rd (Eastbound)				NC 54/Raleigh Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	273	0	0	0	4	0	8	297	34	1	0	345	79	0	1041	
4:15 PM	0	0	249	0	0	0	2	0	4	280	39	1	0	329	98	0	1002	
4:30 PM	0	0	296	0	0	0	0	0	2	266	32	0	0	365	91	0	1052	
4:45 PM	0	0	243	0	0	0	9	0	6	290	34	0	0	425	101	0	1108	4203
5:00 PM	0	0	223	0	0	0	4	0	7	321	54	1	0	490	87	0	1187	4349
5:15 PM	0	0	211	0	0	0	0	0	6	378	62	3	0	430	102	0	1192	4539
5:30 PM	0	0	227	0	0	0	5	0	3	333	59	1	0	404	97	0	1129	4616
5:45 PM	0	0	235	0	0	0	6	0	0	339	39	0	0	376	93	0	1088	4596
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	844	0	0	0	0	0	24	1512	248	12	0	1720	408	0	4768	
Heavy Trucks	0	0	40		0	0	0		0	32	0		0	16	0		88	
Pedestrians		20				8				0				0			28	
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 SB Ramps -- NC 54/Raleigh Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940916
DATE: Thu, Apr 25 2013

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

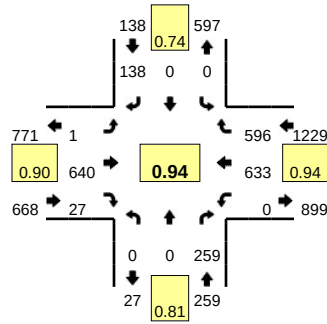


15-Min Count Period Beginning At	US 15-501 SB Ramps (Northbound)				US 15-501 SB Ramps (Southbound)				NC 54/Raleigh Rd (Eastbound)				NC 54/Raleigh Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	30	0	0	0	25	0	0	75	4	0	0	130	134	0	398	
7:15 AM	0	0	53	0	0	0	18	0	0	95	5	0	0	220	211	0	602	
7:30 AM	0	0	90	0	0	0	30	0	0	189	2	0	0	270	244	0	825	
7:45 AM	0	0	58	0	0	0	45	0	0	148	2	0	0	341	253	0	847	2672
8:00 AM	0	0	55	0	0	0	45	0	0	151	4	0	0	278	179	0	712	2986
8:15 AM	0	0	63	0	0	0	43	0	0	136	3	0	0	279	179	0	703	3087
8:30 AM	0	0	74	0	0	0	47	0	0	103	5	0	0	250	203	0	682	2944
8:45 AM	0	0	63	0	0	0	46	0	0	113	8	0	0	290	190	0	710	2807
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	232	0	0	0	180	0	0	592	8	0	0	1364	1012	0	3388	
Heavy Trucks	0	0	4	0	0	0	4	0	0	36	0	0	0	32	64	0	140	
Pedestrians	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

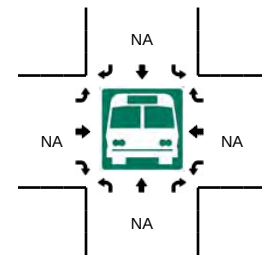
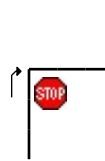
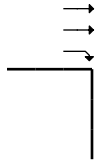
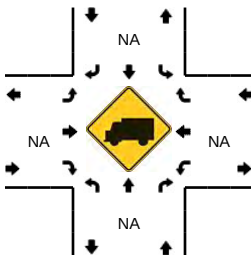
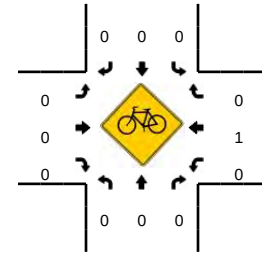
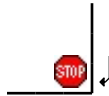
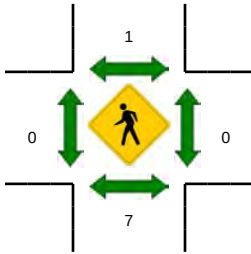
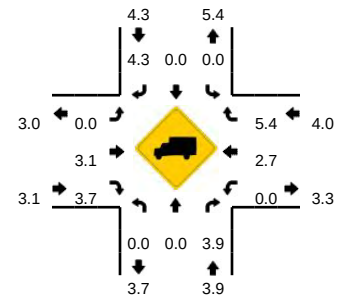
Comments:

LOCATION: US 15-501 SB Ramps -- NC 54/Raleigh Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940918
DATE: Thu, Apr 25 2013



Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:30 PM -- 12:45 PM



15-Min Count Period Beginning At	US 15-501 SB Ramps (Northbound)				US 15-501 SB Ramps (Southbound)				NC 54/Raleigh Rd (Eastbound)				NC 54/Raleigh Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	46	0	0	0	23	0	0	127	3	0	0	112	128	0	439	1913
11:15 AM	0	0	50	0	0	0	23	0	0	118	5	0	0	121	128	0	445	
11:30 AM	0	0	58	0	0	0	22	0	0	118	7	0	0	149	159	0	513	
11:45 AM	0	0	59	0	0	0	35	0	0	122	3	0	0	165	132	0	516	
12:00 PM	0	0	55	0	0	0	21	0	0	154	7	0	0	150	151	0	538	2012
12:15 PM	0	0	64	0	0	0	47	0	0	180	5	0	0	166	121	0	583	2150
12:30 PM	0	0	60	0	0	0	37	0	0	173	9	0	0	161	167	0	607	2244
12:45 PM	0	0	80	0	0	0	33	0	1	133	6	0	0	156	157	0	566	2294

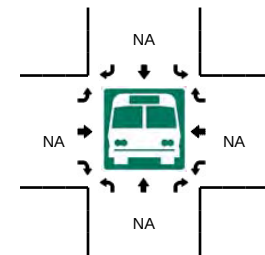
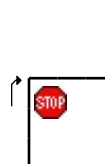
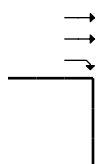
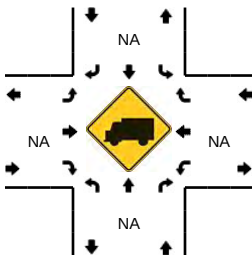
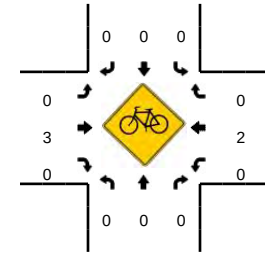
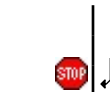
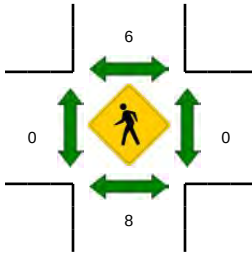
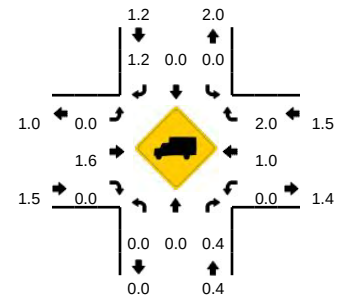
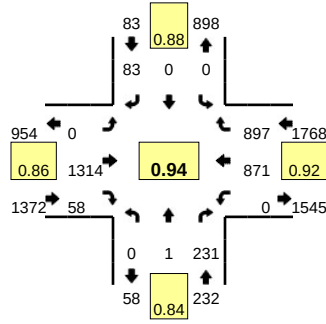
[illegible]

Comments:

LOCATION: US 15-501 SB Ramps -- NC 54/Raleigh Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940917
DATE: Thu, Apr 25 2013

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



15-Min Count Period Beginning At	US 15-501 SB Ramps (Northbound)				US 15-501 SB Ramps (Southbound)				NC 54/Raleigh Rd (Eastbound)				NC 54/Raleigh 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	0	72	0	0	0	16	0	0	263	10	0	0	158	194	0	713	
4:15 PM	0	0	61	0	0	0	26	0	0	258	15	0	0	157	178	0	695	
4:30 PM	0	0	39	0	0	0	23	0	0	259	12	0	0	178	191	0	702	
4:45 PM	0	1	68	0	0	0	22	0	0	257	15	0	0	214	223	0	800	2910
5:00 PM	0	0	56	0	0	0	21	0	0	324	21	0	0	245	238	0	905	3102
5:15 PM	0	0	51	0	0	0	22	0	0	395	15	0	0	206	229	0	918	3325
5:30 PM	0	0	56	0	0	0	18	0	0	338	7	0	0	206	207	0	832	3455
5:45 PM	0	0	65	0	0	0	27	0	0	308	9	0	0	199	187	0	795	3450
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	204	0	0	0	88	0	0	1580	60	0	0	824	916	0	3672	
Heavy Trucks	0	0	4	0	0	0	4	0	0	32	0	0	0	0	8	0	48	
Pedestrians		12				12				0				0			24	
Bicycles	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
Railroad																		
Stopped Buses																		

Comments:



7409 SW Tech Center Dr, Ste B150
Tigard, OR 97223
503-620-4242
www.qualitycounts.net

Site Code: 10940922
Location: US 15-501 -- NC 54 Bypass -- Fordham Blvd -- Old Mason Farm Rd
Date: 4/25/2013

Peak Hour: 7:15 AM - 8:15 AM
Peak 15-minutes: 8:00 AM - 8:15 AM
Peak Hour Factor: 0.717492

US 15-501 (Southbound)					Old Mason Farm Rd (Westbound)					US 15-501 (Northbound)					S Christopher Rd (Northbound)					Old Mason Farm Rd (Eastbound)					Interval Totals	Hourly Totals	15-minute Totals
U-Turns	Right to Old Mason Farm Rd	Thru to S Christoph er Rd	Thru to US 15-501	Left to Old Mason Farm Rd	U-Turns	Right to US 15- 501	Thru to Old Mason Farm Rd	Thru to S Christoph er Rd	Left to US 15-501	U-Turns	Right to Old Mason Farm Rd	Thru to US 15- 501	Left to Old Mason Farm Rd	Left to S Christoph er Rd	U-Turns	Right to US 15- 501	Thru to Old Mason Farm Rd	Left to US 15-501	Left to Old Mason Farm Rd	U-Turns	Right to S Christoph er Rd	Right to US 15-501	Thru to Old Mason Farm Rd	Left to US 15-501			
Total Vehicles																											
7:15 AM	0	0	0	386	1	0	1	1	0	7	0	26	577	10	0	0	2	1	2	0	0	0	1	1	2	1018	
7:30 AM	0	0	0	368	6	0	1	0	0	19	0	65	532	40	1	0	2	3	4	0	0	4	11	5	24	1085	
7:45 AM	1	1	2	391	0	0	4	2	0	40	0	46	502	39	1	0	3	0	1	0	0	6	24	9	72	1144	
8:00 AM	3	0	1	457	6	0	4	2	1	13	0	42	607	3	0	0	1	0	3	0	0	3	10	4	32	1192	
Totals	4	1	3	1602	13	0	10	5	1	79	0	179	2218	92	2	0	8	4	10	0	0	13	46	19	130	4439	
1623					95					2491					22					208							
Heavy Vehicles																											
8:30 AM	0	0	0	8	1	0	0	0	2	0	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 AM	0	0	0	9	0	0	0	0	4	0	1	8	0	1	0	0	0	0	0	0	0	0	0	0	0		
Totals	0	0	0	17	0	0	0	0	2	0	1	7	0	0	0	0	1	0	0	0	0	0	0	0	0		
12:00 AM	0	1	25	1	0	1	0	0	0	0	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	0	0	1	59	2	0	1	0	0	8	0	5	36	0	1	0	1	0	0	0	0	0	0	0	0		
62					9					42					1					0							
3.8%					9.5%					1.7%					4.5%					0.0%					2.6%		
Pedestrians																											
12:00 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		
12:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	1	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0		
2					1					2					0					1					6		



7409 SW Tech Center Dr, Ste B150
Tigard, OR 97223
503-620-4242
www.qualitycounts.net

Site Code: 10940923
Location: US 15-501 -- NC 54 Bypass -- Fordham Blvd -- Old Mason Farm Rd
Date: 4/25/2013

Peak Hour: 11:15 AM - 12:15 PM
Peak 15-minutes: 11:30 AM - 11:45 AM
Peak Hour Factor: 0.716598

	US 15-501 (Southbound)					Old Mason Farm Rd (Westbound)					US 15-501 (Northbound)					S Christopher Rd (Northbound)					Old Mason Farm Rd (Eastbound)					Interval Totals	Hourly Totals	15-minute Totals
	U-Turns	Right to Old Mason Farm Rd	Thru to S Christ opher Rd	Thru to US 15- 501	Left to Old Mason Farm Rd	U-Turns	Right to US 15- 501	Thru to Old Maso n Farm Rd	Thru to S Christoph er Rd	Left to US 15-501	U-Turns	Right to Old Mason Farm Rd	Thru to US 15- 501	Left to Old Mason Farm Rd	Left to S Christoph er Rd	U-Turns	Right to US 15- 501	Thru to Old Maso n Farm Rd	Left to US 15-501	Left to Old Mason Farm Rd	U-Turns	Right to S Christoph er Rd	Right to US 15- 501	Thru to Old Mason Farm Rd	Left to US 15-501			
11:15 AM	0	2	2	409	9	0	6	1	1	22	0	23	494	5	2	0	3	2	6	0	0	1	7	5	7	1007		
11:30 AM	1	2	5	480	8	0	6	4	2	35	0	34	589	3	0	0	4	0	1	0	0	1	11	2	17	1205		2212
11:45 AM	5	4	0	461	6	0	14	1	0	34	0	30	509	7	1	0	2	1	4	2	0	1	6	3	12	1103		3315
12:00 PM	2	1	2	487	5	0	9	0	1	52	0	33	526	4	2	0	1	2	1	2	0	0	3	1	12	1146		3454
Totals	8	9	9	1837	28	0	35	6	4	143	0	120	2118	19	5	0	10	5	12	4	0	3	27	11	48			
	1891					188					2262					31					89					4461		
Heavy Vehicles																												
11:15 AM		0	0	12	0		0	0	0	4		1	12	2	0		0	0	0	0		0	0	0	0			
11:30 AM		0	0	10	0		0	0	0	2		1	18	0	0		0	0	0	0		0	0	0	0			
11:45 AM		0	0	10	0		3	0	0	1		2	15	0	0		0	0	0	0		0	0	0	0			
12:00 PM		0	0	10	0		0	0	0	2		0	10	0	0		0	0	0	0		0	0	0	0			
Totals	0	0	0	42	0	0	3	0	0	9	0	4	55	2	0	0	0	0	0	0	0	0	0	0	0			
	42					12					61					0					0					115		
	2.2%					6.4%					2.7%					0.0%					0.0%					2.6%		
Pedestrians																												
11:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1					0					5					0					0					6		



7409 SW Tech Center Dr, Ste B150
Tigard, OR 97223
503-620-4242
www.qualitycounts.net

Site Code: 10940924
Location: US 15-501 -- NC 54 Bypass -- Fordham Blvd -- Old Mason Farm Rd
Date: 4/25/2013

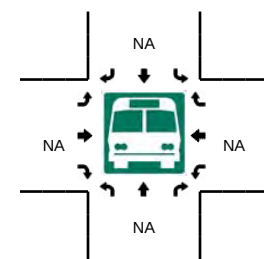
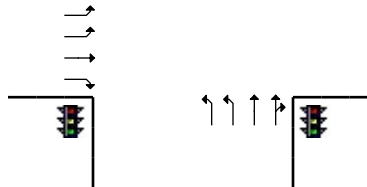
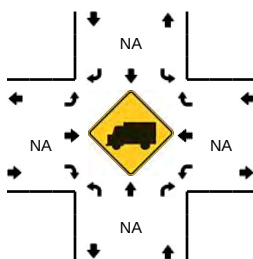
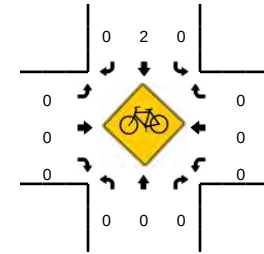
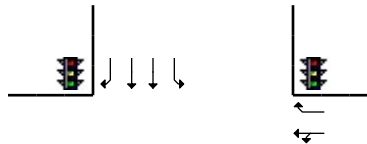
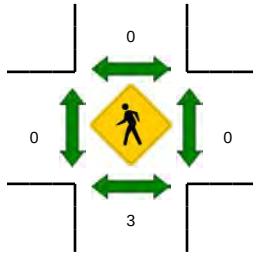
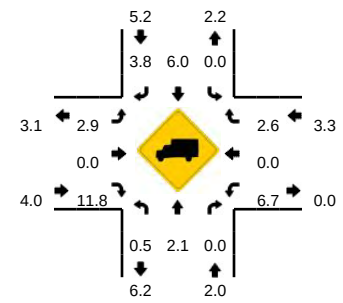
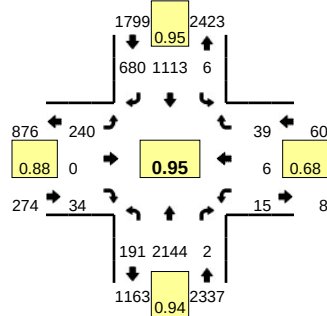
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-minutes: 05:30 PM - 05:45 PM
Peak Hour Factor: 0.73385

	US 15-501 (Southbound)					Old Mason Farm Rd (Westbound)					US 15-501 (Northbound)					S Christopher Rd (Northbound)					Old Mason Farm Rd (Eastbound)					Interval Totals		
	U-Turns	Right to Old Mason Farm Rd	Thru to S Christopher Rd	Thru to US 15-501	Left to Old Mason Farm Rd	U-Turns	Right to US 15-501	Thru to Old Mason Farm Rd	Thru to S Christopher Rd	Left to US 15-501	U-Turns	Right to Old Mason Farm Rd	Thru to US 15-501	Left to Old Mason Farm Rd	Left to S Christopher Rd	U-Turns	Right to US 15-501	Thru to Old Mason Farm Rd	Left to US 15-501	Left to Old Mason Farm Rd	U-Turns	Right to S Christoph er Rd	Right to US 15-501	Thru to Old Mason Farm Rd	Left to US 15-501			
5:00 PM	3	2	3	366	11	0	13	1	0	19	0	27	402	10	4	0	0	1	6	0	0	0	10	3	8	889		
5:15 PM	1	0	6	348	8	0	15	1	1	19	0	25	415	3	0	0	0	0	0	0	0	1	27	1	17	888		
5:30 PM	1	1	1	381	4	0	8	0	0	16	0	31	456	2	2	0	0	0	2	0	0	0	13	0	11	929		
5:45 PM	0	3	2	424	8	0	6	1	2	22	0	24	394	4	0	0	0	2	0	0	0	0	7	1	10	910		
Totals	5	6	12	1519	31	0	42	3	3	76	0	107	1667	19	6	0	0	3	8	0	0	1	57	5	46			
	1573					124					1799					11					109					3616		
	Heavy Vehicles																											
5:00 PM		0	0	11	1		0	0	0	1		1	18	0	0		0	0	0	0		0	0	1	1			
5:15 PM		0	0	18	0		1	0	0	3		0	13	0	0		0	0	0	0		0	0	0	0			
5:30 PM		0	0	15	0		1	0	0	0		3	18	1	0		0	0	0	0		0	0	0	0			
5:45 PM		0	0	16	0		0	0	0	2		3	11	0	0		0	0	0	0		0	0	0	0			
Totals	0	0	0	60	1	0	2	0	0	6	0	7	60	1	0	0	0	0	0	0	0	0	0	1	1			
	61					8					68					0					2					139		
	3.9%					6.5%					3.8%					0.0%					1.8%					3.8%		
	Pedestrians																											
12:00 AM	1	0	0	0	1	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0		
12:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0		
Totals	1	0	0	0	1	1	0	0	0	0	3	0	0	0	0	7	0	0	0	0	1	0	0	1	0	0		
	2					1					3					7					2					15		

LOCATION: US Hwy 15-501/NC 54 Bypass -- Manning Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940925
DATE: Thu, Apr 25 2013

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



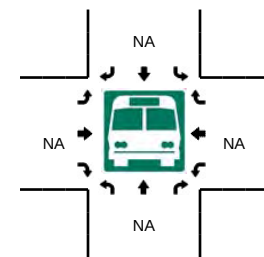
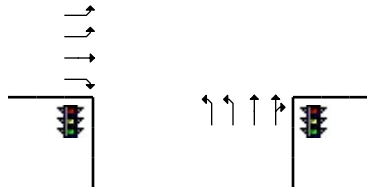
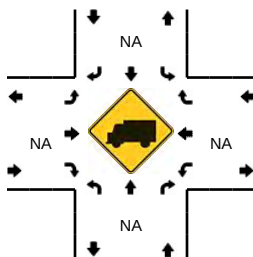
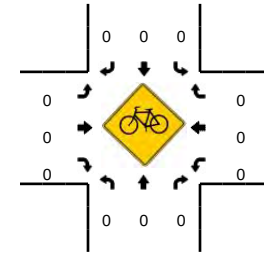
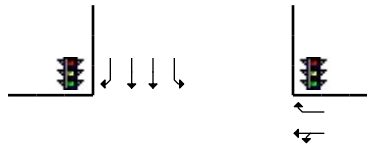
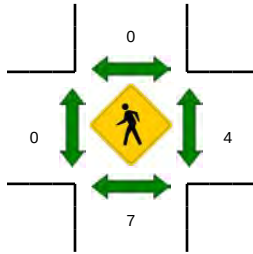
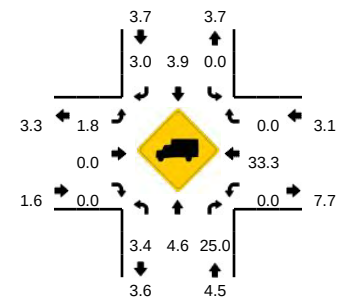
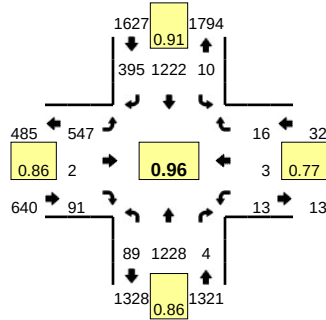
15-Min Count Period Beginning At	US Hwy 15-501/NC 54 Bypass (Northbound)				US Hwy 15-501/NC 54 Bypass (Southbound)				Manning Dr (Eastbound)				Manning Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	23	359	0	0	0	169	112	0	48	1	20	0	1	1	6	0	740	
7:15 AM	47	539	1	1	0	225	152	0	73	1	11	0	0	0	4	0	1054	
7:30 AM	45	549	0	0	0	251	169	0	91	0	4	0	5	1	20	0	1135	
7:45 AM	53	475	0	0	1	271	185	0	77	0	10	0	3	2	16	0	1093	4022
8:00 AM	42	591	0	0	1	289	182	0	50	0	4	0	4	0	8	0	1171	4453
8:15 AM	51	514	0	0	2	261	134	0	67	0	9	0	4	1	7	0	1050	4449
8:30 AM	44	564	2	1	2	292	179	0	46	0	11	0	4	3	8	0	1156	4470
8:45 AM	39	522	2	0	0	280	182	0	53	0	4	0	1	1	4	0	1088	4465
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	168	2364	0	0	4	1156	728	0	200	0	16	0	16	0	32	0	4684	
Heavy Trucks	0	32	0	0	0	80	16	0	4	0	0	0	0	0	0	0	132	
Pedestrians	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: US Hwy 15-501/NC 54 Bypass -- Manning Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940927
DATE: Thu, Apr 25 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:45 PM -- 1:00 PM



15-Min Count Period Beginning At	US Hwy 15-501/NC 54 Bypass (Northbound)				US Hwy 15-501/NC 54 Bypass (Southbound)				Manning Dr (Eastbound)				Manning Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	12	327	1	1	0	244	80	1	98	0	21	0	0	0	5	0	790	
11:15 AM	17	263	0	1	2	284	72	2	113	0	15	0	1	1	6	0	777	
11:30 AM	13	335	0	0	2	276	101	0	111	0	12	0	0	0	1	0	851	
11:45 AM	14	385	1	0	1	293	70	0	118	0	14	0	2	0	6	0	904	3322
12:00 PM	18	285	1	0	2	302	81	1	131	0	22	0	3	1	7	0	854	3386
12:15 PM	25	296	0	0	2	300	81	2	160	1	25	0	4	1	4	0	901	3510
12:30 PM	20	322	1	1	3	292	114	0	148	0	19	0	4	0	2	0	926	3585
12:45 PM	24	325	2	1	0	328	119	0	108	1	25	0	2	1	3	0	939	3620

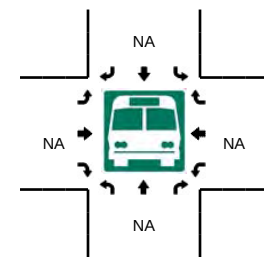
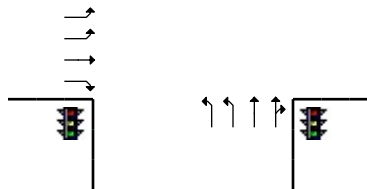
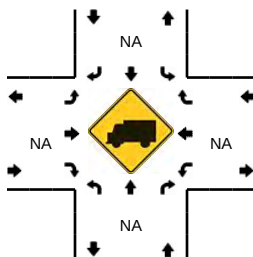
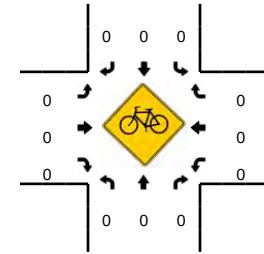
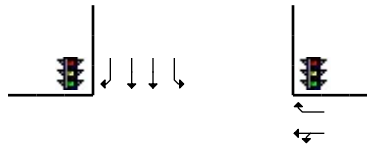
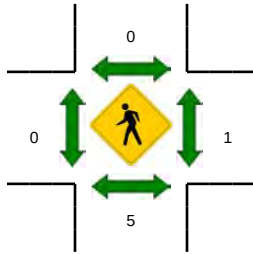
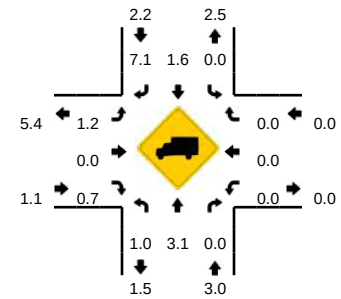
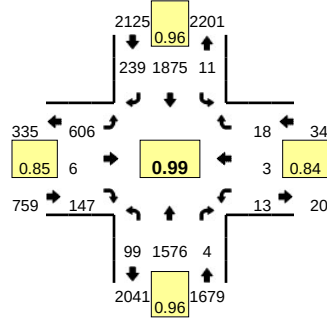
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	96	1300	8	4	0	1312	476	0	432	4	100	0	8	4	12	0	3756
Heavy Trucks	0	44	0		0	44	16		4	0	0		0	0	0		108
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: US Hwy 15-501/NC 54 Bypass -- Manning Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940926
DATE: Thu, Apr 25 2013

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



15-Min Count Period Beginning At	US Hwy 15-501/NC 54 Bypass (Northbound)				US Hwy 15-501/NC 54 Bypass (Southbound)				Manning Dr (Eastbound)				Manning Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	21	313	1	1	2	399	65	1	226	0	47	0	0	0	2	0	1078	
4:15 PM	8	360	0	0	2	420	71	0	207	0	23	0	1	0	4	0	1096	
4:30 PM	20	362	0	2	3	417	47	0	231	1	57	0	1	1	5	0	1147	
4:45 PM	25	394	0	0	0	409	69	0	155	0	41	0	2	1	4	0	1100	4421
5:00 PM	23	421	0	1	0	465	54	1	135	1	45	0	4	2	4	0	1156	4499
5:15 PM	23	392	2	3	3	492	60	0	133	1	32	0	4	1	4	0	1150	4553
5:30 PM	29	400	2	1	2	452	58	0	156	2	28	0	4	0	7	0	1141	4547
5:45 PM	18	363	0	1	5	466	67	0	182	2	42	0	1	0	3	0	1150	4597

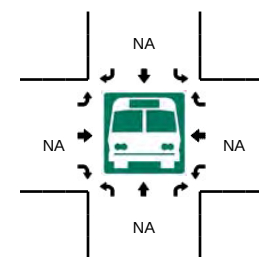
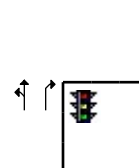
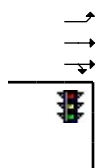
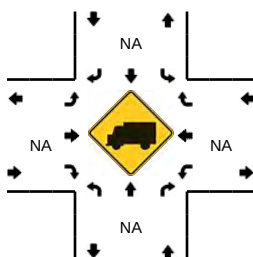
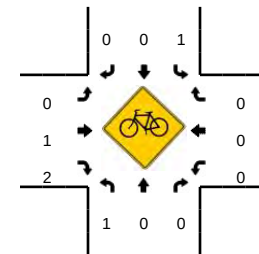
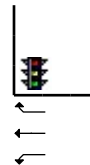
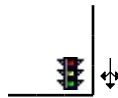
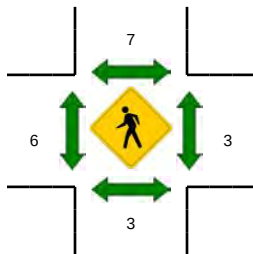
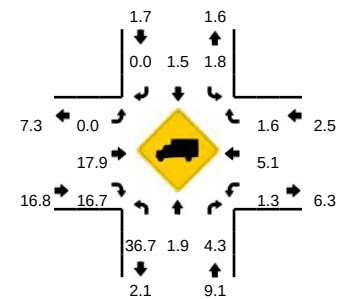
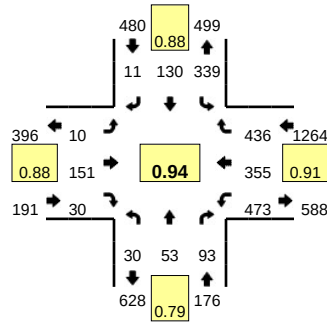
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	92	1684	0	4	0	1860	216	4	540	4	180	0	16	8	16	0	4624
Heavy Trucks	0	52	0		0	32	24		4	0	0		0	0	0		112
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: Country Club Rd -- Raleigh Rd/South Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941452
DATE: Thu, Apr 25 2013

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



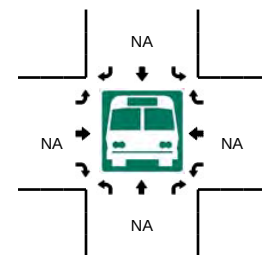
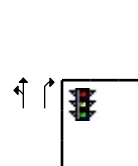
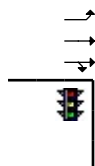
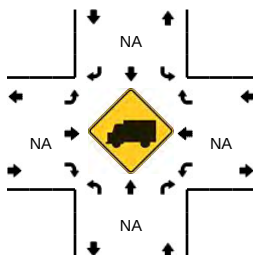
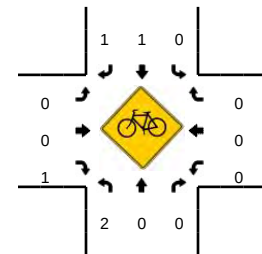
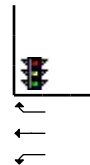
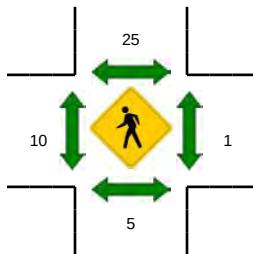
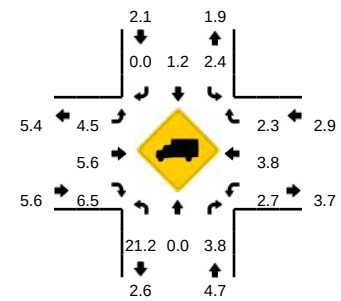
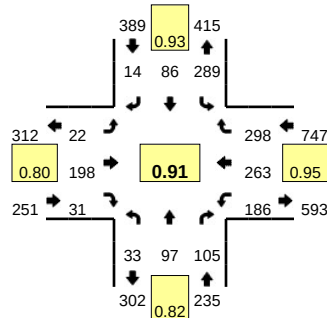
15-Min Count Period Beginning At	Country Club Rd (Northbound)				Country Club Rd (Southbound)				Raleigh Rd/South Rd (Eastbound)				Raleigh Rd/South Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	12	8	0	40	14	1	0	1	31	3	0	65	56	38	0	271	
7:15 AM	4	15	19	0	56	20	4	0	0	26	4	0	75	74	57	0	354	
7:30 AM	6	11	39	0	108	24	4	0	2	41	3	0	126	69	90	2	525	
7:45 AM	11	19	18	0	72	38	3	0	2	42	10	0	140	76	130	1	562	1712
8:00 AM	5	14	17	0	88	41	3	0	5	40	5	0	116	113	106	2	555	1996
8:15 AM	8	9	19	0	71	27	1	0	1	28	12	0	86	97	110	0	469	2111
8:30 AM	5	13	10	0	63	28	1	0	1	28	7	0	74	94	99	0	423	2009
8:45 AM	4	16	12	0	75	25	5	0	1	27	9	0	106	75	146	0	501	1948
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	76	72	0	288	152	12	0	8	168	40	0	560	304	520	4	2248	
Heavy Trucks	12	4	0		0	0	0		0	24	4		16	12	16		88	
Pedestrians		0				8				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	2		0	0	0		2	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Country Club Rd -- Raleigh Rd/South Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941454
DATE: Thu, Apr 25 2013

Peak-Hour: 11:45 AM -- 12:45 PM
Peak 15-Min: 12:30 PM -- 12:45 PM



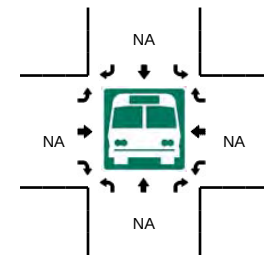
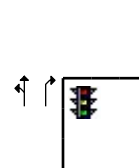
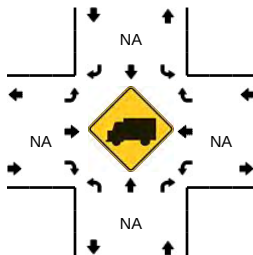
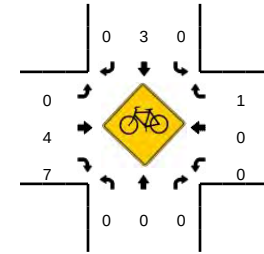
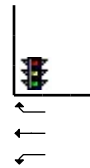
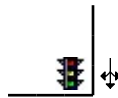
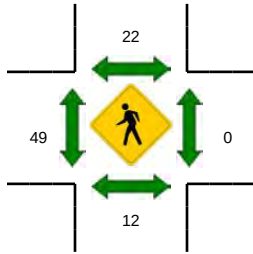
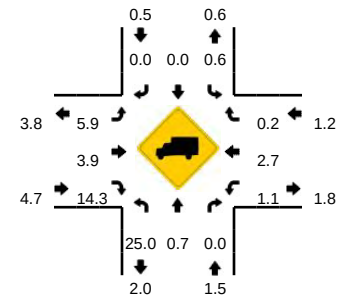
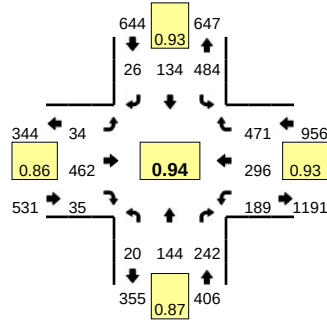
15-Min Count Period Beginning At	Country Club Rd (Northbound)				Country Club Rd (Southbound)				Raleigh Rd/South Rd (Eastbound)				Raleigh Rd/South Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	5	18	7	0	53	19	2	0	2	47	10	0	36	41	47	1	288	
11:15 AM	8	23	7	0	55	19	1	0	1	41	7	0	35	43	58	0	298	
11:30 AM	4	21	13	0	44	14	2	0	8	42	7	0	53	59	58	0	325	
11:45 AM	10	19	14	0	63	24	3	0	7	42	5	2	50	65	71	0	375	1286
12:00 PM	7	21	27	0	66	24	3	0	1	54	4	0	46	53	70	0	376	1374
12:15 PM	6	30	28	0	78	25	2	0	3	46	9	0	42	85	69	0	423	1499
12:30 PM	10	27	36	0	82	13	6	0	9	56	13	0	47	60	88	1	448	1622
12:45 PM	10	14	23	0	58	24	4	0	5	39	3	0	38	47	96	0	361	1608
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	40	108	144	0	328	52	24	0	36	224	52	0	188	240	352	4	1792	
Heavy Trucks	8	0	8		4	0	0		4	12	8		4	12	4		64	
Pedestrians		8				24				0				4			36	
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Country Club Rd -- Raleigh Rd/South Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941453
DATE: Thu, Apr 25 2013

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



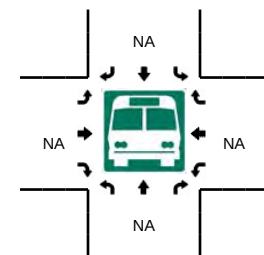
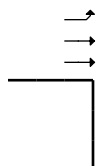
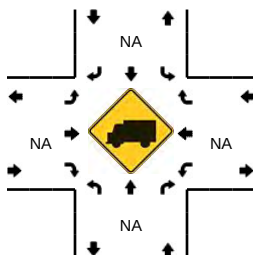
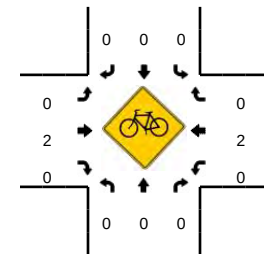
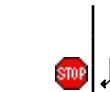
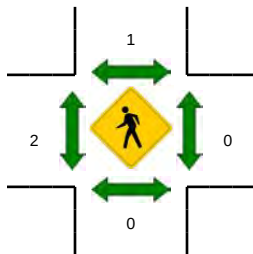
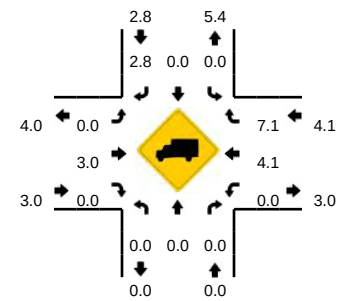
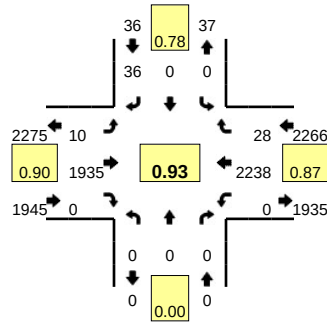
15-Min Count Period Beginning At	Country Club Rd (Northbound)				Country Club Rd (Southbound)				Raleigh Rd/South Rd (Eastbound)				Raleigh Rd/South Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	30	31	0	97	18	4	0	2	102	6	0	38	48	86	0	465	
4:15 PM	5	36	43	0	115	26	1	0	6	71	4	0	29	56	76	0	468	
4:30 PM	6	36	47	0	103	25	3	0	2	89	7	0	53	51	96	1	519	
4:45 PM	7	36	37	0	103	38	6	0	7	96	6	1	42	65	125	1	570	2022
5:00 PM	5	38	59	0	138	26	8	0	12	112	13	1	57	82	117	1	669	2226
5:15 PM	3	30	68	0	126	43	5	0	5	143	6	0	46	76	124	1	676	2434
5:30 PM	5	40	78	0	117	27	7	0	8	111	10	0	41	73	105	0	622	2537
5:45 PM	8	37	56	0	111	24	5	0	5	92	9	0	42	62	104	0	555	2522
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	12	120	272	0	504	172	20	0	20	572	24	0	184	304	496	4	2704	
Heavy Trucks	0	0	0		4	0	0		0	28	4		0	4	0		40	
Pedestrians		4				28				48				0			80	
Bicycles	0	0	0		0	1	0		0	0	3		0	0	0		4	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Glen Lennox Shopping Center Entrance #1 -- Raleigh Rd (NC 54)
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941437
DATE: Wed, Apr 24 2013

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



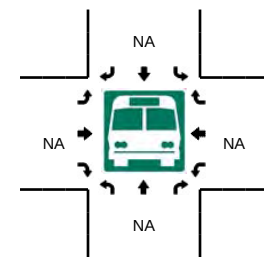
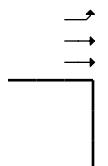
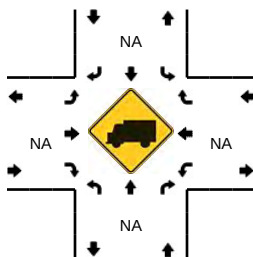
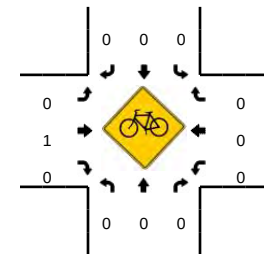
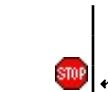
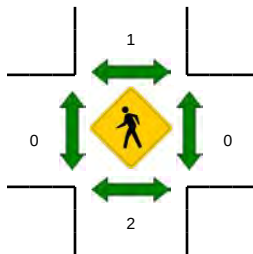
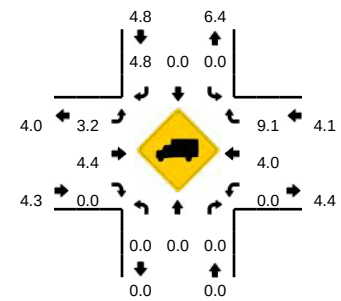
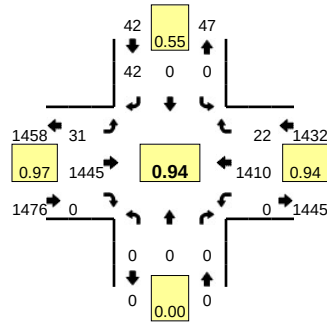
15-Min Observation Period Beginning At	Glen Lennox Shopping Center Entrance #1 (Northbound)				Glen Lennox Shopping Center Entrance #1 (Southbound)				Raleigh Rd (NC 54) (Eastbound)				Raleigh Rd (NC 54) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	4	0	1	280	0	2	0	328	4	0	619	
7:15 AM	0	0	0	0	0	0	10	0	0	423	0	0	0	460	6	0	899	
7:30 AM	0	0	0	0	0	0	8	0	3	538	0	0	0	565	7	0	1121	
7:45 AM	0	0	0	0	0	0	8	0	2	474	0	0	0	648	5	0	1137	3776
8:00 AM	0	0	0	0	0	0	11	0	2	464	0	1	0	500	7	0	985	4142
8:15 AM	0	0	0	0	0	0	9	0	2	459	0	0	0	525	9	0	1004	4247
8:30 AM	0	0	0	0	0	0	14	0	6	406	0	1	0	563	8	0	998	4124
8:45 AM	0	0	0	0	0	0	16	0	1	445	0	1	0	501	8	0	972	3959
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	32	0	8	1896	0	0	0	2592	20	0	4548	
Heavy Trucks	0	0	0	0	0	0	0	0	0	56	0	0	0	100	0	0	156	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Glen Lennox Shopping Center Entrance #1 -- Raleigh Rd (NC 54)
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941439
DATE: Wed, Apr 24 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:45 PM -- 1:00 PM



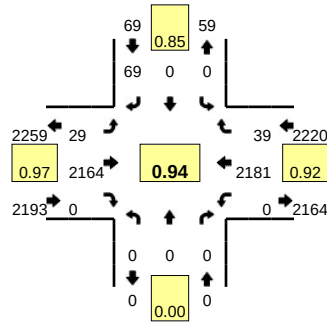
15-Min Observation Period Beginning At	Glen Lennox Shopping Center Entrance #1 (Northbound)				Glen Lennox Shopping Center Entrance #1 (Southbound)				Raleigh Rd (NC 54) (Eastbound)				Raleigh Rd (NC 54) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	0	0	7	0	4	350	0	4	0	320	4	0	689	
11:15 AM	0	0	0	0	0	0	8	1	2	337	0	1	0	371	4	0	724	
11:30 AM	0	0	0	0	0	0	7	0	3	332	0	1	0	345	5	0	693	
11:45 AM	0	0	0	0	0	0	11	0	3	351	0	1	0	389	4	0	759	2865
12:00 PM	0	0	0	0	0	0	10	0	9	356	0	1	0	351	6	0	733	2909
12:15 PM	0	0	0	0	0	0	9	0	3	368	0	1	0	376	3	0	760	2945
12:30 PM	0	0	0	0	0	0	4	0	3	355	0	1	0	307	1	0	671	2923
12:45 PM	0	0	0	0	0	0	19	0	10	366	0	3	0	376	12	0	786	2950

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	76	0	40	1464	0	12	0	1504	48	0	3144
Heavy Trucks	0	0	0	0	0	0	0	0	4	60	0	0	0	60	4	0	128
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

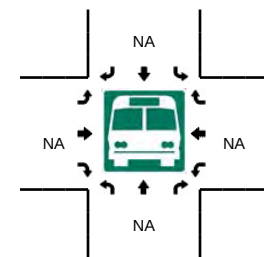
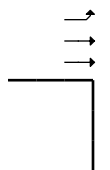
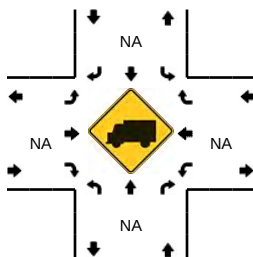
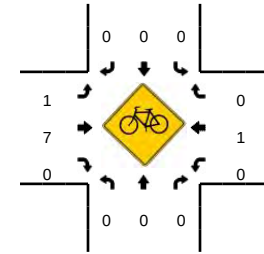
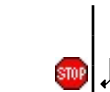
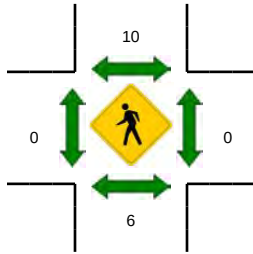
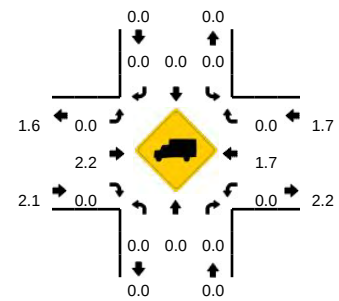
Comments:

LOCATION: Glen Lennox Shopping Center Entrance #1 -- Raleigh Rd (NC 54)
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941438
DATE: Wed, Apr 24 2013



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

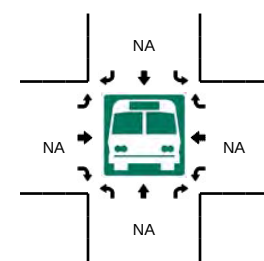
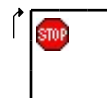
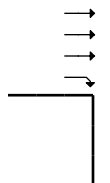
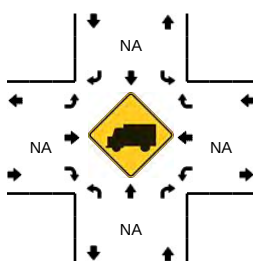
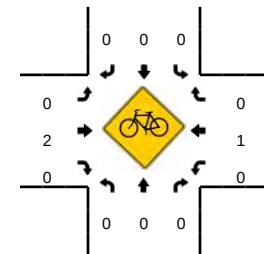
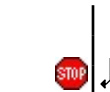
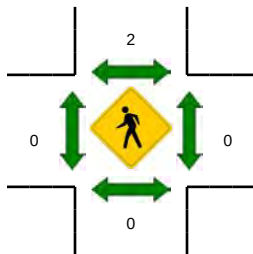
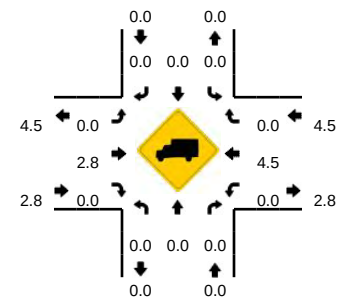
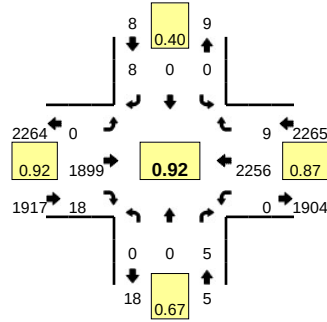
[illegible]

Comments:

LOCATION: Glen Lennox Shopping Center Entrance #2 -- Raleigh Rd (NC 54)
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941434
DATE: Wed, Apr 24 2013

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



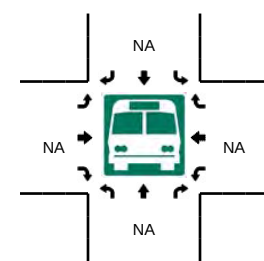
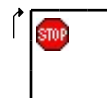
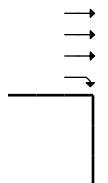
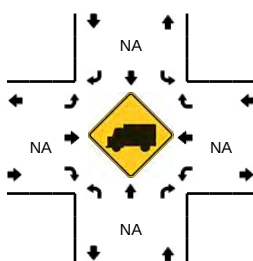
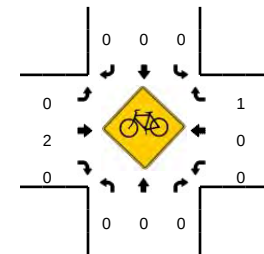
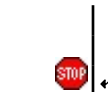
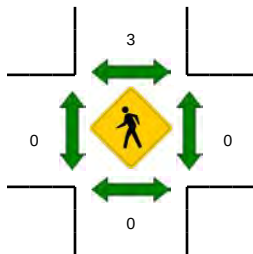
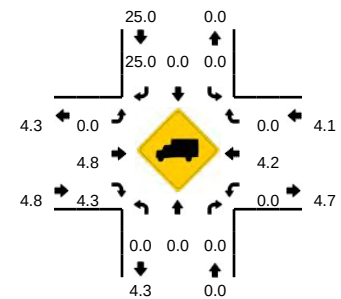
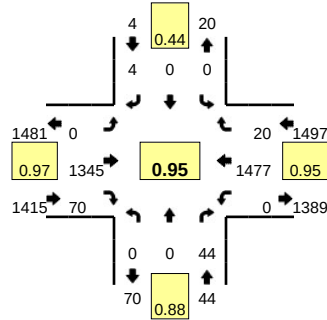
15-Min Observation Period Beginning At	Glen Lennox Shopping Center Entrance #2 (Northbound)				Glen Lennox Shopping Center Entrance #2 (Southbound)				Raleigh Rd (NC 54) (Eastbound)				Raleigh Rd (NC 54) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	1	0	0	0	1	0	0	278	2	0	0	338	1	0	621	
7:15 AM	0	0	0	0	0	0	1	0	0	417	5	0	0	464	2	0	889	
7:30 AM	0	0	0	0	0	0	1	0	0	515	6	0	0	565	1	0	1088	
7:45 AM	0	0	2	0	0	0	5	0	0	472	4	0	0	651	3	0	1137	3735
8:00 AM	0	0	2	0	0	0	1	0	0	459	3	0	0	501	2	0	968	4082
8:15 AM	0	0	1	0	0	0	1	0	0	453	5	0	0	539	3	0	1002	4195
8:30 AM	0	0	3	0	0	0	1	0	0	396	8	0	0	558	1	0	967	4074
8:45 AM	0	0	0	0	0	0	2	0	0	444	4	0	0	513	7	0	970	3907
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	8	0	0	0	20	0	0	1888	16	0	0	2604	12	0	4548	
Heavy Trucks	0	0	0	0	0	0	0	0	0	56	0	0	0	108	0	0	164	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Glen Lennox Shopping Center Entrance #2 -- Raleigh Rd (NC 54)
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941436
DATE: Wed, Apr 24 2013

Peak-Hour: 11:30 AM -- 12:30 PM
Peak 15-Min: 12:15 PM -- 12:30 PM

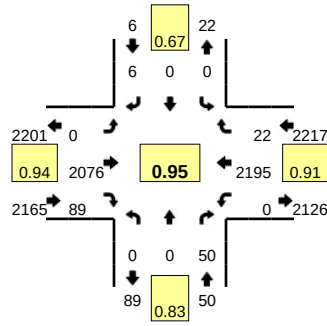


15-Min Observation Period Beginning At	Glen Lennox Shopping Center Entrance #2 (Northbound)				Glen Lennox Shopping Center Entrance #2 (Southbound)				Raleigh Rd (NC 54) (Eastbound)				Raleigh Rd (NC 54) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	5	0	0	0	2	0	0	334	18	0	0	326	7	0	692	
11:15 AM	0	0	3	0	0	0	1	0	0	323	16	0	0	371	6	0	720	
11:30 AM	0	0	11	0	0	0	1	0	0	322	10	0	0	347	5	0	696	
11:45 AM	0	0	7	0	0	0	0	0	0	341	16	0	0	393	3	0	760	2868
12:00 PM	0	0	12	0	0	0	1	0	0	334	19	0	0	357	5	0	728	2904
12:15 PM	0	0	14	0	0	0	2	0	0	348	25	0	0	380	7	0	776	2960
12:30 PM	0	0	13	0	0	0	0	0	0	337	20	0	0	307	4	0	681	2945
12:45 PM	0	0	10	0	0	0	4	0	0	350	16	0	0	381	6	0	767	2952
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	56	0	0	0	8	0	0	1392	100	0	0	1520	28	0	3104	
Heavy Trucks	0	0	0		0	0	4		0	60	4		0	48	0		116	
Pedestrians	0	0	0		4	0	0		0	0	0		0	0	0		4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

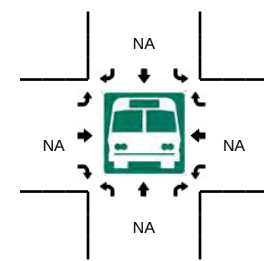
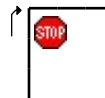
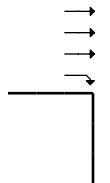
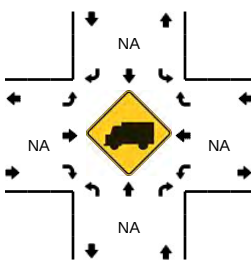
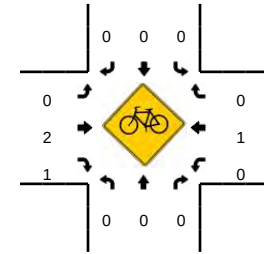
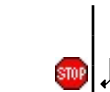
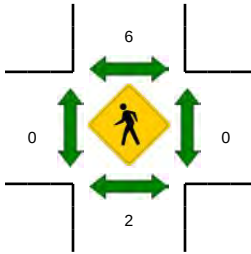
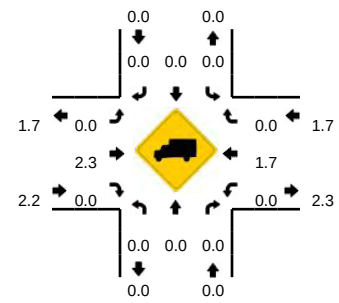
Comments:

LOCATION: Glen Lennox Shopping Center Entrance #2 -- Raleigh Rd (NC 54)
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941435
DATE: Wed, Apr 24 2013



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



15-Min Observation Period Beginning At	Lennox Shopping Center Entrance #1 (Northbound)				Lennox Shopping Center Entrance #2 (Southbound)				Raleigh Rd (NC 54) (Eastbound)				Raleigh Rd (NC 54) (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	7	0	0	0	3	0	0	458	13	0	0	390	4	0	875	3829
4:15 PM	0	0	6	0	0	0	2	0	0	488	15	0	0	401	7	0	919	
4:30 PM	0	0	5	0	0	0	3	0	0	527	10	0	0	444	5	0	994	
4:45 PM	0	0	6	0	0	0	0	0	0	524	17	0	0	491	3	0	1041	
5:00 PM	0	0	12	0	0	0	1	0	0	560	28	0	0	526	9	0	1136	4090
5:15 PM	0	0	13	0	0	0	2	0	0	528	22	0	0	604	4	0	1173	4344
5:30 PM	0	0	15	0	0	0	3	0	0	494	19	0	0	532	4	0	1067	4417
5:45 PM	0	0	10	0	0	0	0	0	0	494	20	0	0	533	5	0	1062	4438

[illegible]

Comments:

QUALITY COUNTS REPORT
=====

Intersection: Hamilton R NC 54/Raleigh Rd
City/State: Chapel Hill NC
QCJobNo: 10940913
ClientID:
Date: 4/25/2013
Comments:

PEAK HOUR: 4:45 PM
PEAK HOUR: 5:45 PM
PEAK 15-M: 5:00 PM
PEAK 15-M: 5:15 PM
PHF: 0.97

Lane Configuration:
SIGNAL
SBLane1 TR SBLane2 L SBLane3 SBLane4 SBLane5 SBLane6 SBLane7

EBLane7 TR
EBLane6 T
EBLane5 T
EBLane4 L
EBLane3 T
EBLane2 T
EBLane1 TR
SIGNAL

L T R
NBLane7 NBLane6 NBLane5 NBLane4 NBLane3 NBLane2 NBLane1 SIGNAL

SIGNAL
WBLane1
WBLane2
WBLane3
WBLane4
WBLane5
WBLane6
WBLane7

PEAK-HOUR VOLUMES

NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight	NBEntering	SBEntering	EBEntering	WBEntering	NBLeaving	SBLeaving	EBLeaving	WBLeaving
154	25	101	51	19	41	48	1991	64	93	1883	52	280	111	2103	2028	113	172	2147	2090

PERCENT HEAVY VEHICLES

NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight	NBEntering	SBEntering	EBEntering	WBEntering	NBLeaving	SBLeaving	EBLeaving	WBLeaving
0	0	2	2	0	2.4	6.3	2.3	0	1.1	1.6	0	0.7	1.8	2.3	1.5	2.7	0.6	2.2	1.5

PEAK-HOUR VOLUMES - PEDESTRIANS

North	South	East	West
7	11	25	8

PEAK-HOUR VOLUMES - BICYCLES

NBLeft	NBThru	NBRight	SBLeft	SBThru	SBRight	EBLeft	EBThru	EBRight	WBLeft	WBThru	WBRight
0	0	0	0	0	0	2	1	0	0	0	0

PEAK 15-MIN FLOWRATES

VehicleType	NBLeft	NBThru	NBRight	NBUTurn	NBRTOR	SBLeft	SBThru	SBRight	SBUTurn	SBRTOR	EBLeft	EBThru	EBRight	EBUTurn	EBRTOR	WBLeft	WBThru	WBRight	WBUTurn	WBRTOR	Total
All Vehicles	180	28	100	0	0	52	28	52	0	0	40	1936	60	16	0	80	2032	52	0	0	4656
Heavy Trucks	0	0	4			0	0	0			4	36	0			0	32	0			76
Pedestrians		8					4					16					32				60
Bicycles	0	0	0				0	1				1	0	0		0	0	0			2

ALL-VEHICLE VOLUMES

Time Period	NB Left	NB Thru	NB Right	NB U-Turn	NB RTOR	SB Left	SB Thru	SB Right	SB U-Turn	SB RTOR	EB Left	EB Thru	EB Right	EB U-Turn	EB RTOR	WB Left	WB Thru	WB Right	WB U-Turn	WB RTOR	Total	Hourly Totals
7:00 AM	13	0	7	0	0	9	0	2	0	0	2	233	23	0	0	19	303	0	0	0	611	
7:15 AM	21	1	20	0	0	17	10	5	0	0	6	379	49	1	0	15	412	2	0	0	938	
7:30 AM	60	12	27	0	0	10	17	4	0	0	2	417	119	5	0	15	523	5	0	0	1216	
7:45 AM	63	16	37	0	0	14	1	10	0	0	3	415	32	3	0	11	580	5	0	0	1190	3955
8:00 AM	28	1	17	0	0	8	5	9	0	0	9	445	11	3	0	17	452	6	2	0	1013	4357
8:15 AM	21	2	13	0	0	7	2	9	0	0	3	415	15	4	0	13	479	5	1	0	989	4408
8:30 AM	25	1	24	0	0	12	4	7	0	0	3	424	12	1	0	16	444	4	0	0	977	4169
8:45 AM	23	1	18	0	0	9	4	13	0	0	10	372	17	1	0	28	511	7	0	0	1014	3993
9:00 AM	23	5	12	0	0	17	2	6	0	0	7	315	8	3	0	19	450	8	0	0	875	3855
9:15 AM	26	2	21	0	0	5	0	8	0	0	5	323	8	4	0	19	427	9	0	0	857	3723
9:30 AM	20	3	16	0	0	9	4	4	0	0	4	275	6	7	0	10	380	7	0	0	745	3491

9:45 AM	10	1	12	0	0	10	5	8	0	0	3	275	9	3	0	13	381	5	0	0	735	3212
10:00 AM	15	0	17	0	0	3	1	4	0	0	2	258	8	8	0	10	299	9	0	0	634	2971
10:15 AM	12	0	16	0	0	6	3	5	0	0	5	224	7	6	0	11	326	5	1	0	627	2741
10:30 AM	13	1	11	0	0	6	1	5	0	0	6	256	3	6	0	15	312	6	1	0	642	2638
10:45 AM	15	3	11	0	0	10	3	3	0	0	8	283	9	5	0	11	294	5	0	0	660	2563
11:00 AM	20	2	19	0	0	8	3	5	0	0	5	307	7	5	0	14	267	6	1	0	669	2598
11:15 AM	18	1	19	0	0	12	1	6	0	0	4	279	8	5	0	17	335	10	2	0	717	2688
11:30 AM	27	2	17	0	0	10	2	2	0	0	6	268	6	0	0	13	321	7	0	0	681	2727
11:45 AM	15	2	26	0	0	8	4	7	0	0	11	310	6	0	0	24	367	10	0	0	790	2857
12:00 PM	39	1	16	0	0	7	5	8	0	0	6	308	9	0	0	24	292	9	0	0	724	2912
12:15 PM	27	4	21	0	0	12	4	13	0	0	5	334	8	0	0	29	344	7	0	0	808	3003
12:30 PM	36	2	21	0	0	14	4	7	0	0	8	379	9	3	0	21	343	5	0	0	852	3174
12:45 PM	39	7	21	0	0	16	1	4	0	0	6	317	10	5	0	17	364	5	1	0	813	3197
1:00 PM	31	3	18	0	0	12	2	3	0	0	3	332	13	4	0	15	309	6	0	0	751	3224
1:15 PM	40	3	19	0	0	12	4	2	0	0	3	336	8	5	0	16	363	14	2	0	827	3243
1:30 PM	29	2	11	0	0	19	9	3	0	0	4	348	9	4	0	11	330	11	0	0	790	3181
1:45 PM	22	1	21	0	0	11	3	5	0	0	9	346	15	6	0	7	351	7	0	0	804	3172
2:00 PM	33	5	18	0	0	6	2	4	0	0	5	337	22	3	0	22	297	11	0	0	765	3186
2:15 PM	28	2	26	0	0	14	5	0	0	0	12	320	35	5	0	19	318	9	0	0	793	3152
2:30 PM	59	13	32	0	0	9	9	2	0	0	9	329	17	3	0	17	327	11	0	0	837	3199
2:45 PM	33	7	28	0	0	5	3	2	0	0	9	393	13	5	0	21	357	5	3	0	884	3279
3:00 PM	34	5	17	0	0	14	5	12	0	0	8	405	13	5	0	22	329	10	0	0	879	3393
3:15 PM	32	4	27	0	0	11	7	4	0	0	7	410	18	5	0	17	332	8	0	0	882	3482
3:30 PM	32	2	24	0	0	12	2	6	0	0	6	492	9	6	0	9	310	4	1	0	915	3560
3:45 PM	35	4	26	0	0	11	7	8	0	0	9	470	20	2	0	15	348	11	0	0	966	3642
4:00 PM	39	4	30	0	0	12	4	8	0	0	13	515	21	1	0	12	359	13	0	0	1031	3794
4:15 PM	29	4	27	0	0	13	9	6	0	0	15	463	10	4	0	12	383	8	0	0	983	3895
4:30 PM	33	7	38	0	0	12	3	4	0	0	6	480	18	8	0	24	409	10	2	0	1054	4034
4:45 PM	36	1	25	0	0	13	2	7	0	0	7	489	27	4	0	28	468	8	2	0	1117	4185
5:00 PM	45	7	25	0	0	13	7	13	0	0	10	484	15	4	0	20	508	13	0	0	1164	4318
5:15 PM	38	10	27	0	0	11	4	11	0	0	11	536	10	2	0	22	450	17	2	0	1151	4486
5:30 PM	35	7	24	0	0	14	6	10	0	0	8	482	12	2	0	19	457	14	0	0	1090	4522
5:45 PM	40	5	22	0	0	16	9	10	0	0	9	493	21	2	0	25	434	18	1	0	1105	4510
6:00 PM	60	11	16	0	0	13	3	17	0	0	9	471	14	6	0	10	411	7	0	0	1048	4394
6:15 PM	28	3	15	0	0	10	4	13	0	0	7	429	8	7	0	15	446	10	1	0	996	4239
6:30 PM	26	4	19	0	0	11	1	11	0	0	4	366	6	1	0	22	487	13	2	0	973	4122
6:45 PM	20	3	15	0	0	14	1	5	0	0	14	359	6	8	0	15	458	14	1	0	933	3950

HEAVY-VEHICLE VOLUMES

Time Period	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 AM	1	0	0	0	0	1	0	14	0	1	13	0	30
7:15 AM	2	0	0	0	1	0	0	8	3	1	8	0	23
7:30 AM	4	0	1	0	1	0	0	13	1	0	21	0	41
7:45 AM	1	0	2	0	0	2	1	10	3	0	23	0	42
8:00 AM	0	1	0	0	0	1	0	14	1	0	24	0	41
8:15 AM	2	0	0	0	0	1	0	11	0	2	19	1	36
8:30 AM	1	0	0	2	0	1	1	19	1	0	22	2	49
8:45 AM	2	0	1	1	0	1	0	18	4	1	20	0	48
9:00 AM	2	0	0	1	0	1	1	16	0	1	22	0	44
9:15 AM	2	1	1	0	0	0	0	17	0	0	28	0	49
9:30 AM	3	0	0	0	1	0	1	13	0	1	12	0	31
9:45 AM	2	0	0	0	0	1	0	20	2	0	23	0	48

10:00 AM	1	0	0	0	0	0	0	13	0	0	16	0	30
10:15 AM	0	0	1	0	0	0	1	9	0	0	5	0	16
10:30 AM	2	0	1	0	0	1	1	13	0	1	14	0	33
10:45 AM	0	0	0	0	1	1	2	19	0	0	14	0	37
11:00 AM	0	0	0	0	0	0	1	15	0	0	14	0	30
11:15 AM	0	0	0	0	0	0	1	8	0	1	18	0	28
11:30 AM	0	1	1	0	1	1	0	10	0	0	13	0	27
11:45 AM	1	0	1	0	0	0	1	9	0	1	13	0	26
12:00 PM	1	0	2	0	0	1	1	11	1	0	13	2	32
12:15 PM	0	0	1	0	1	1	0	8	1	0	10	0	22
12:30 PM	2	0	0	1	0	0	0	18	1	0	8	0	30
12:45 PM	0	1	1	0	0	0	1	8	1	2	14	0	28
1:00 PM	1	0	0	0	0	0	0	13	1	0	9	1	25
1:15 PM	1	0	0	0	0	1	0	15	0	0	13	0	30
1:30 PM	0	0	1	1	1	0	1	14	0	0	11	0	29
1:45 PM	1	0	1	0	0	1	1	10	1	0	7	0	22
2:00 PM	0	0	0	0	0	1	0	11	2	0	14	2	30
2:15 PM	2	0	1	1	0	0	0	15	3	0	7	0	29
2:30 PM	4	1	2	0	0	0	1	15	0	0	5	0	28
2:45 PM	0	0	1	0	0	0	0	11	2	2	14	0	30
3:00 PM	3	0	0	1	0	1	0	15	0	1	11	0	32
3:15 PM	0	1	0	0	0	0	1	16	0	0	10	0	28
3:30 PM	1	0	1	0	0	1	0	23	0	0	10	0	36
3:45 PM	0	0	0	0	0	1	0	10	0	0	7	0	18
4:00 PM	0	0	0	1	0	0	1	15	0	0	11	0	28
4:15 PM	1	0	0	1	1	0	1	11	1	0	11	0	27
4:30 PM	0	1	0	1	0	1	0	10	0	0	12	0	25
4:45 PM	0	0	0	0	0	0	0	12	0	1	8	0	21
5:00 PM	0	0	1	0	0	0	1	9	0	0	8	0	19
5:15 PM	0	0	1	1	0	0	2	16	0	0	3	0	23
5:30 PM	0	0	0	0	0	1	0	8	0	0	11	0	20
5:45 PM	1	0	1	0	0	0	0	14	0	0	9	0	25
6:00 PM	0	0	0	0	0	0	1	12	0	0	7	0	20
6:15 PM	0	0	0	0	0	1	0	12	0	0	13	0	26
6:30 PM	0	0	0	0	0	0	0	11	0	0	5	0	16
6:45 PM	0	0	0	0	0	0	1	6	0	0	5	0	12

PEDESTRIAN VOLUMES

Time Period	North	South	East	West	Total
7:00 AM	0	0	0	0	0
7:15 AM	0	1	0	6	7
7:30 AM	4	2	4	6	16
7:45 AM	0	0	1	5	6
8:00 AM	4	2	0	2	8
8:15 AM	1	2	1	0	4
8:30 AM	1	2	0	0	3
8:45 AM	2	0	2	0	4
9:00 AM	1	0	0	2	3
9:15 AM	1	0	0	0	1
9:30 AM	0	3	0	3	6
9:45 AM	1	1	1	2	5
10:00 AM	0	0	0	0	0

10:15 AM	3	0	0	1	4
10:30 AM	2	0	1	1	4
10:45 AM	1	1	0	0	2
11:00 AM	0	0	1	1	2
11:15 AM	1	0	0	1	2
11:30 AM	0	0	1	0	1
11:45 AM	0	0	1	1	2
12:00 PM	0	1	0	0	1
12:15 PM	1	0	2	2	5
12:30 PM	0	0	3	3	6
12:45 PM	0	2	1	0	3
1:00 PM	1	1	2	3	7
1:15 PM	1	2	4	3	10
1:30 PM	0	1	0	1	2
1:45 PM	0	1	3	1	5
2:00 PM	0	0	2	3	5
2:15 PM	0	2	0	5	7
2:30 PM	0	3	4	12	19
2:45 PM	1	0	0	5	6
3:00 PM	1	4	5	3	13
3:15 PM	0	0	0	5	5
3:30 PM	0	0	5	2	7
3:45 PM	1	1	0	0	2
4:00 PM	0	2	3	3	8
4:15 PM	0	0	2	0	2
4:30 PM	2	1	6	2	11
4:45 PM	3	3	6	1	13
5:00 PM	1	2	8	4	15
5:15 PM	2	3	9	3	17
5:30 PM	1	3	2	0	6
5:45 PM	0	3	10	2	15
6:00 PM	7	1	1	0	9
6:15 PM	2	6	11	2	21
6:30 PM	2	2	1	5	10
6:45 PM	4	2	0	0	6

BICYCLE VOLUMES

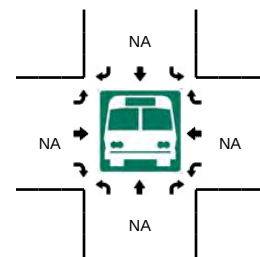
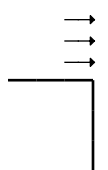
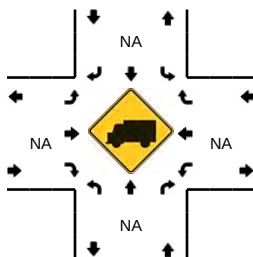
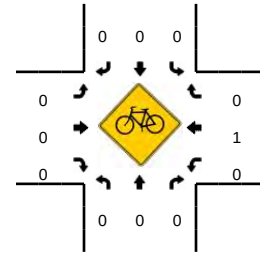
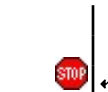
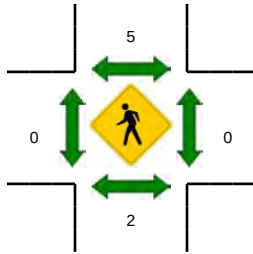
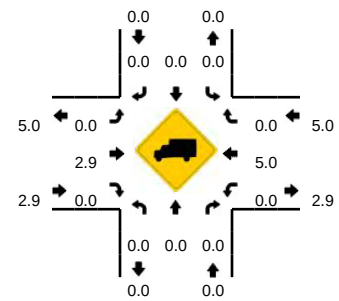
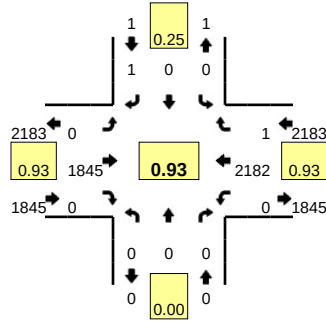
Time Period	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
9:00 AM	0	0	0	0	0	1	0	0	0	0	2	0	3
9:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1

[illegible]

LOCATION: Audley Ln -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941407
DATE: Wed, Apr 24 2013

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



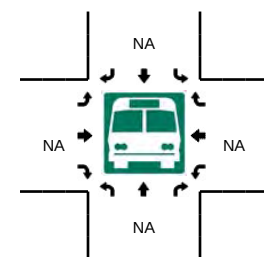
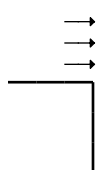
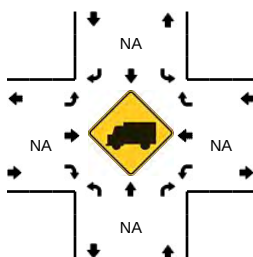
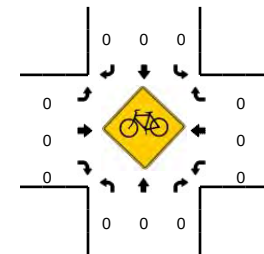
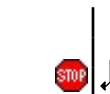
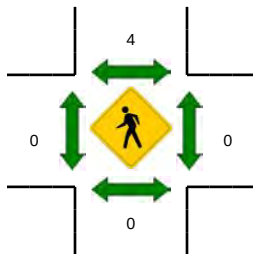
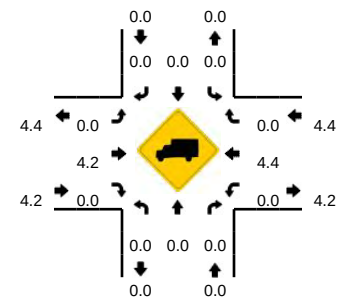
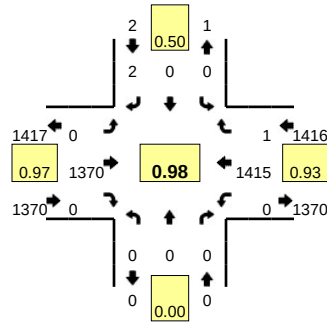
15-Min Count Period Beginning At	Audley Ln (Northbound)				Audley Ln (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	289	0	0	0	339	0	0	628	
7:15 AM	0	0	0	0	0	0	0	0	0	367	0	0	0	445	0	0	812	
7:30 AM	0	0	0	0	0	0	0	0	0	444	0	0	0	553	0	0	997	
7:45 AM	0	0	0	0	0	0	1	0	0	496	0	0	0	590	0	0	1087	3524
8:00 AM	0	0	0	0	0	0	0	0	0	456	0	0	0	499	0	0	955	3851
8:15 AM	0	0	0	0	0	0	0	0	0	449	0	0	0	540	1	0	990	4029
8:30 AM	0	0	0	0	0	0	0	0	0	409	0	0	0	526	1	0	936	3968
8:45 AM	0	0	0	0	0	0	0	0	0	433	0	0	0	509	0	0	942	3823
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	4	0	0	1984	0	0	0	2360	0	0	4348	
Heavy Trucks	0	0	0	0	0	0	0	0	0	64	0	0	0	100	0	0	164	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Audley Ln -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941409
DATE: Wed, Apr 24 2013

Peak-Hour: 11:30 AM -- 12:30 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



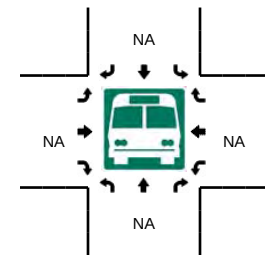
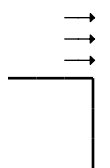
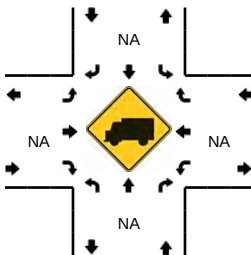
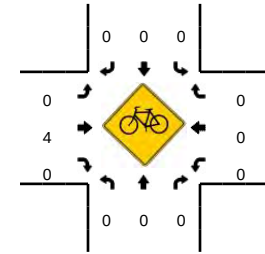
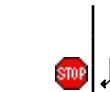
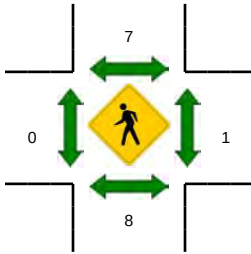
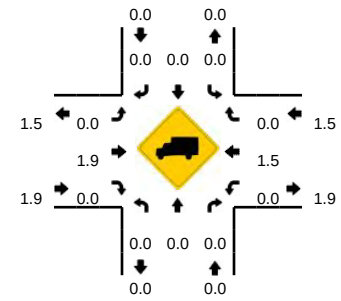
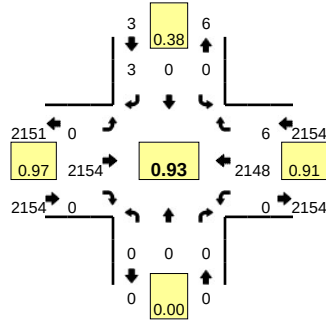
15-Min Count Period Beginning At	Audley Ln (Northbound)				Audley Ln (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	0	0	0	0	0	330	0	0	0	345	0	0	675	
11:15 AM	0	0	0	0	0	0	0	0	0	294	0	0	0	361	0	0	655	
11:30 AM	0	0	0	0	0	0	0	0	0	331	0	0	0	343	1	0	675	
11:45 AM	0	0	0	0	0	0	1	0	0	328	0	0	0	385	0	0	714	2719
12:00 PM	0	0	0	0	0	0	1	0	0	350	0	0	0	339	0	0	690	2734
12:15 PM	0	0	0	0	0	0	0	0	0	361	0	0	0	348	0	0	709	2788
12:30 PM	0	0	0	0	0	0	0	0	0	331	0	0	0	306	0	0	637	2750
12:45 PM	0	0	0	0	0	0	0	0	0	354	0	0	0	361	1	0	716	2752
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	4	0	0	1312	0	0	0	1540	0	0	2856	
Heavy Trucks	0	0	0	0	0	0	0	0	0	64	0	0	0	72	0	0	136	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Audley Ln -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941408
DATE: Wed, Apr 24 2013

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



15-Min Count Period Beginning At	Audley Ln (Northbound)				Audley Ln (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	479	0	0	0	361	0	0	840	
4:15 PM	0	0	0	0	0	0	2	0	0	476	0	0	0	417	2	0	897	
4:30 PM	0	0	0	0	0	0	0	0	0	553	0	0	0	446	0	0	999	
4:45 PM	0	0	0	0	0	0	0	0	0	524	0	0	0	477	0	0	1001	3737
5:00 PM	0	0	0	0	0	0	1	0	0	558	0	0	0	525	3	0	1087	3984
5:15 PM	0	0	0	0	0	0	1	0	0	565	0	0	0	591	1	0	1158	4245
5:30 PM	0	0	0	0	0	0	0	0	0	522	0	0	0	512	0	0	1034	4280
5:45 PM	0	0	0	0	0	0	1	0	0	509	0	0	0	520	2	0	1032	4311

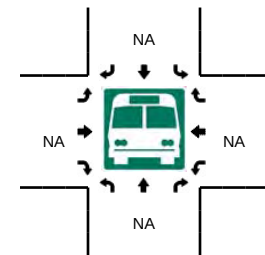
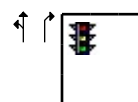
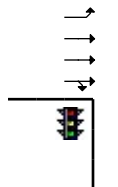
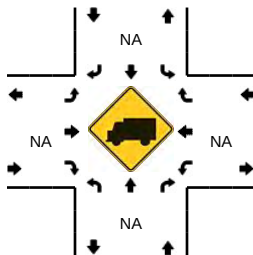
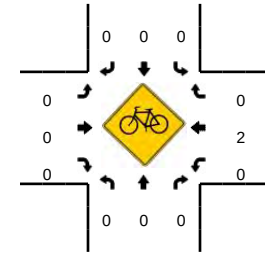
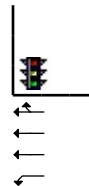
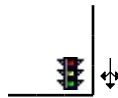
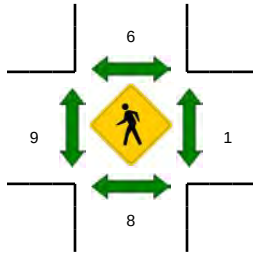
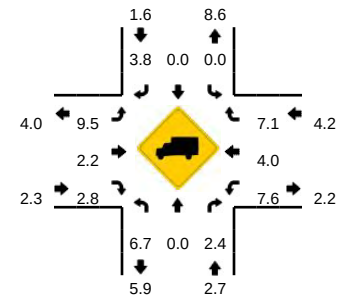
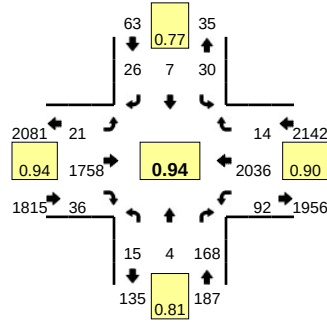
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	4	0	0	2260	0	0	0	2364	4	0	4632
Heavy Trucks	0	0	0	0	0	0	0	0	0	44	0	0	0	20	0	0	64
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	12
Bicycles	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

LOCATION: Burning Tree Dr -- NC 54/Raleigh Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940910
DATE: Thu, Apr 25 2013

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



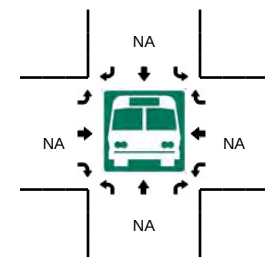
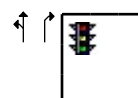
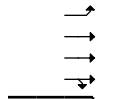
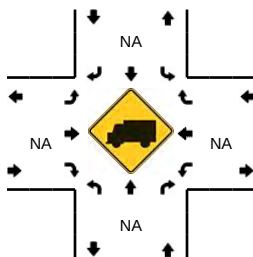
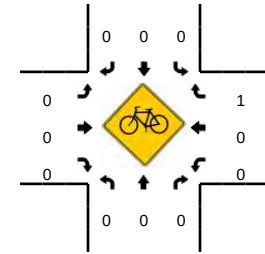
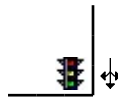
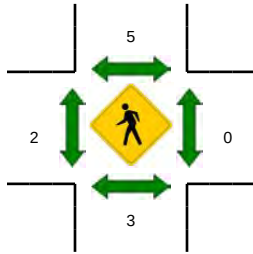
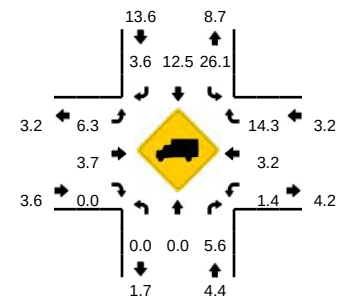
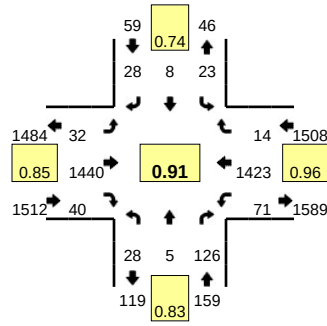
15-Min Count Period Beginning At	Burning Tree Dr (Northbound)				Burning Tree Dr (Southbound)				NC 54/Raleigh Rd (Eastbound)				NC 54/Raleigh Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	0	14	0	4	1	2	0	0	251	3	2	18	296	1	0	595	
7:15 AM	2	0	21	0	4	4	4	0	1	374	2	0	24	423	7	0	866	
7:30 AM	4	0	54	0	10	4	5	0	2	443	7	2	24	516	3	0	1074	
7:45 AM	2	1	50	0	9	2	7	0	2	443	7	0	31	560	7	0	1121	3656
8:00 AM	5	0	40	0	5	1	4	0	8	465	11	1	19	504	3	0	1066	4127
8:15 AM	4	3	24	0	6	0	10	0	5	407	11	1	18	456	1	0	946	4207
8:30 AM	2	3	26	0	3	3	15	0	2	454	3	1	23	488	2	0	1025	4158
8:45 AM	4	0	21	0	3	2	9	0	6	369	12	1	24	518	9	1	979	4016
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	4	200	0	36	8	28	0	8	1772	28	0	124	2240	28	0	4484	
Heavy Trucks	0	0	4		0	0	0		0	20	0		12	96	4		136	
Pedestrians		16				0				0				0			16	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Burning Tree Dr -- NC 54/Raleigh Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940912
DATE: Thu, Apr 25 2013

Peak-Hour: 11:45 AM -- 12:45 PM
Peak 15-Min: 12:30 PM -- 12:45 PM



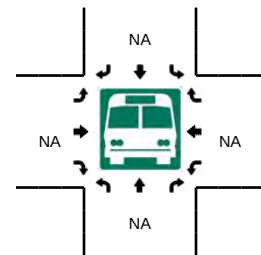
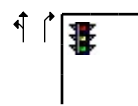
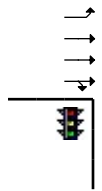
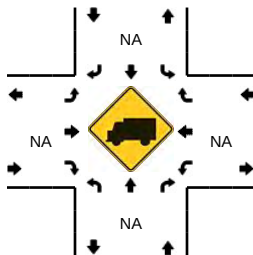
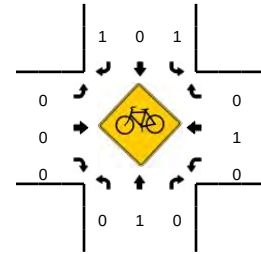
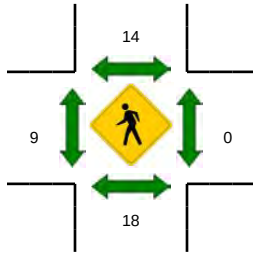
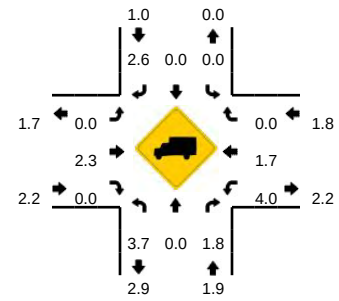
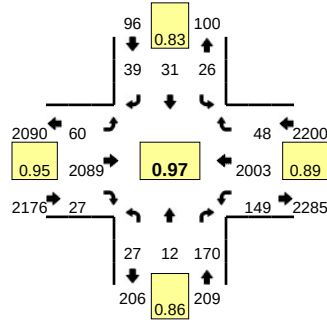
15-Min Count Period Beginning At	Burning Tree Dr (Northbound)				Burning Tree Dr (Southbound)				NC 54/Raleigh Rd (Eastbound)				NC 54/Raleigh Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	3	2	20	0	3	2	8	0	7	328	4	0	11	296	3	0	687	
11:15 AM	7	3	19	0	4	3	7	0	4	302	5	0	18	328	7	0	707	
11:30 AM	5	1	21	0	4	0	5	0	5	268	3	0	20	367	6	1	706	
11:45 AM	6	0	36	0	12	1	7	0	6	340	8	0	23	364	4	0	807	2907
12:00 PM	10	1	37	0	2	4	8	0	8	321	8	0	15	352	3	0	769	2989
12:15 PM	8	2	24	0	6	1	6	0	7	359	12	0	14	325	4	0	768	3050
12:30 PM	4	2	29	0	3	2	7	0	6	420	12	5	19	382	3	0	894	3238
12:45 PM	5	5	25	0	7	3	10	0	4	335	10	4	27	346	4	0	785	3216
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	16	8	116	0	12	8	28	0	24	1680	48	20	76	1528	12	0	3576	
Heavy Trucks	0	0	8	0	0	4	0	0	0	68	0	0	0	32	0	0	112	
Pedestrians	4	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	12	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Burning Tree Dr -- NC 54/Raleigh Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10940911
DATE: Thu, Apr 25 2013

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



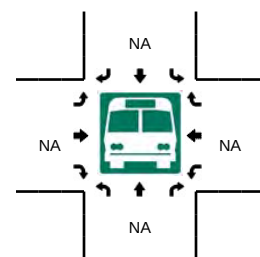
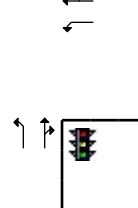
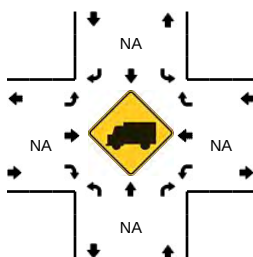
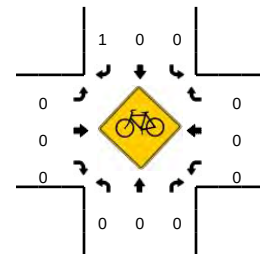
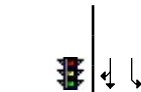
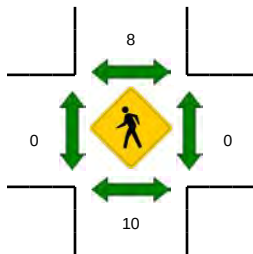
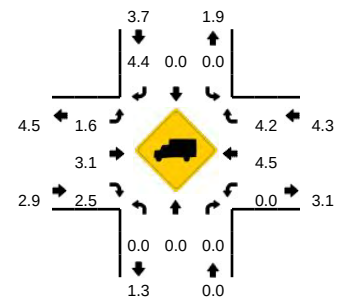
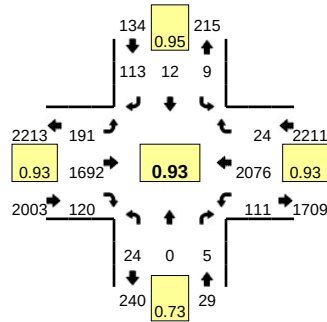
15-Min Count Period Beginning At	Burning Tree Dr (Northbound)				Burning Tree Dr (Southbound)				NC 54/Raleigh Rd (Eastbound)				NC 54/Raleigh Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	1	31	0	5	1	5	0	7	542	3	3	22	365	5	0	997	
4:15 PM	5	2	30	0	3	5	13	0	8	476	9	3	28	398	9	0	989	
4:30 PM	12	5	43	0	2	2	5	0	5	516	5	5	29	438	6	0	1073	
4:45 PM	8	4	37	0	7	1	8	0	12	517	7	8	21	476	12	1	1119	4178
5:00 PM	6	3	54	0	5	4	10	1	8	483	7	6	55	552	12	0	1206	4387
5:15 PM	8	3	34	0	9	9	9	0	7	550	8	7	34	500	14	0	1192	4590
5:30 PM	5	2	45	0	4	17	12	0	12	539	5	0	38	475	10	0	1164	4681
5:45 PM	2	3	35	0	5	12	12	0	6	521	8	1	30	457	10	0	1102	4664
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	12	216	0	20	16	40	4	32	1932	28	24	220	2208	48	0	4824	
Heavy Trucks	0	0	4		0	0	0		0	32	0		8	48	0		92	
Pedestrians		12				12				12				0			36	
Bicycles	0	0	0		0	0	0		0	0	0		0	1	0		1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: W Barbee Chapel Rd -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941455
DATE: Wed, Apr 24 2013

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



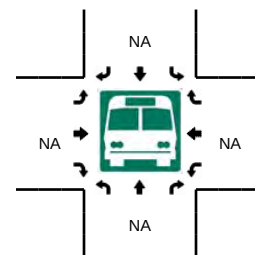
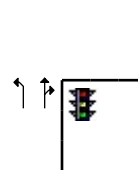
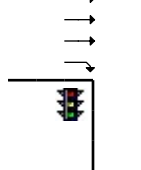
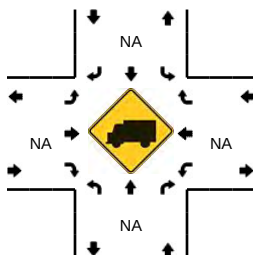
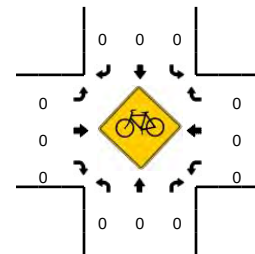
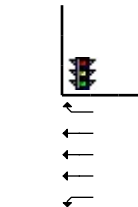
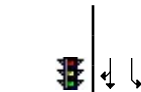
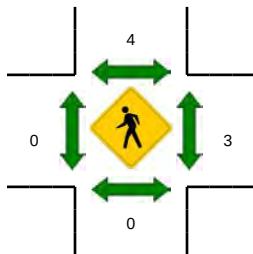
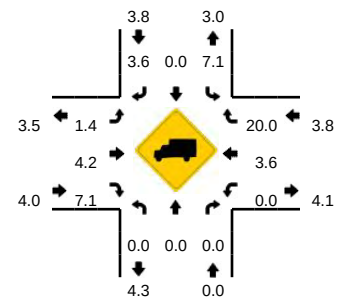
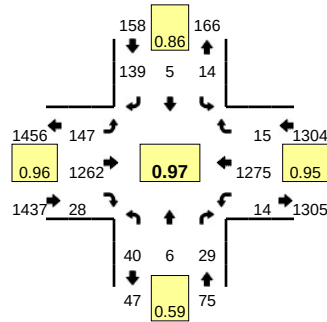
15-Min Count Period Beginning At	W Barbee Chapel Rd (Northbound)				W Barbee Chapel Rd (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	0	0	0	0	13	0	13	252	3	0	6	321	0	0	609	
7:15 AM	0	0	1	0	0	1	13	0	38	341	14	0	8	461	4	0	881	
7:30 AM	5	0	0	0	2	3	32	0	45	408	11	0	13	520	2	1	1042	
7:45 AM	4	0	2	0	2	4	28	0	48	461	28	0	27	565	5	0	1174	3706
8:00 AM	6	0	0	0	0	4	32	0	48	446	36	0	31	499	5	2	1109	4206
8:15 AM	5	0	2	0	4	2	27	0	49	389	24	0	28	499	5	0	1034	4359
8:30 AM	9	0	1	0	3	2	26	0	46	396	32	0	22	513	9	1	1060	4377
8:45 AM	6	0	0	0	2	0	32	0	34	374	22	0	12	488	1	0	971	4174
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	16	0	8	0	8	16	112	0	192	1844	112	0	108	2260	20	0	4696	
Heavy Trucks	0	0	0	0	0	0	4	0	0	48	0	0	0	88	4	0	144	
Pedestrians	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: W Barbee Chapel Rd -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941457
DATE: Wed, Apr 24 2013

Peak-Hour: 11:30 AM -- 12:30 PM
Peak 15-Min: 12:15 PM -- 12:30 PM

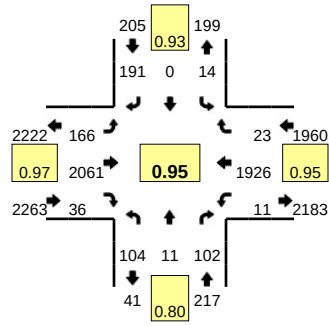


15-Min Count Period Beginning At	W Barbee Chapel Rd (Northbound)				W Barbee Chapel Rd (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	3	3	2	0	1	0	29	0	24	319	6	0	2	320	5	0	714	
11:15 AM	4	0	4	0	5	0	29	0	21	261	4	0	7	342	3	0	680	
11:30 AM	7	2	9	0	5	1	37	0	33	302	9	0	2	296	3	0	706	
11:45 AM	13	1	8	0	0	0	35	0	35	312	6	0	4	345	3	0	762	2862
12:00 PM	9	1	6	0	8	2	36	0	35	323	6	2	4	301	7	0	740	2888
12:15 PM	11	2	6	0	1	2	31	0	42	325	7	0	4	333	2	0	766	2974
12:30 PM	10	5	5	0	2	3	23	0	23	301	9	0	1	287	2	0	671	2939
12:45 PM	15	10	15	0	5	1	33	0	40	315	11	0	7	326	5	2	785	2962
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	8	24	0	4	8	124	0	168	1300	28	0	16	1332	8	0	3064	
Heavy Trucks	0	0	0		4	0	4		0	52	4		0	36	0		100	
Pedestrians	0	0	0		0	0	0		0	0	0		0	4	0		4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

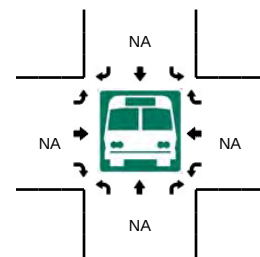
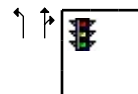
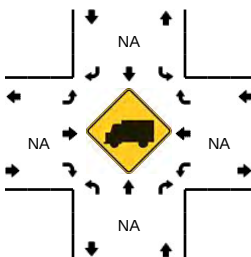
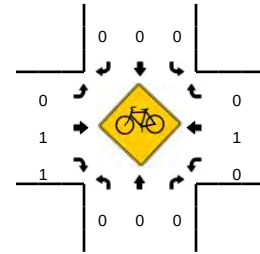
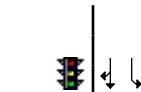
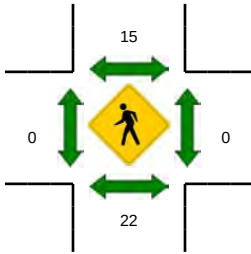
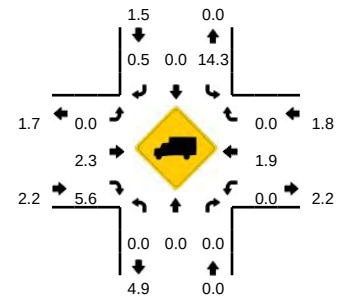
Comments:

LOCATION: W Barbee Chapel Rd -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941456
DATE: Wed, Apr 24 2013



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



15-Min Count Period Beginning At	W Barbee Chapel Rd (Northbound)				W Barbee Chapel Rd (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	12	0	2	0	5	1	41	0	27	430	8	0	4	307	1	0	838	3969
4:15 PM	3	2	7	0	3	1	32	0	40	498	5	1	5	391	1	0	989	
4:30 PM	14	5	9	0	3	0	39	0	38	503	5	0	2	413	4	1	1036	
4:45 PM	18	2	14	0	2	0	37	0	28	537	6	0	1	457	4	0	1106	
5:00 PM	30	1	26	0	3	0	52	0	44	525	13	1	1	467	4	0	1167	
5:15 PM	36	6	26	0	4	0	42	0	37	543	7	0	2	508	5	2	1218	4527
5:30 PM	22	3	28	0	2	0	51	0	39	483	11	0	1	470	1	2	1113	4604
5:45 PM	16	1	22	0	5	0	46	0	45	510	5	0	1	481	13	2	1147	4645

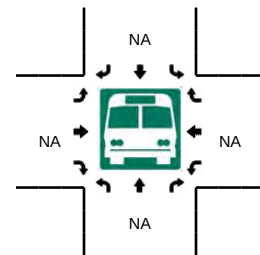
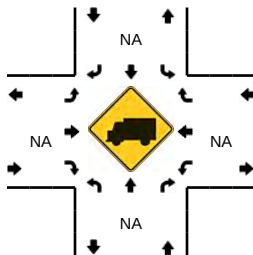
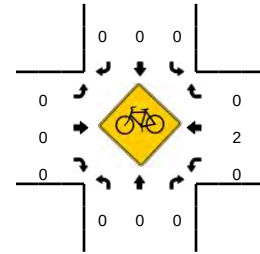
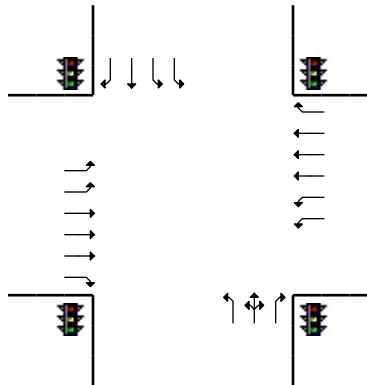
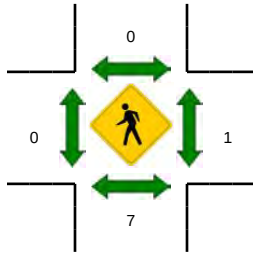
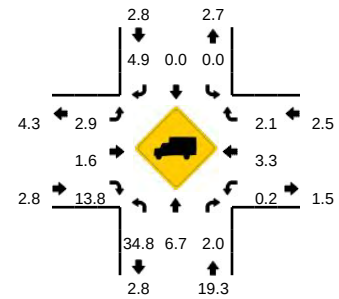
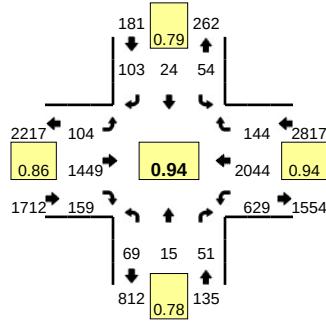
[illegible]

Comments:

LOCATION: Friday Center Dr/Meadowmont Ln -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941458
DATE: Wed, Apr 24 2013

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



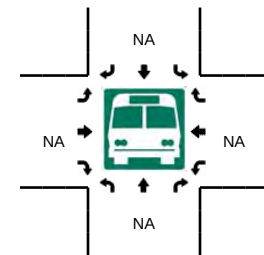
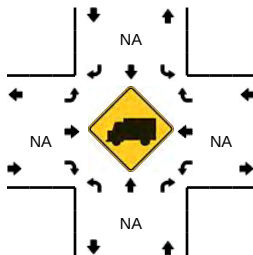
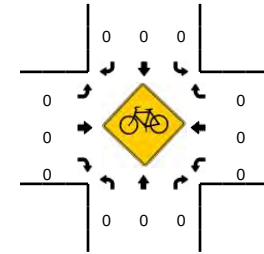
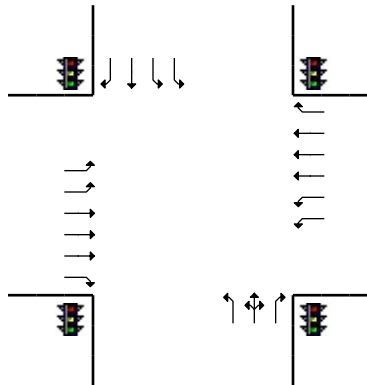
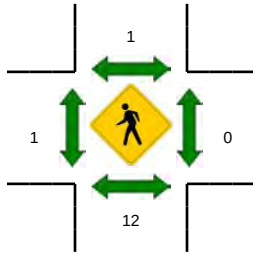
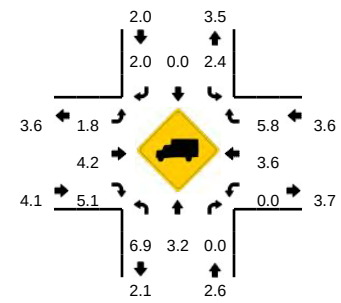
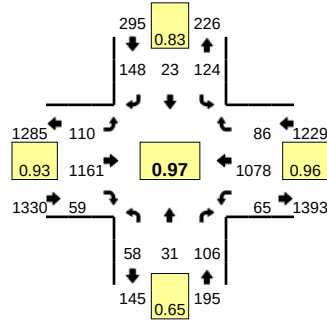
15-Min Count Period Beginning At	Friday Center Dr/Meadowmont Ln (Northbound)				Friday Center Dr/Meadowmont Ln (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	6	0	1	0	14	5	8	0	19	207	28	0	106	298	12	0	704	
7:15 AM	14	1	5	0	12	4	17	0	17	299	30	0	128	448	34	0	1009	
7:30 AM	15	1	4	0	17	10	24	0	20	337	49	0	175	535	36	0	1223	
7:45 AM	17	4	19	0	12	8	37	0	32	421	42	1	161	500	40	0	1294	4230
8:00 AM	19	7	18	0	11	1	22	0	20	365	37	0	178	528	37	0	1243	4769
8:15 AM	18	3	10	0	14	5	20	0	31	326	31	0	115	481	31	0	1085	4845
8:30 AM	16	1	6	0	14	3	24	0	27	348	25	0	99	515	27	1	1106	4728
8:45 AM	17	6	8	0	24	7	15	0	30	302	27	0	64	421	29	0	950	4384
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	68	16	76	0	48	32	148	0	128	1684	168	4	644	2000	160	0	5176	
Heavy Trucks	24	0	4		0	0	8		4	32	12		0	56	0		140	
Pedestrians	4				0				0				0				4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Friday Center Dr/Meadowmont Ln -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941460
DATE: Wed, Apr 24 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:45 PM -- 1:00 PM



15-Min Count Period Beginning At	Friday Center Dr/Meadowmont Ln (Northbound)				Friday Center Dr/Meadowmont Ln (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	16	5	11	0	29	4	36	0	18	270	10	0	18	287	17	0	721	
11:15 AM	14	2	8	0	19	3	32	0	21	261	12	1	16	284	28	0	701	
11:30 AM	7	9	15	0	22	4	42	0	26	263	4	0	14	256	19	0	681	
11:45 AM	20	10	19	0	23	0	48	0	30	281	7	0	13	290	23	0	764	2867
12:00 PM	13	6	14	0	32	6	28	0	26	301	11	0	20	278	20	1	756	2902
12:15 PM	18	12	45	0	27	7	36	0	28	300	12	0	17	254	24	1	781	2982
12:30 PM	10	3	24	0	32	3	35	0	22	260	12	1	13	291	17	0	723	3024
12:45 PM	17	10	23	0	33	7	49	0	33	300	24	0	13	255	25	0	789	3049

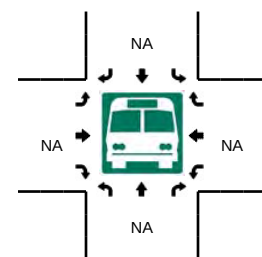
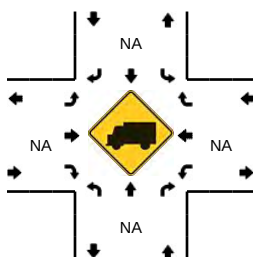
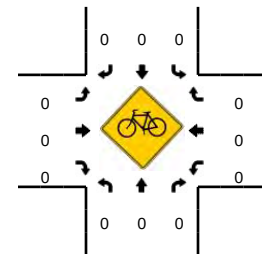
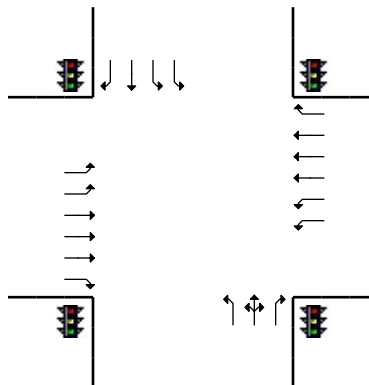
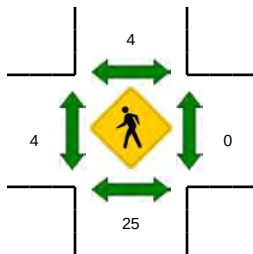
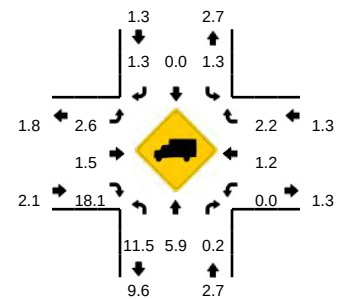
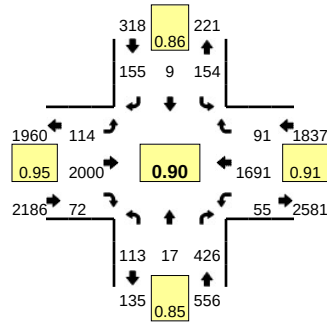
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	68	40	92	0	132	28	196	0	132	1200	96	0	52	1020	100	0	3156
Heavy Trucks	8	0	0		4	0	4		0	32	4		0	36	0		88
Pedestrians		12				0				0				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: Friday Center Dr/Meadowmont Ln -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941459
DATE: Wed, Apr 24 2013

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



15-Min Count Period Beginning At	Friday Center Dr/Meadowmont Ln (Northbound)				Friday Center Dr/Meadowmont Ln (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	17	4	73	0	42	1	30	1	26	418	9	0	11	265	19	0	916	
4:15 PM	40	5	81	0	47	3	43	0	22	466	15	0	7	330	18	0	1077	
4:30 PM	39	8	108	0	37	1	35	0	22	487	15	0	6	349	12	0	1119	
4:45 PM	45	12	133	0	47	4	21	0	21	514	10	0	12	409	31	0	1259	4371
5:00 PM	35	3	140	0	47	3	48	0	24	510	12	0	12	383	17	0	1234	4689
5:15 PM	25	3	68	0	33	2	42	0	24	535	16	0	14	461	29	0	1252	4864
5:30 PM	17	2	36	0	29	1	28	0	22	472	19	0	10	401	18	1	1056	4801
5:45 PM	36	9	182	0	45	3	37	0	43	483	25	1	18	446	27	0	1355	4897

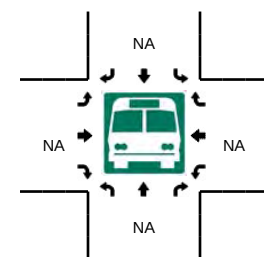
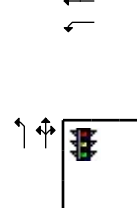
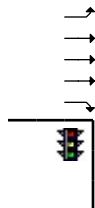
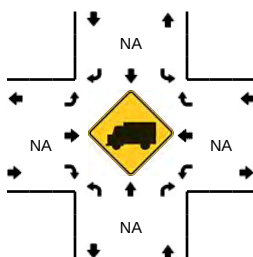
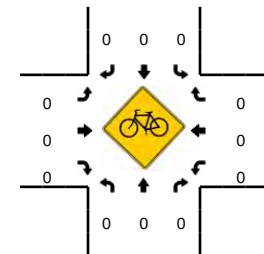
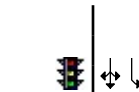
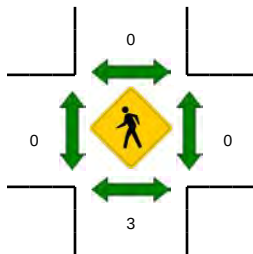
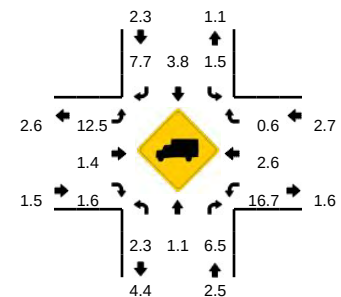
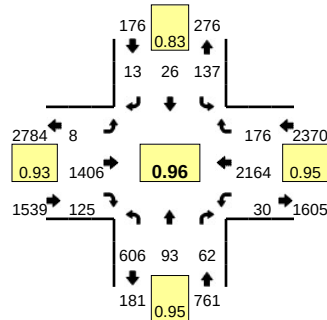
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	144	36	728	0	180	12	148	0	172	1932	100	4	72	1784	108	0	5420
Heavy Trucks	28	4	0	0	8	0	0	0	8	36	28	0	0	16	4	0	132
Pedestrians		28				4				12				0			44
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: Barbee Chapel Rd -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941461
DATE: Wed, Apr 24 2013

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

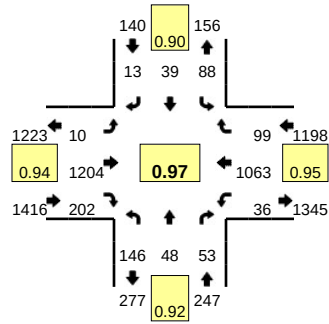


15-Min Count Period Beginning At	Barbee Chapel Rd (Northbound)				Barbee Chapel Rd (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	66	8	9	0	15	8	1	0	0	182	17	0	5	347	22	0	680	
7:15 AM	111	15	14	0	18	0	3	0	1	304	20	0	8	511	47	0	1052	
7:30 AM	149	23	14	0	41	7	5	0	0	329	25	0	7	574	46	0	1220	
7:45 AM	161	19	19	0	44	6	2	0	3	381	40	1	6	540	38	0	1260	4212
8:00 AM	142	22	11	0	22	6	3	0	0	388	31	0	9	581	48	0	1263	4795
8:15 AM	154	29	18	0	30	7	3	0	4	308	29	0	8	469	44	0	1103	4846
8:30 AM	131	19	20	0	30	10	2	0	0	367	30	0	7	527	38	1	1182	4808
8:45 AM	96	14	11	0	35	2	4	0	0	312	20	0	14	396	39	2	945	4493
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	568	88	44	0	88	24	12	0	0	1552	124	0	36	2324	192	0	5052	
Heavy Trucks	24	0	4	0	0	4	0	0	0	24	0	0	12	72	0	0	140	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

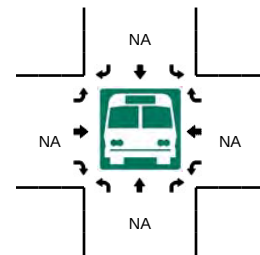
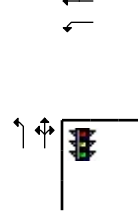
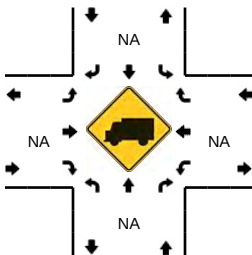
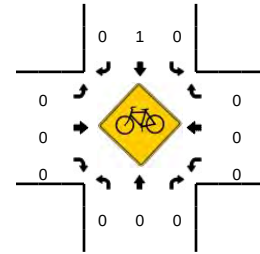
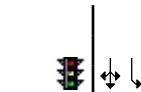
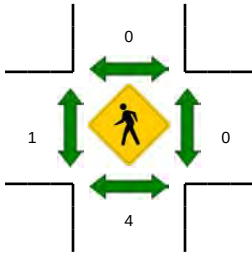
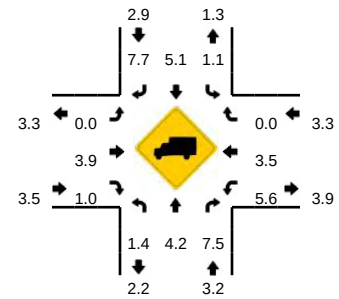
Comments:

LOCATION: Barbee Chapel Rd -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941463
DATE: Wed, Apr 24 2013



Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:00 PM -- 12:15 PM



15-Min Count Period Beginning At	Barbee Chapel Rd (Northbound)				Barbee Chapel Rd (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	36	4	15	0	25	5	3	0	5	292	47	0	11	271	13	0	727	2811
11:15 AM	47	10	12	0	16	10	1	0	0	241	30	0	8	283	12	1	671	
11:30 AM	41	6	20	0	16	8	1	0	3	271	48	1	9	248	20	0	692	
11:45 AM	41	8	13	0	20	8	3	0	2	267	31	1	2	300	25	0	721	
12:00 PM	28	9	9	0	16	11	5	0	1	320	54	0	15	275	27	0	770	
12:15 PM	37	18	15	0	25	11	3	0	1	318	49	0	5	251	28	0	761	2944
12:30 PM	39	8	17	0	25	9	3	0	3	268	54	0	10	284	24	0	744	2996
12:45 PM	42	13	12	0	22	8	2	0	4	298	45	1	6	253	20	0	726	3001

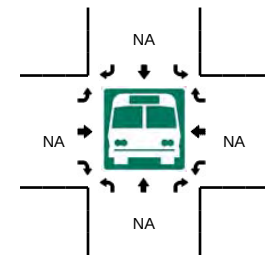
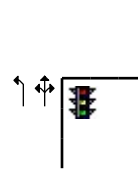
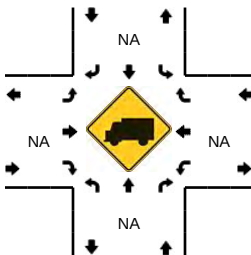
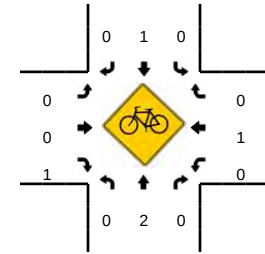
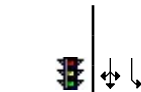
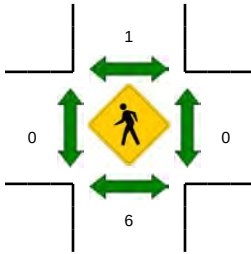
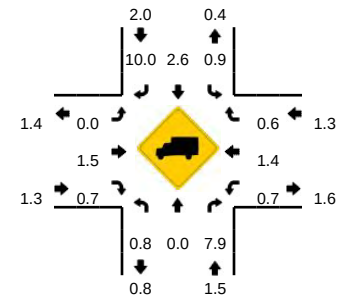
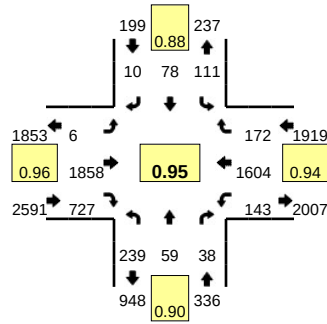
[illegible]

Comments:

LOCATION: Barbee Chapel Rd -- NC 54
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941462
DATE: Wed, Apr 24 2013

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



15-Min Count Period Beginning At	Barbee Chapel Rd (Northbound)				Barbee Chapel Rd (Southbound)				NC 54 (Eastbound)				NC 54 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	38	8	12	0	33	14	5	0	2	461	77	1	14	258	30	0	953	
4:15 PM	44	12	8	0	29	12	2	0	2	495	105	0	11	307	28	0	1055	
4:30 PM	42	16	17	0	37	12	4	0	1	502	128	0	21	322	34	0	1136	
4:45 PM	59	10	11	0	30	18	1	0	2	525	166	0	21	401	41	1	1286	4430
5:00 PM	53	12	9	0	30	19	1	0	2	493	202	0	25	361	42	0	1249	4726
5:15 PM	71	11	11	0	33	24	3	0	1	456	201	0	38	430	43	0	1322	4993
5:30 PM	59	17	7	0	23	14	1	0	1	378	166	0	49	383	51	0	1149	5006
5:45 PM	56	19	11	0	25	21	5	0	2	531	158	0	31	430	36	0	1325	5045

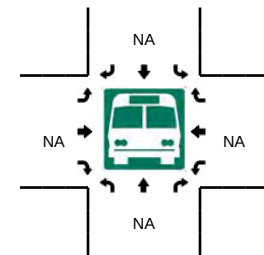
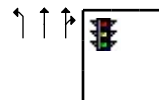
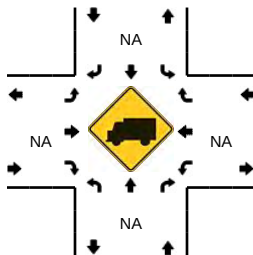
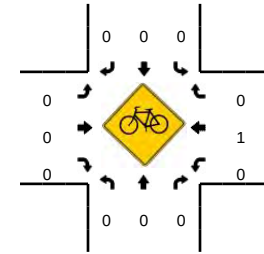
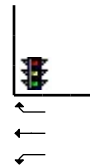
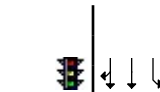
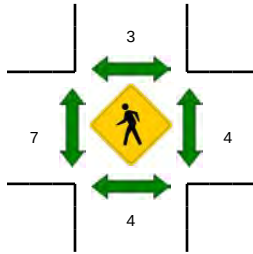
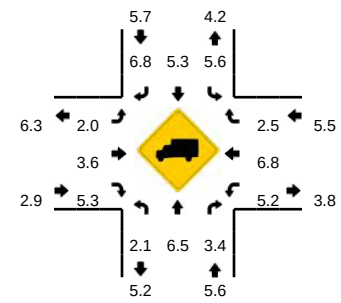
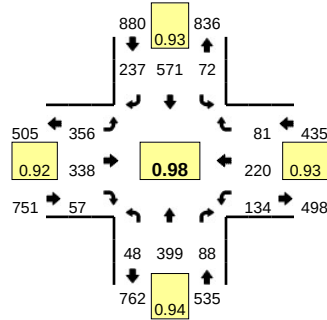
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	224	76	44	0	100	84	20	0	8	2124	632	0	124	1720	144	0	5300
Heavy Trucks	0	0	4		0	0	0		0	36	8		4	28	4		84
Pedestrians		12				4				0				0			16
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: E Franklin St -- S Estes Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941401
DATE: Wed, Apr 24 2013

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

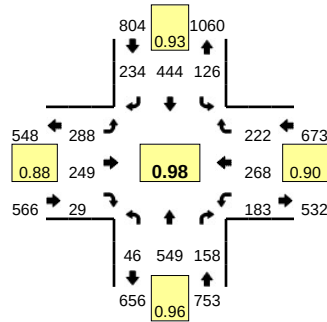


15-Min Count Period Beginning At	E Franklin St (Northbound)				E Franklin St (Southbound)				S Estes Dr (Eastbound)				S Estes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	36	6	0	8	40	31	0	28	34	8	0	7	31	6	0	238	
7:15 AM	5	39	12	0	17	80	29	0	40	58	7	0	9	28	9	0	333	
7:30 AM	6	65	28	0	15	122	46	0	64	53	9	0	20	26	21	0	475	
7:45 AM	13	98	10	0	13	157	55	0	93	88	14	0	26	65	23	0	655	1701
8:00 AM	15	97	26	0	17	135	65	0	89	85	17	0	33	63	21	0	663	2126
8:15 AM	11	92	28	0	24	143	70	0	97	93	13	0	35	44	14	0	664	2457
8:30 AM	9	112	24	0	18	136	47	0	77	72	13	0	40	48	23	0	619	2601
8:45 AM	14	102	33	0	21	131	52	0	66	78	15	0	27	44	31	0	614	2560
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	368	112	0	96	572	280	0	388	372	52	0	140	176	56	0	2656	
Heavy Trucks	0	32	0		8	16	24		4	12	0		16	4	4		120	
Pedestrians		4				0				0				4			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	1	0		1	
Railroad																		
Stopped Buses																		

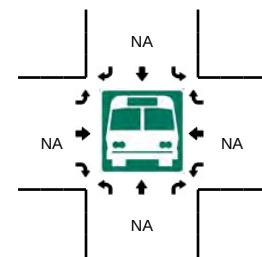
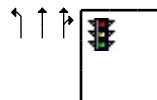
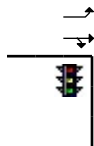
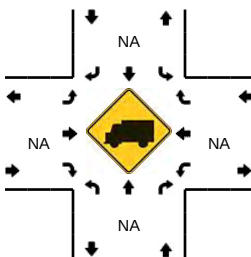
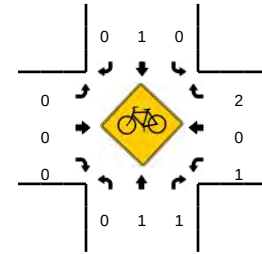
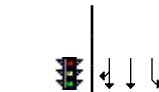
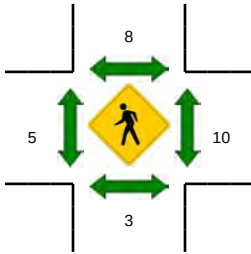
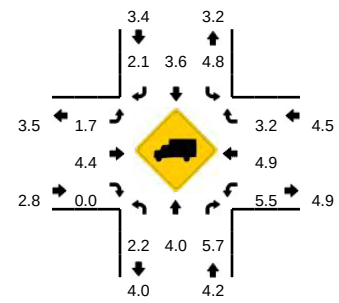
Comments:

LOCATION: E Franklin St -- S Estes Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941403
DATE: Wed, Apr 24 2013



Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:15 PM -- 12:30 PM



15-Min Count Period Beginning At	E Franklin St (Northbound)				E Franklin St (Southbound)				S Estes Dr (Eastbound)				S Estes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	6	84	26	0	33	72	47	0	66	74	8	0	44	58	60	0	578	2417
11:15 AM	10	110	31	0	25	91	53	0	61	59	5	0	25	42	45	0	557	
11:30 AM	13	105	37	0	21	99	53	0	75	56	8	0	23	54	59	0	603	
11:45 AM	11	97	59	0	15	112	68	0	87	77	10	0	27	64	52	0	679	
12:00 PM	15	130	46	0	29	102	50	1	80	60	9	0	40	73	54	0	689	2528
12:15 PM	11	149	37	0	36	126	40	0	74	62	9	0	45	61	60	0	710	2681
12:30 PM	8	143	37	0	25	103	76	0	75	67	4	0	42	62	49	0	691	2769
12:45 PM	12	127	38	0	35	113	68	0	59	60	7	0	56	72	59	0	706	2796

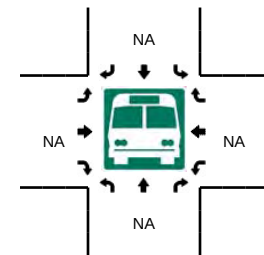
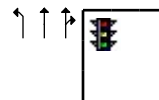
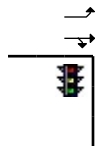
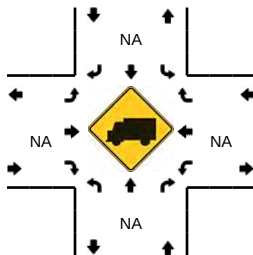
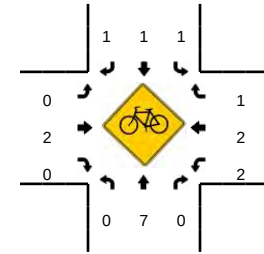
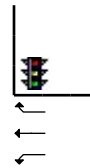
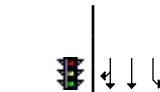
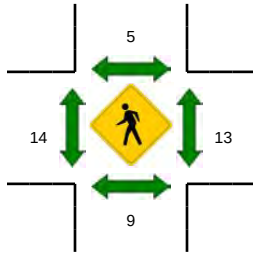
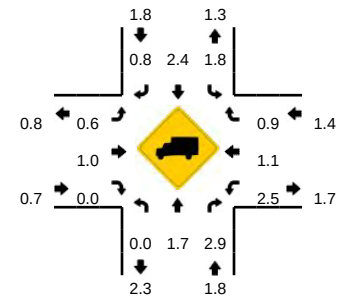
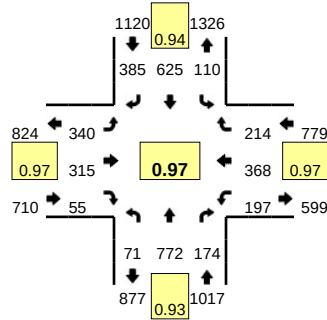
[illegible]

Comments:

LOCATION: E Franklin St -- S Estes Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941402
DATE: Wed, Apr 24 2013

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



15-Min Count Period Beginning At	E Franklin St (Northbound)				E Franklin St (Southbound)				S Estes Dr (Eastbound)				S Estes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	140	44	0	41	127	74	0	74	73	9	0	39	98	68	0	797	
4:15 PM	11	163	53	0	32	113	89	0	69	71	6	0	29	89	61	0	786	
4:30 PM	12	166	30	0	37	136	71	0	79	77	13	0	44	91	57	0	813	
4:45 PM	15	159	35	0	28	121	91	0	74	94	18	0	41	105	57	0	838	3234
5:00 PM	23	179	36	0	30	160	98	0	90	80	13	0	46	94	61	0	910	3347
5:15 PM	17	216	41	0	32	167	98	0	81	77	14	0	43	94	51	0	931	3492
5:30 PM	14	203	38	0	22	159	91	0	89	76	15	0	60	91	47	0	905	3584
5:45 PM	17	174	59	0	26	139	98	0	80	82	13	0	48	89	55	0	880	3626

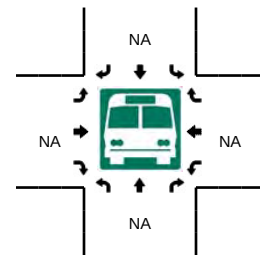
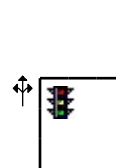
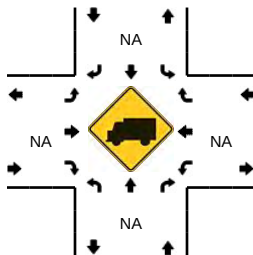
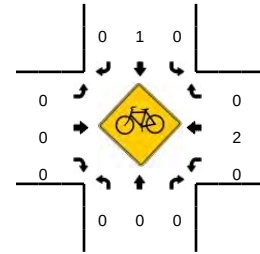
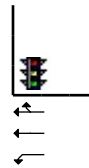
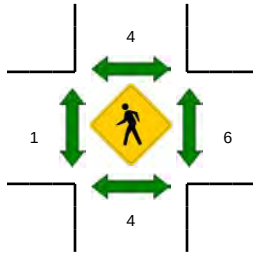
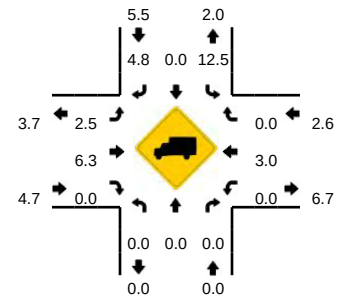
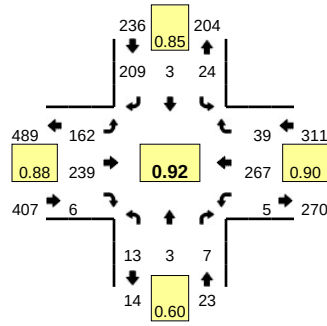
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	68	864	164	0	128	668	392	0	324	308	56	0	172	376	204	0	3724
Heavy Trucks	0	8	8		0	24	0		0	0	0		0	0	0		40
Pedestrians		4				8				4				12			28
Bicycles	0	0	0		0	1	1		0	1	0		1	0	0		4
Railroad																	
Stopped Buses																	

Comments:

LOCATION: Willow Dr -- S Estes Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941404
DATE: Wed, Apr 24 2013

Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM



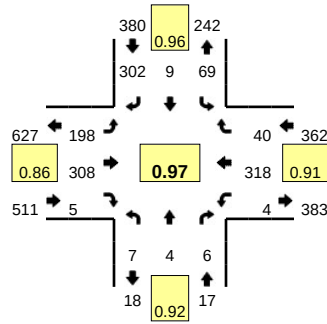
15-Min Count Period Beginning At	Willow Dr (Northbound)				Willow Dr (Southbound)				S Estes Dr (Eastbound)				S Estes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	1	0	0	2	0	17	0	14	31	0	0	1	23	1	0	93	
7:15 AM	0	0	2	0	8	0	17	0	27	41	0	0	0	36	4	0	135	
7:30 AM	3	5	7	0	7	0	31	0	32	69	0	0	2	45	5	0	206	
7:45 AM	5	2	4	0	4	1	68	0	31	53	2	0	1	74	8	0	253	687
8:00 AM	3	1	2	0	7	1	46	0	43	65	1	0	2	62	7	0	240	834
8:15 AM	3	0	1	0	5	0	63	0	38	55	3	0	1	76	9	0	254	953
8:30 AM	5	1	2	0	7	2	43	0	33	54	0	0	0	61	9	0	217	964
8:45 AM	2	1	2	0	5	0	57	0	48	65	2	0	2	68	14	0	266	977

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	4	8	0	20	0	228	0	192	260	8	0	8	272	56	0	1064
Heavy Trucks	0	0	0		4	0	12		8	8	0		0	0	0		32
Pedestrians		4				0				0				8			12
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

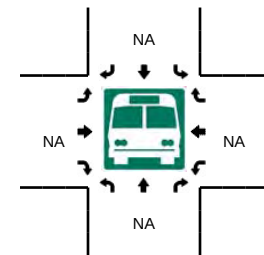
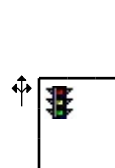
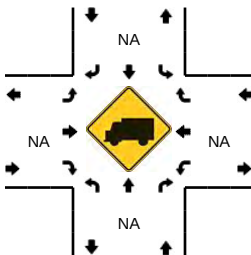
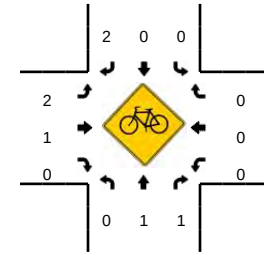
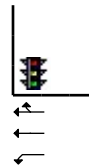
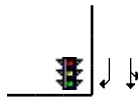
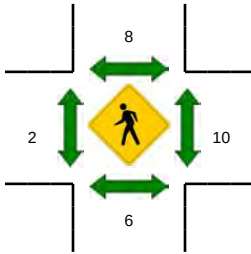
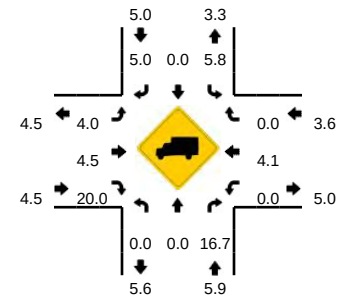
Comments:

LOCATION: Willow Dr -- S Estes Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941406
DATE: Wed, Apr 24 2013



Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:15 PM -- 12:30 PM



15-Min Count Period Beginning At	Willow Dr (Northbound)					Willow Dr (Southbound)					S Estes Dr (Eastbound)					S Estes Dr (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U		Left	Thru	Right	U		Left	Thru	Right	U		Left	Thru	Right	U			
11:00 AM	2	0	1	0		14	0	65	0		49	76	0	1		3	73	9	0		293	1167
11:15 AM	2	2	1	0		12	0	55	0		44	78	1	1		2	67	9	0		274	
11:30 AM	1	0	0	0		12	1	52	0		51	53	2	0		2	91	8	0		273	
11:45 AM	2	3	1	0		11	1	80	0		68	81	5	0		2	60	13	0		327	
12:00 PM	4	1	1	0		16	3	77	0		44	74	1	0		3	72	6	0		302	1176
12:15 PM	2	2	0	0		27	1	65	0		56	74	1	0		0	87	13	0		328	1230
12:30 PM	1	1	4	0		19	2	78	0		49	74	2	0		1	71	10	0		312	1269
12:45 PM	0	0	1	0		7	3	82	0		49	86	1	0		0	88	11	0		328	1270

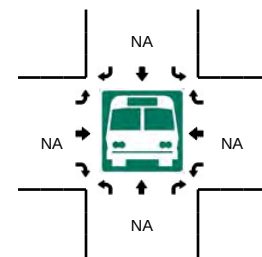
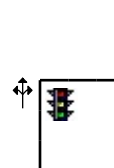
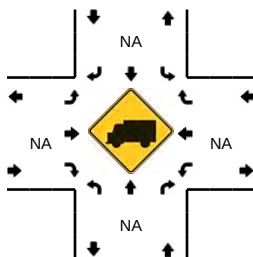
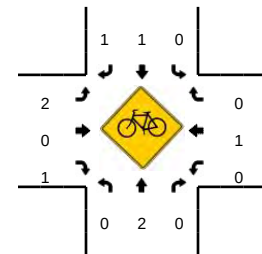
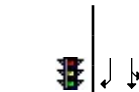
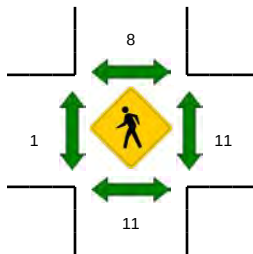
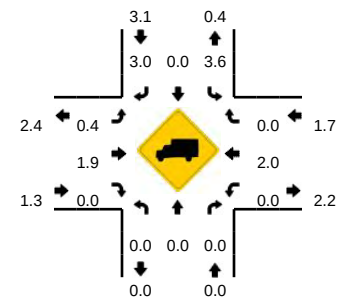
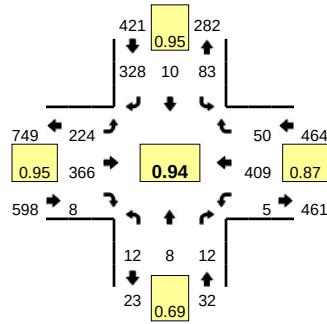
[illegible]

Comments:

LOCATION: Willow Dr -- S Estes Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941405
DATE: Wed, Apr 24 2013

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



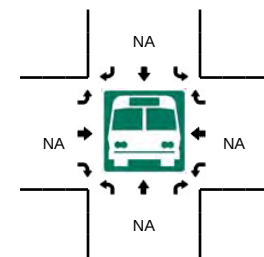
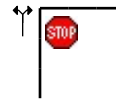
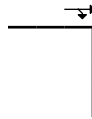
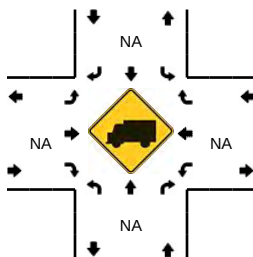
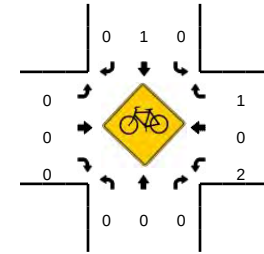
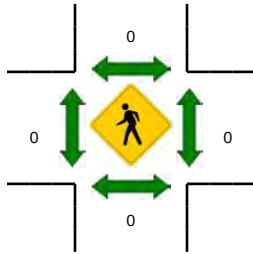
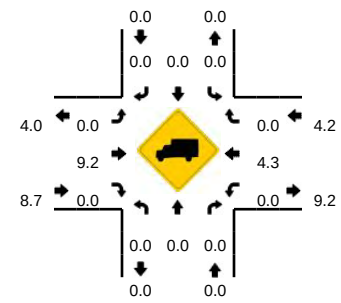
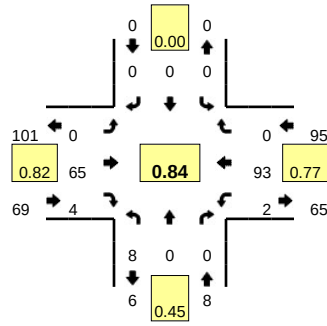
15-Min Count Period Beginning At	Willow Dr (Northbound)				Willow Dr (Southbound)				S Estes Dr (Eastbound)				S Estes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	3	0	0	25	0	86	0	56	92	2	0	2	100	13	0	380	
4:15 PM	5	1	6	0	22	6	81	0	51	87	3	0	3	95	12	0	372	
4:30 PM	3	0	3	0	18	2	82	0	60	88	3	0	0	90	9	0	358	
4:45 PM	3	4	3	0	18	2	79	0	57	99	0	0	0	124	16	0	405	1515
5:00 PM	3	0	2	0	16	1	74	0	68	94	1	0	5	97	7	0	368	1503
5:15 PM	3	3	2	0	15	0	72	0	59	85	3	0	7	106	8	0	363	1494
5:30 PM	2	2	1	0	15	3	79	0	61	88	2	0	4	105	8	0	370	1506
5:45 PM	1	0	3	0	11	3	50	0	51	100	5	0	2	93	4	0	323	1424
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	12	16	12	0	72	8	316	0	228	396	0	0	0	496	64	0	1620	
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	8	
Pedestrians		8				4				0				12			24	
Bicycles	0	1	0		0	0	0		1	0	0		0	0	0		2	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Hayes Rd -- Cleland Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941422
DATE: Wed, Apr 24 2013

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



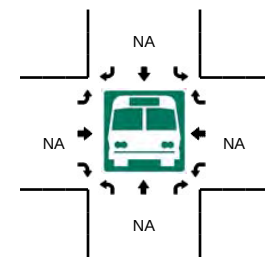
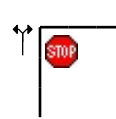
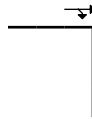
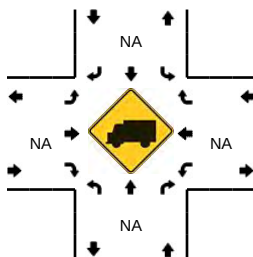
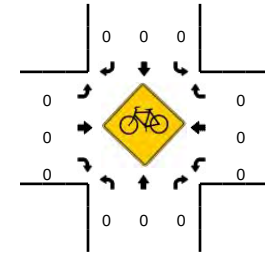
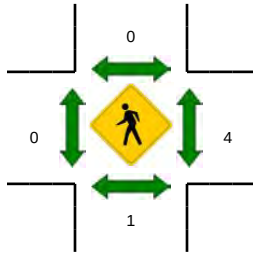
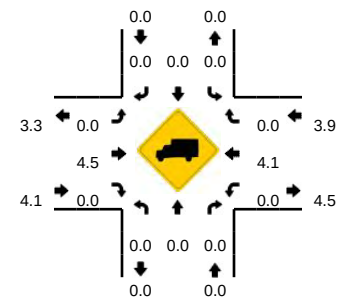
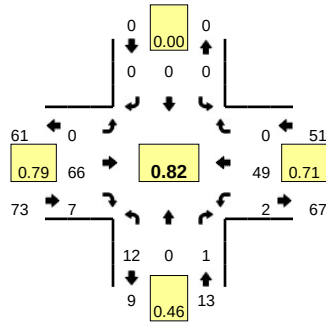
15-Min Count Period Beginning At	Hayes Rd (Northbound)				Hayes Rd (Southbound)				Cleland Rd (Eastbound)				Cleland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	0	0	0	0	0	0	0	4	0	0	0	11	0	0	17	
7:15 AM	0	0	0	0	0	0	0	0	0	14	1	0	0	9	0	0	24	
7:30 AM	2	0	0	0	0	0	0	0	0	21	0	0	0	18	0	0	41	
7:45 AM	5	0	0	0	0	0	0	0	0	12	3	0	1	30	0	0	51	133
8:00 AM	0	0	0	0	0	0	0	0	0	12	1	0	0	16	0	0	29	145
8:15 AM	1	0	0	0	0	0	0	0	0	20	0	0	1	29	0	0	51	172
8:30 AM	1	0	0	0	0	0	0	0	0	14	1	0	1	15	0	0	32	163
8:45 AM	1	0	0	0	0	0	0	0	0	11	2	0	0	7	0	0	21	133
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	20	0	0	0	0	0	0	0	0	48	12	0	4	120	0	0	204	
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0	0	16	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Hayes Rd -- Cleland Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941424
DATE: Wed, Apr 24 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:45 PM -- 1:00 PM



15-Min Count Period Beginning At	Hayes Rd (Northbound)				Hayes Rd (Southbound)				Cleland Rd (Eastbound)				Cleland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	1	0	0	0	0	0	0	0	0	21	1	0	0	10	0	0	33	
11:15 AM	3	0	0	0	0	0	0	0	0	13	1	0	0	8	0	0	25	
11:30 AM	1	0	1	0	0	0	0	0	0	18	1	0	1	15	0	0	37	
11:45 AM	1	0	0	0	0	0	0	0	0	13	2	0	0	8	0	0	24	119
12:00 PM	6	0	1	0	0	0	0	0	0	13	1	0	0	6	0	0	27	113
12:15 PM	1	0	0	0	0	0	0	0	0	15	4	0	0	11	0	0	31	119
12:30 PM	4	0	0	0	0	0	0	0	0	16	1	0	1	15	0	0	37	119
12:45 PM	1	0	0	0	0	0	0	0	0	22	1	0	1	17	0	0	42	137

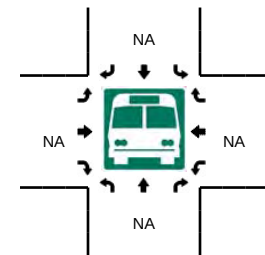
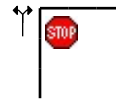
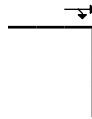
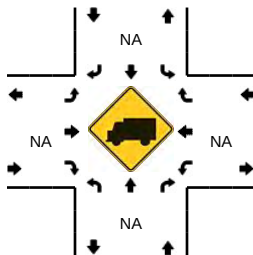
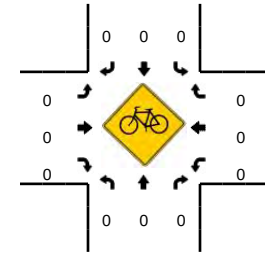
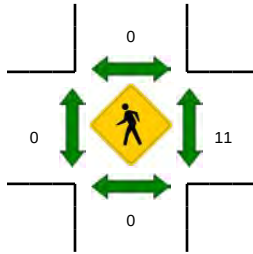
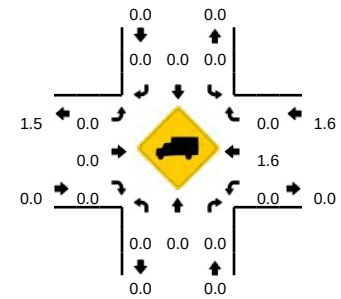
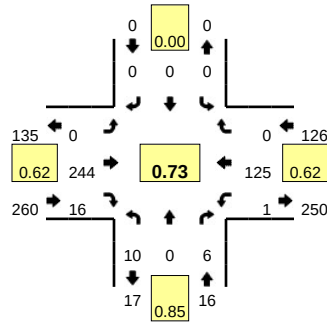
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	0	0	0	0	0	0	0	88	4	0	4	68	0	0	168
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: Hayes Rd -- Cleland Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941423
DATE: Wed, Apr 24 2013

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



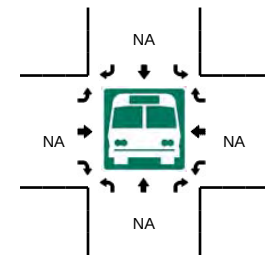
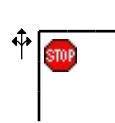
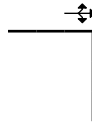
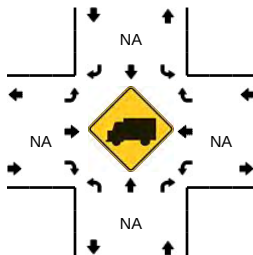
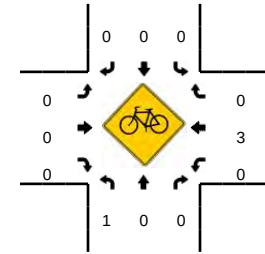
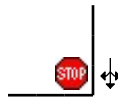
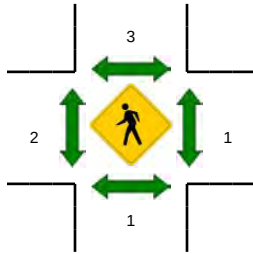
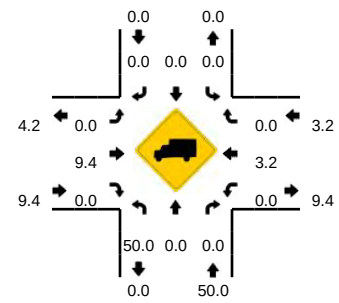
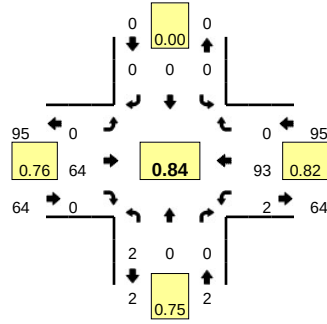
15-Min Count Period Beginning At	Hayes Rd (Northbound)				Hayes Rd (Southbound)				Cleland Rd (Eastbound)				Cleland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	0	0	0	0	0	0	0	36	2	0	1	23	0	0	63	
4:15 PM	3	0	0	0	0	0	0	0	0	23	3	0	1	11	0	0	41	
4:30 PM	2	0	1	0	0	0	0	0	0	33	4	0	0	13	0	0	53	
4:45 PM	1	0	4	0	0	0	0	0	0	105	0	0	0	27	0	0	137	294
5:00 PM	3	0	1	0	0	0	0	0	0	75	7	0	1	50	0	0	137	368
5:15 PM	4	0	1	0	0	0	0	0	0	34	4	0	0	30	0	0	73	400
5:30 PM	2	0	0	0	0	0	0	0	0	30	5	0	0	18	0	0	55	402
5:45 PM	2	0	3	0	0	0	0	0	0	54	4	0	0	13	0	0	76	341
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	0	16	0	0	0	0	0	0	420	0	0	0	108	0	0	548	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Hamilton Rd -- Cleland Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941419
DATE: Wed, Apr 24 2013

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



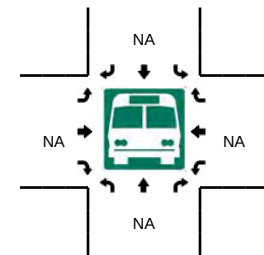
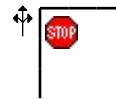
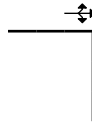
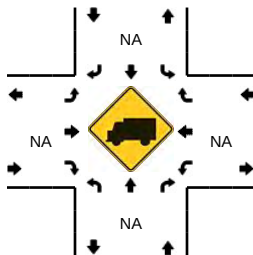
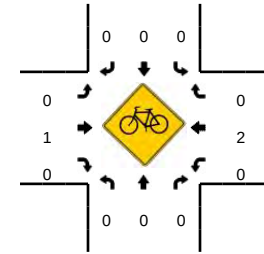
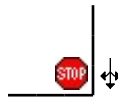
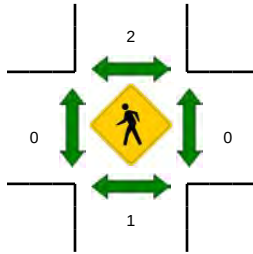
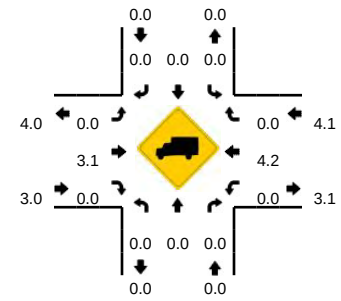
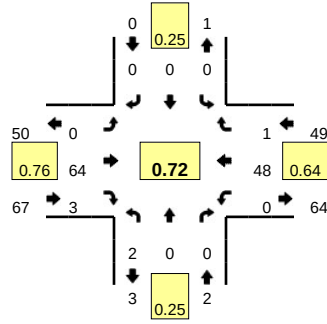
15-Min Count Period Beginning At	Hamilton Rd (Northbound)				Hamilton Rd (Southbound)				Cleland Rd (Eastbound)				Cleland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	1	0	0	0	0	0	0	5	0	0	0	11	0	0	17	
7:15 AM	0	0	0	0	0	0	0	0	0	14	0	0	0	9	0	0	23	
7:30 AM	0	0	0	0	0	0	0	0	0	21	0	0	1	19	0	0	41	
7:45 AM	1	0	0	0	0	0	0	0	0	12	0	0	0	29	0	0	42	123
8:00 AM	0	0	0	0	0	0	0	0	0	13	0	0	1	16	0	0	30	136
8:15 AM	1	0	0	0	0	0	0	0	0	18	0	0	0	29	0	0	48	161
8:30 AM	0	0	1	0	0	0	0	0	0	11	2	0	0	16	0	0	30	150
8:45 AM	0	0	1	0	0	0	0	0	0	11	0	0	0	7	0	0	19	127
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	0	0	0	0	0	0	0	0	72	0	0	0	116	0	0	192	
Heavy Trucks	4	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Hamilton Rd -- Cleland Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941421
DATE: Wed, Apr 24 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:45 PM -- 1:00 PM



15-Min Count Period Beginning At	Hamilton Rd (Northbound)				Hamilton Rd (Southbound)				Cleland Rd (Eastbound)				Cleland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	1	1	0	0	1	0	0	0	0	21	1	0	0	7	0	0	32	
11:15 AM	0	0	0	0	0	0	0	0	0	13	0	0	1	8	0	0	22	
11:30 AM	0	0	0	0	0	0	0	0	0	16	1	0	0	17	0	0	34	
11:45 AM	0	0	0	0	0	0	0	0	0	12	3	0	0	9	0	0	24	112
12:00 PM	0	0	0	0	0	0	0	0	0	13	1	0	0	6	1	0	21	101
12:15 PM	0	0	0	0	0	0	0	0	0	15	0	0	0	11	0	0	26	105
12:30 PM	2	0	0	0	0	0	0	0	0	14	2	0	0	12	0	0	30	101
12:45 PM	0	0	0	0	0	0	0	0	0	22	0	0	0	19	0	0	41	118

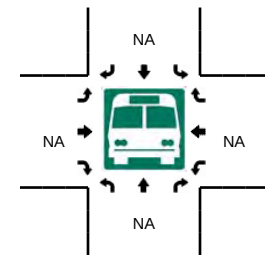
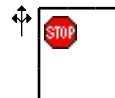
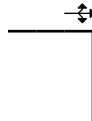
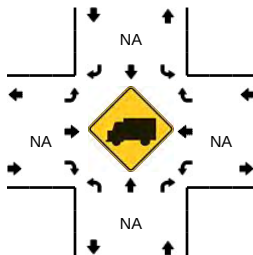
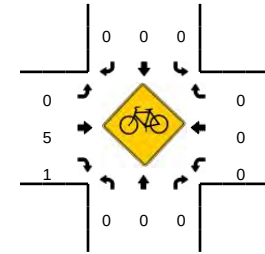
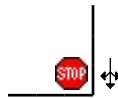
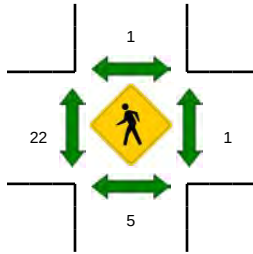
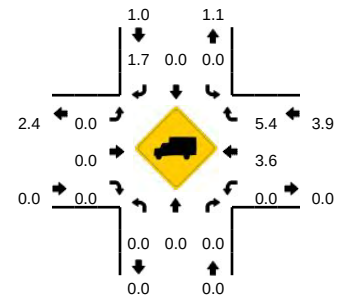
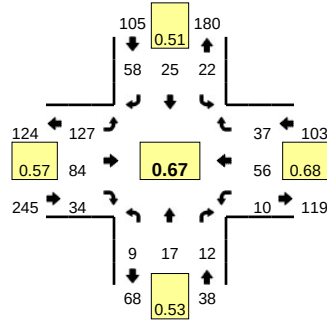
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	88	0	0	0	76	0	0	164
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: Hamilton Rd -- Cleland Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941420
DATE: Wed, Apr 24 2013

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



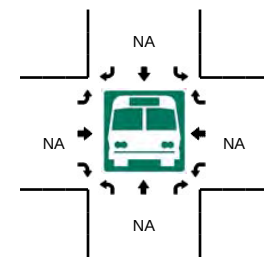
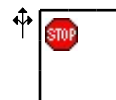
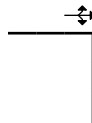
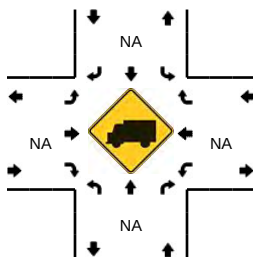
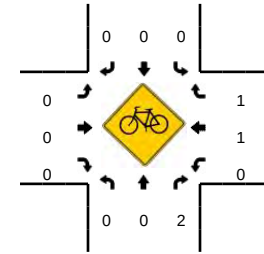
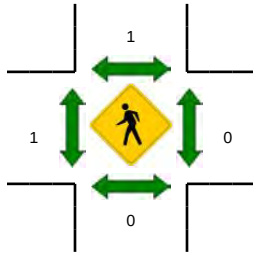
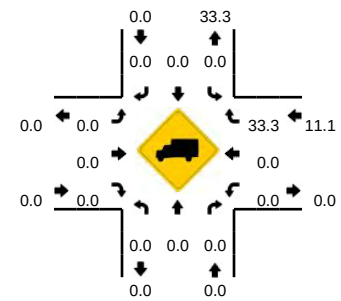
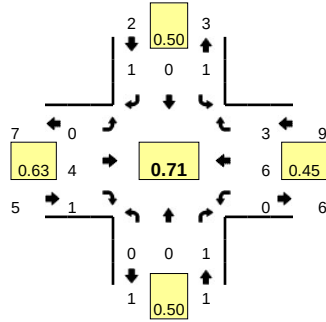
15-Min Count Period Beginning At	Hamilton Rd (Northbound)				Hamilton Rd (Southbound)				Cleland Rd (Eastbound)				Cleland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	1	0	1	0	8	0	11	25	1	0	0	12	2	0	62	
4:15 PM	0	1	1	0	0	0	0	0	9	14	0	0	0	12	1	0	38	
4:30 PM	0	1	0	0	0	0	1	0	12	20	1	0	0	11	2	0	48	
4:45 PM	0	5	3	0	3	4	13	0	74	22	11	0	4	11	19	1	170	318
5:00 PM	7	4	7	0	11	12	28	0	35	26	15	0	4	22	12	0	183	439
5:15 PM	1	4	2	0	7	4	14	0	7	18	5	0	0	11	3	0	76	477
5:30 PM	1	4	0	0	1	5	3	0	10	18	3	1	1	12	3	0	62	491
5:45 PM	3	5	0	0	0	2	5	0	25	29	6	1	1	11	4	0	92	413
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	16	28	0	44	48	112	0	140	104	60	0	16	88	48	0	732	
Heavy Trucks	0	0	0	0	0	0	4	0	0	0	0	0	0	8	4	0	16	
Pedestrians	0	0	0	0	0	0	0	0	0	24	0	0	0	4	0	0	28	
Bicycles	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Hamilton Rd -- Flemington Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941416
DATE: Wed, Apr 24 2013

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



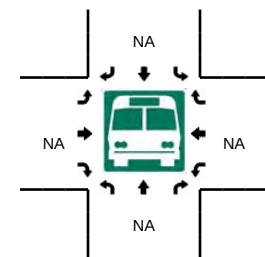
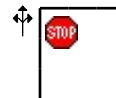
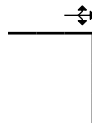
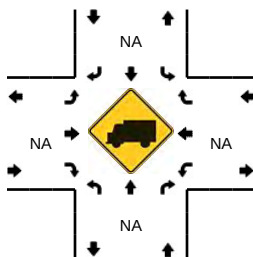
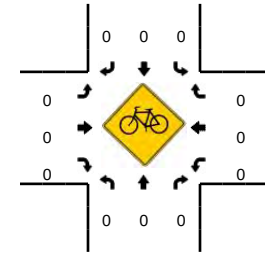
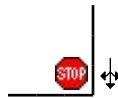
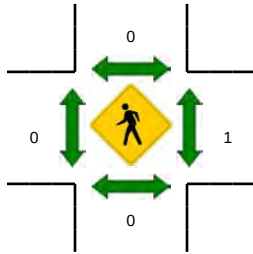
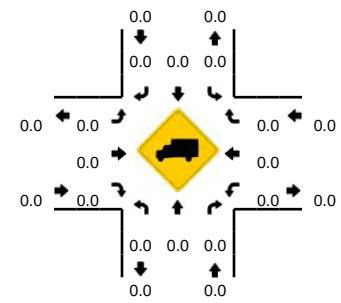
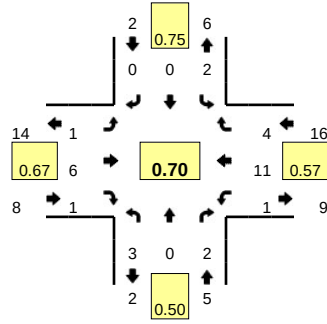
15-Min Count Period Beginning At	Hamilton Rd (Northbound)				Hamilton Rd (Southbound)				Flemington Rd (Eastbound)				Flemington Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
7:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	3	
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	1	0	6	12
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	12
8:15 AM	0	0	1	0	0	0	0	0	0	1	1	0	0	1	1	0	5	16
8:30 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	1	0	4	17
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	12
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	0	0	0	4	0	0	0	16	4	0	24	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Hamilton Rd -- Flemington Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941418
DATE: Wed, Apr 24 2013

Peak-Hour: 11:45 AM -- 12:45 PM
Peak 15-Min: 12:30 PM -- 12:45 PM



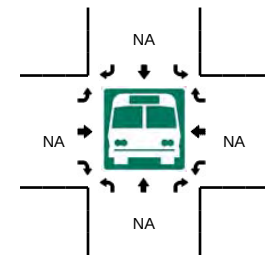
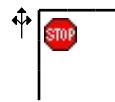
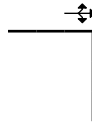
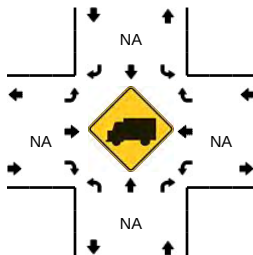
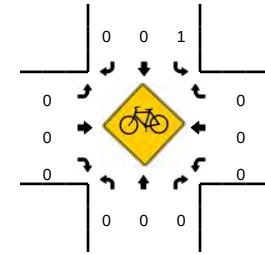
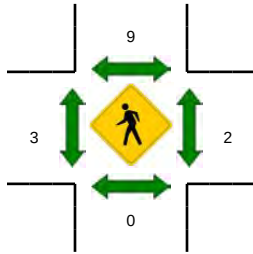
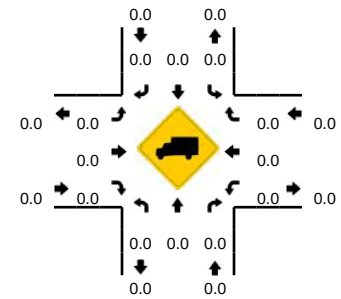
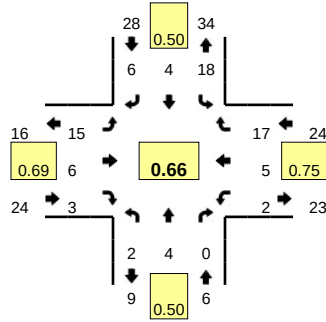
15-Min Count Period Beginning At	Hamilton Rd (Northbound)				Hamilton Rd (Southbound)				Flemington Rd (Eastbound)				Flemington Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	4	
11:15 AM	3	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	6	
11:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	
11:45 AM	1	0	0	0	0	0	0	0	1	1	0	0	0	1	2	0	6	18
12:00 PM	1	0	1	0	0	0	0	0	0	1	0	0	0	6	1	0	10	24
12:15 PM	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	4	22
12:30 PM	1	0	1	0	1	0	0	1	0	3	0	0	0	3	1	0	11	31
12:45 PM	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	4	29
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	0	4	0	4	0	0	4	0	12	0	0	0	12	4	0	44	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Hamilton Rd -- Flemington Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941417
DATE: Wed, Apr 24 2013

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

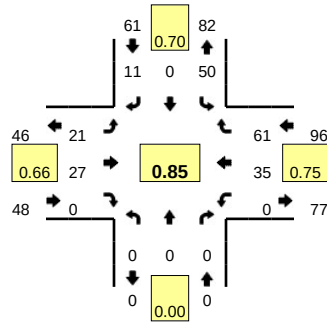


15-Min Count Period Beginning At	Hamilton Rd (Northbound)				Hamilton Rd (Southbound)				Flemington Rd (Eastbound)				Flemington Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	5	0	9	
4:15 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	2	2	0	6	
4:30 PM	1	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	5	
4:45 PM	0	1	0	0	2	0	1	0	5	0	1	2	0	2	6	0	20	40
5:00 PM	1	2	0	0	9	2	3	1	5	3	1	0	0	0	4	0	31	62
5:15 PM	0	1	0	0	3	0	2	0	2	1	1	0	2	2	3	0	17	73
5:30 PM	1	0	0	0	3	2	0	0	0	2	0	1	0	1	4	0	14	82
5:45 PM	0	1	0	0	3	0	2	0	1	2	0	0	0	1	6	0	16	78
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	8	0	0	36	8	12	4	20	12	4	0	0	0	16	0	124	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

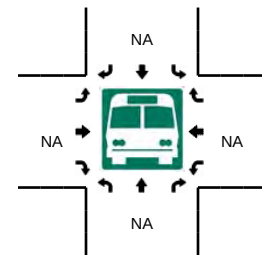
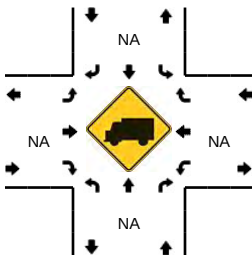
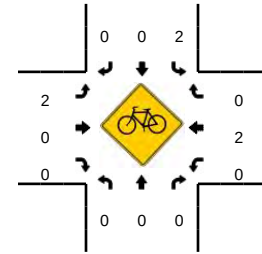
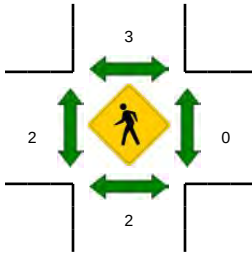
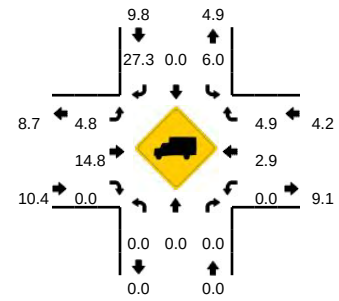
Comments:

LOCATION: Cleland Dr -- Burning Tree Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941410
DATE: Wed, Apr 24 2013



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

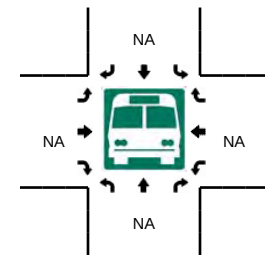
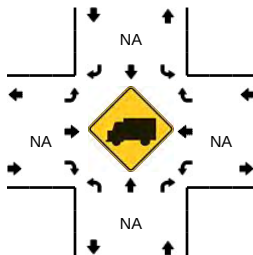
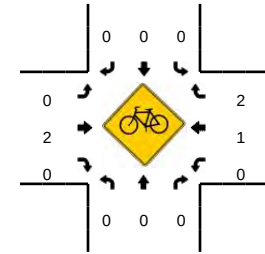
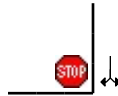
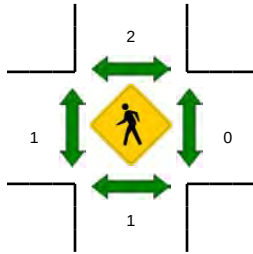
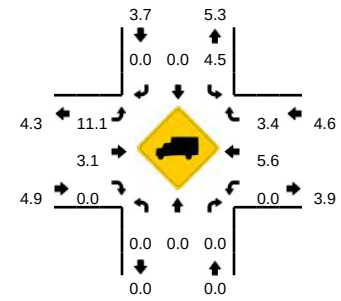
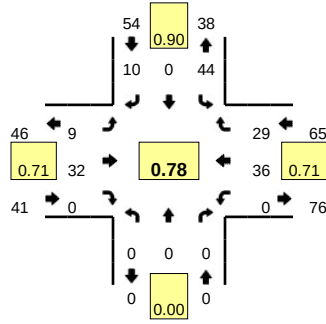
[illegible]

Comments:

LOCATION: Cleland Dr -- Burning Tree Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941412
DATE: Wed, Apr 24 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:45 PM -- 1:00 PM



15-Min Count Period Beginning At	Cleland Dr (Northbound)				Cleland Dr (Southbound)				Burning Tree Dr (Eastbound)				Burning Tree Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	12	0	3	0	2	15	0	0	0	6	7	0	45	
11:15 AM	0	0	0	0	12	0	2	0	1	9	0	0	0	6	5	0	35	
11:30 AM	0	0	0	0	8	0	6	0	3	8	0	0	0	7	8	0	40	
11:45 AM	0	0	0	0	9	0	2	0	1	9	0	0	0	5	3	0	29	149
12:00 PM	0	0	0	0	6	0	4	0	1	4	0	0	0	6	9	0	30	134
12:15 PM	0	0	0	0	12	0	2	0	2	13	0	0	0	10	5	0	44	143
12:30 PM	0	0	0	0	12	0	1	0	3	7	0	0	0	5	7	0	35	138
12:45 PM	0	0	0	0	14	0	3	0	3	8	0	0	0	15	8	0	51	160

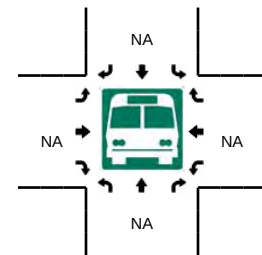
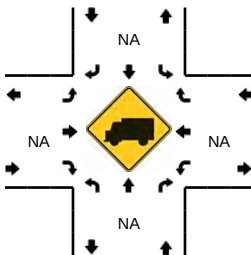
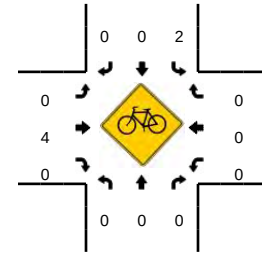
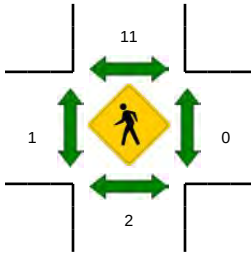
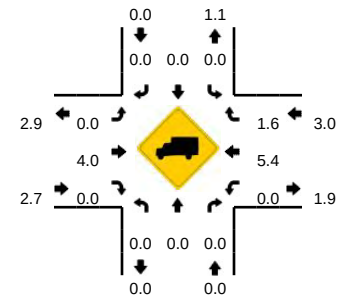
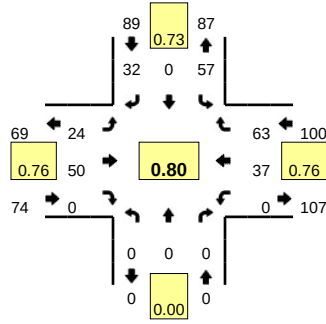
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	56	0	12	0	12	32	0	0	0	60	32	0	204
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
Pedestrians	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Railroad																	
Stopped Buses																	

Comments:

LOCATION: Cleland Dr -- Burning Tree Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941411
DATE: Wed, Apr 24 2013

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



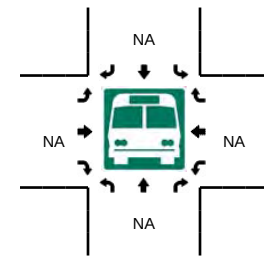
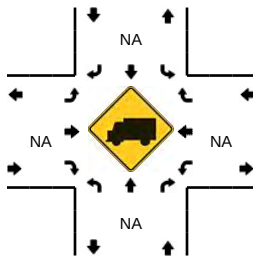
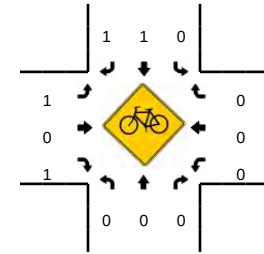
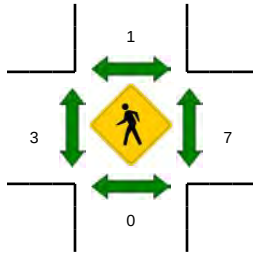
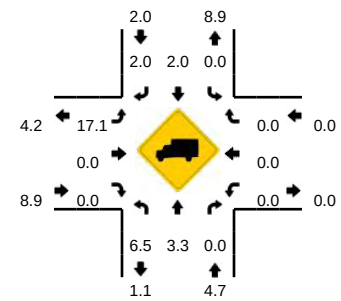
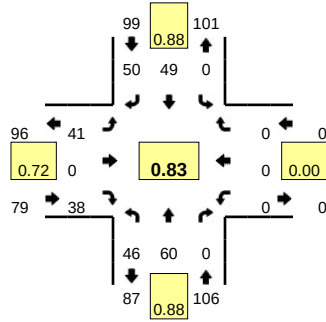
15-Min Count Period Beginning At	Cleland Dr (Northbound)				Cleland Dr (Southbound)				Burning Tree Dr (Eastbound)				Burning Tree Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	18	0	3	0	2	4	0	0	0	9	10	0	46	
4:15 PM	0	0	0	0	10	0	2	0	5	12	0	0	0	7	5	1	42	
4:30 PM	0	0	0	0	12	0	3	0	4	9	0	0	0	8	6	0	42	
4:45 PM	0	0	0	0	16	0	2	0	15	8	0	0	0	9	24	0	74	204
5:00 PM	0	0	0	0	18	0	14	0	5	21	0	0	0	7	17	0	82	240
5:15 PM	0	0	0	0	16	0	10	0	1	12	0	0	0	8	11	0	58	256
5:30 PM	0	0	0	0	7	0	6	0	3	9	0	0	0	13	11	0	49	263
5:45 PM	0	0	0	0	19	0	4	0	6	18	0	0	0	10	16	0	73	262
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	72	0	56	0	20	84	0	0	0	28	68	0	328	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Pinehurst Dr -- Burning Tree Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941413
DATE: Wed, Apr 24 2013

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



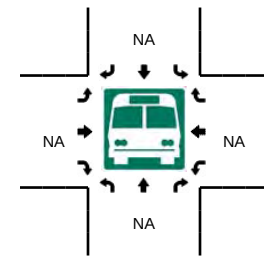
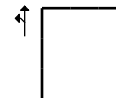
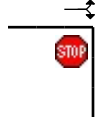
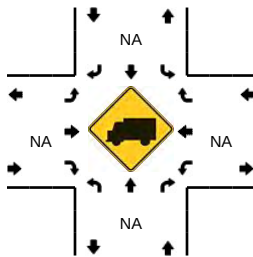
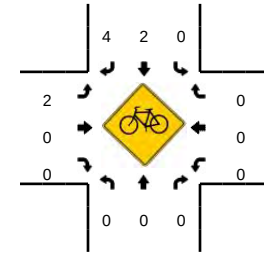
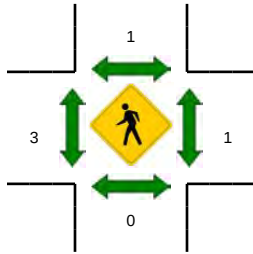
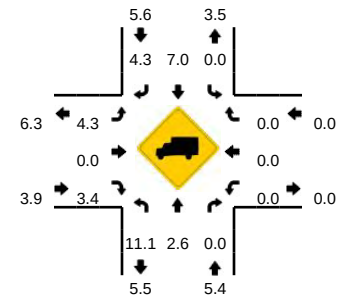
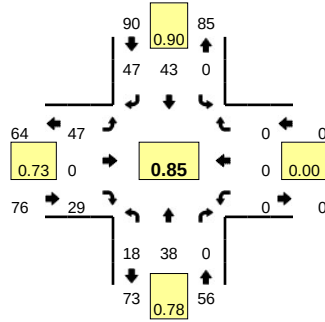
15-Min Count Period Beginning At	Pinehurst Dr (Northbound)				Pinehurst Dr (Southbound)				Burning Tree Dr (Eastbound)				Burning Tree Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	8	0	0	0	2	2	0	2	0	3	0	0	0	0	0	21	
7:15 AM	2	8	0	0	0	10	7	0	6	0	14	0	0	0	0	0	47	
7:30 AM	13	17	0	0	0	16	11	0	5	0	24	0	0	0	0	0	86	
7:45 AM	15	14	0	0	0	11	17	0	9	0	5	0	0	0	0	0	71	225
8:00 AM	6	11	0	0	0	12	10	0	15	0	5	0	0	0	0	0	59	263
8:15 AM	12	18	0	0	0	10	12	0	12	0	4	0	0	0	0	0	68	284
8:30 AM	11	12	0	0	0	13	13	0	11	0	9	0	0	0	0	0	69	267
8:45 AM	2	10	0	1	0	11	11	0	9	0	6	0	0	0	0	0	50	246
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	52	68	0	0	0	64	44	0	20	0	96	0	0	0	0	0	344	
Heavy Trucks	8	4	0	0	0	4	0	0	4	0	0	0	0	0	0	0	20	
Pedestrians	0	0	0	0	0	4	0	0	0	8	0	0	0	4	0	0	16	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Pinehurst Dr -- Burning Tree Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941415
DATE: Wed, Apr 24 2013

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:45 PM -- 1:00 PM



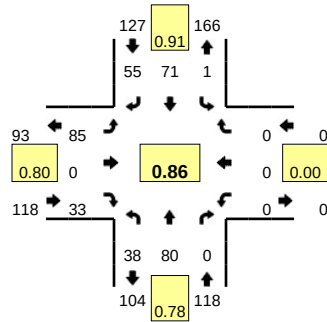
15-Min Count Period Beginning At	Pinehurst Dr (Northbound)				Pinehurst Dr (Southbound)				Burning Tree Dr (Eastbound)				Burning Tree Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	4	13	0	0	0	9	9	0	20	0	8	0	0	0	0	0	63	199
11:15 AM	5	8	0	0	0	9	5	0	13	0	6	0	0	0	0	0	46	
11:30 AM	5	8	0	0	0	7	10	0	10	0	7	0	0	0	0	0	47	
11:45 AM	3	6	0	0	0	10	6	0	12	0	6	0	0	0	0	0	43	
12:00 PM	3	6	0	0	0	12	13	0	9	0	2	0	0	0	0	0	45	
12:15 PM	5	9	0	1	0	13	10	0	14	0	9	0	0	0	0	0	61	196
12:30 PM	4	10	0	0	0	10	7	0	11	0	9	0	0	0	0	0	51	200
12:45 PM	5	13	0	0	0	8	17	0	13	0	9	0	0	0	0	0	65	222

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	20	52	0	0	0	32	68	0	52	0	36	0	0	0	0	0	260
Heavy Trucks	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Bicycles	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
Railroad																	
Stopped Buses																	

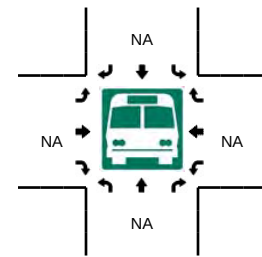
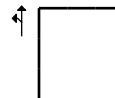
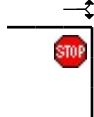
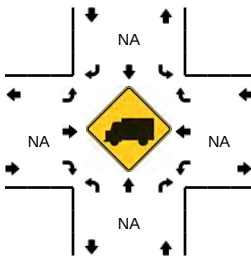
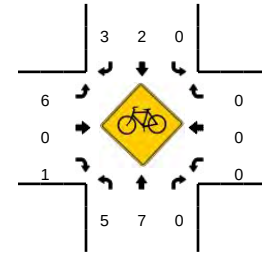
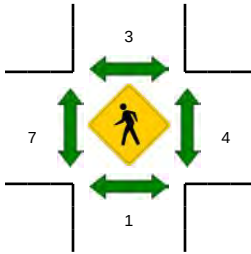
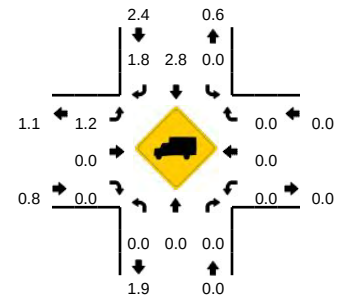
Comments:

LOCATION: Pinehurst Dr -- Burning Tree Dr
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941414
DATE: Wed, Apr 24 2013



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



15-Min Count Period Beginning At	Pinehurst Dr (Northbound)				Pinehurst Dr (Southbound)				Burning Tree Dr (Eastbound)				Burning Tree Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	9	0	0	0	13	12	0	12	0	9	0	0	0	0	0	62	260
4:15 PM	7	16	0	0	0	10	6	0	14	0	9	0	0	0	0	0	62	
4:30 PM	3	8	0	0	0	13	10	0	15	0	6	0	0	0	0	0	55	
4:45 PM	15	15	0	0	0	9	18	0	17	0	7	0	0	0	0	0	81	
5:00 PM	10	30	0	0	0	14	13	1	27	0	10	0	0	0	0	0	105	
5:15 PM	8	22	0	0	0	18	12	0	17	0	11	0	0	0	0	0	88	329
5:30 PM	10	14	0	0	0	20	14	0	14	0	4	0	0	0	0	0	76	350
5:45 PM	10	14	0	0	0	19	16	0	27	0	8	0	0	0	0	0	94	363

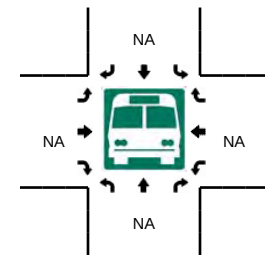
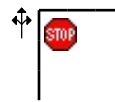
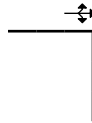
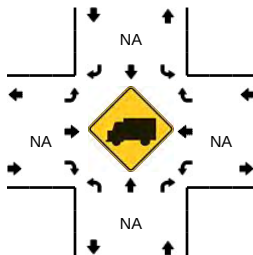
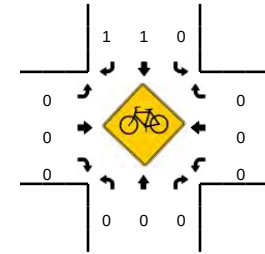
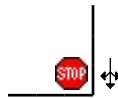
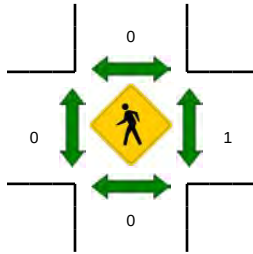
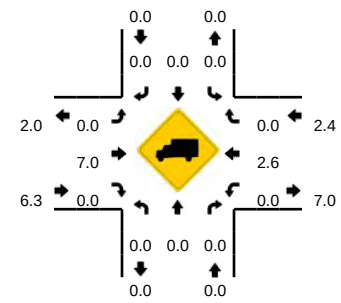
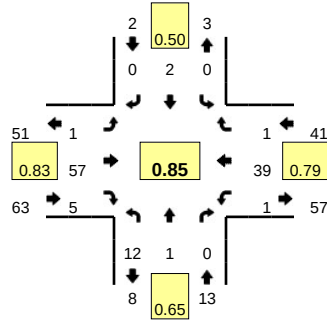
[illegible]

Comments:

LOCATION: Hayes Rd -- Brandon Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941431
DATE: Thu, Apr 25 2013

Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:00 AM -- 8:15 AM



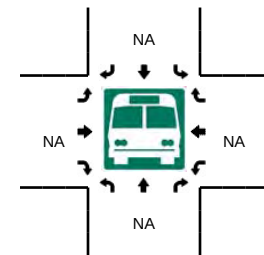
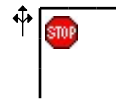
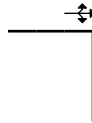
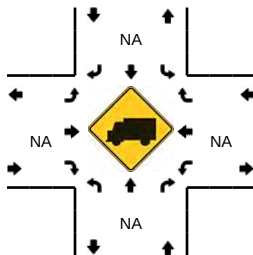
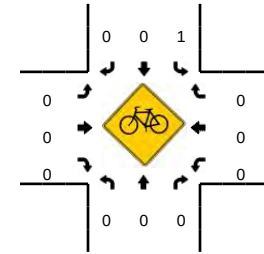
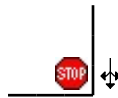
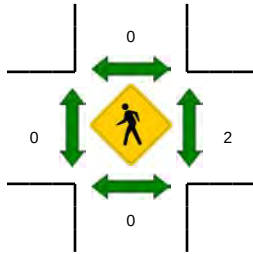
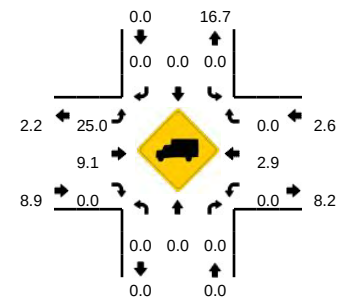
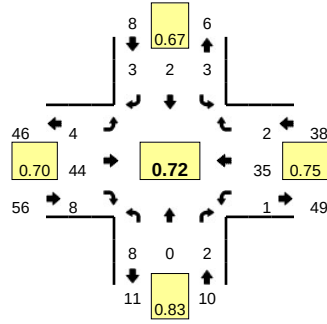
15-Min Count Period Beginning At	Hayes Rd (Northbound)				Hayes Rd (Southbound)				Brandon Rd (Eastbound)				Brandon Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	1	0	0	0	0	0	0	0	2	0	0	0	5	0	0	10	
7:15 AM	4	0	0	0	2	0	0	0	0	7	0	0	0	4	0	0	17	
7:30 AM	1	1	0	0	0	0	1	0	0	4	2	0	0	8	1	0	18	
7:45 AM	2	0	0	0	1	0	0	0	0	9	3	0	0	4	1	0	20	65
8:00 AM	4	1	0	0	0	0	0	0	1	18	0	0	1	10	0	0	35	90
8:15 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	9	1	0	23	96
8:30 AM	4	0	0	0	0	0	0	0	0	15	1	0	0	13	0	0	33	111
8:45 AM	4	0	0	0	0	2	0	0	0	11	4	0	0	7	0	0	28	119
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	16	4	0	0	0	0	0	0	4	72	0	0	4	40	0	0	140	
Heavy Trucks	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	12	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Hayes Rd -- Brandon Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941433
DATE: Thu, Apr 25 2013

Peak-Hour: 11:45 AM -- 12:45 PM
Peak 15-Min: 12:00 PM -- 12:15 PM



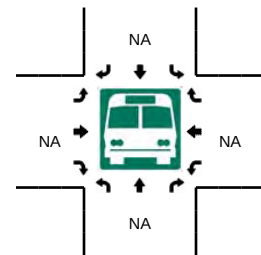
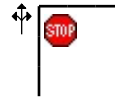
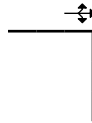
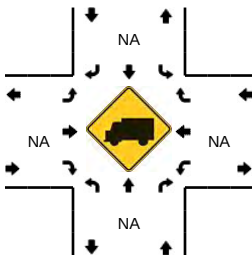
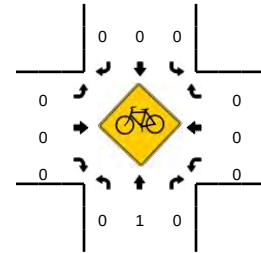
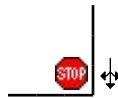
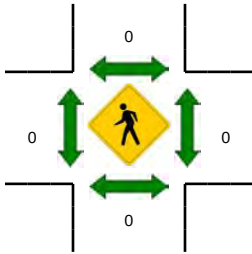
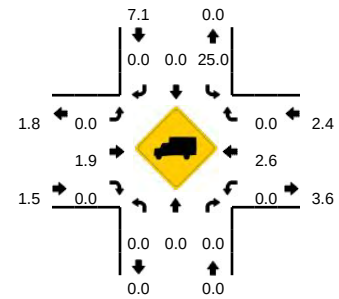
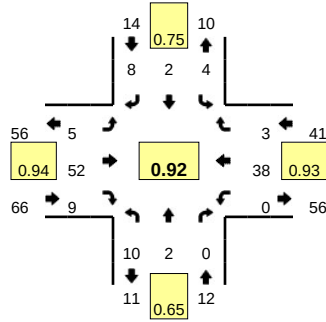
15-Min Count Period Beginning At	Hayes Rd (Northbound)				Hayes Rd (Southbound)				Brandon Rd (Eastbound)				Brandon Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	3	0	0	0	1	1	1	0	0	5	0	0	0	4	1	0	16	
11:15 AM	0	0	0	0	0	0	0	0	0	5	2	0	0	4	1	0	12	
11:30 AM	0	1	0	0	0	0	2	0	0	2	0	0	0	5	1	0	11	
11:45 AM	1	0	1	0	1	1	1	0	3	15	1	0	0	3	2	0	29	68
12:00 PM	2	0	1	0	1	1	0	0	0	16	4	0	0	14	0	0	39	91
12:15 PM	2	0	0	0	0	0	0	0	1	8	3	0	1	12	0	0	27	106
12:30 PM	3	0	0	0	1	0	2	0	0	5	0	0	0	6	0	0	17	112
12:45 PM	0	0	1	0	0	1	0	0	0	6	1	0	0	9	0	0	18	101
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	0	4	0	4	4	0	0	0	64	16	0	0	56	0	0	156	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Hayes Rd -- Brandon Rd
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941432
DATE: Thu, Apr 25 2013

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



15-Min Count Period Beginning At	Hayes Rd (Northbound)				Hayes Rd (Southbound)				Brandon Rd (Eastbound)				Brandon Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	0	0	0	0	0	0	0	0	10	3	0	1	7	0	0	24	
4:15 PM	3	0	0	0	1	0	0	0	1	9	4	0	0	4	0	0	22	
4:30 PM	0	1	1	0	0	0	0	0	0	11	5	0	0	8	1	0	27	
4:45 PM	3	1	0	0	0	1	2	0	4	13	1	0	0	7	0	0	32	105
5:00 PM	1	0	0	0	1	1	3	0	3	11	2	0	0	10	0	0	32	113
5:15 PM	2	1	0	0	2	0	2	0	0	14	4	0	0	9	1	0	35	126
5:30 PM	5	0	0	0	0	0	3	0	0	11	1	0	0	9	1	0	30	129
5:45 PM	2	1	0	0	1	1	0	0	2	16	2	0	0	10	1	0	36	133

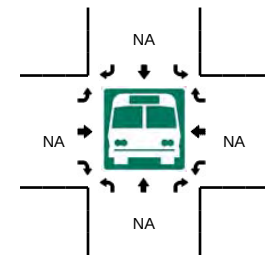
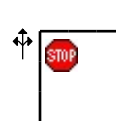
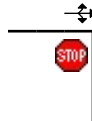
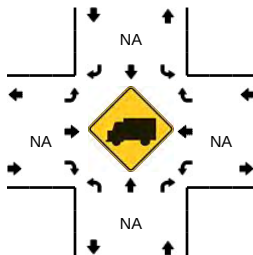
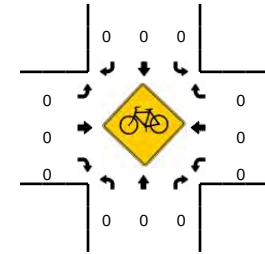
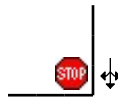
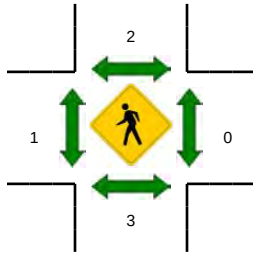
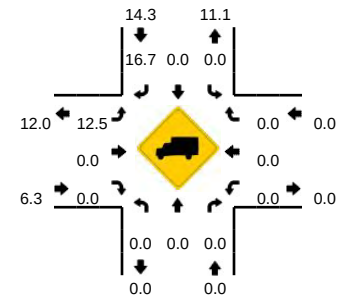
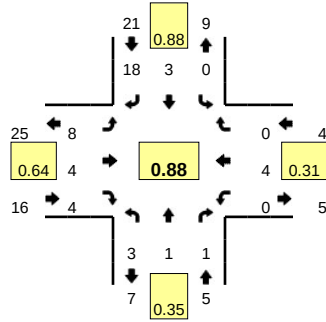
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	4	0	0	4	4	0	0	8	64	8	0	0	40	4	0	144
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

Comments:

LOCATION: Oakwood Dr -- Berkley Road
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941466
DATE: Thu, Apr 25 2013

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



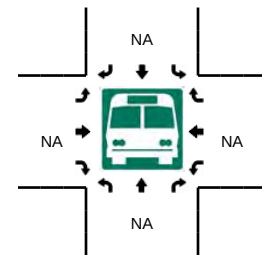
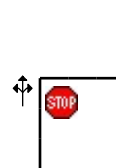
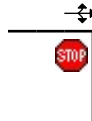
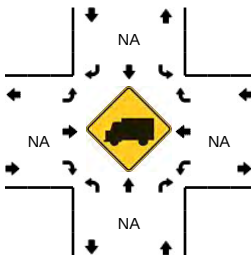
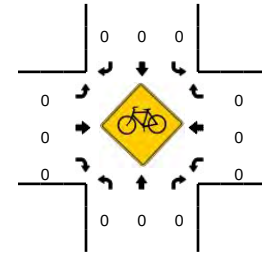
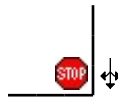
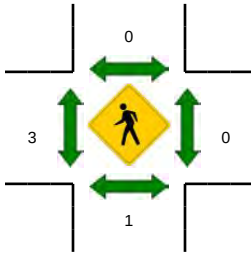
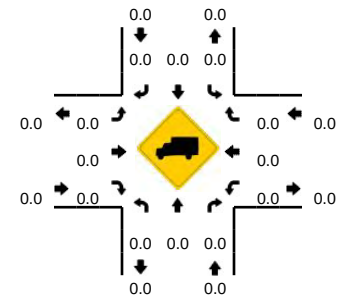
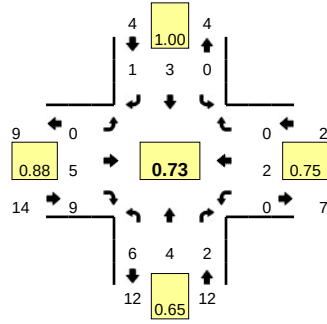
15-Min Count Period Beginning At	Oakwood Dr (Northbound)				Oakwood Dr (Southbound)				Berkley Road (Eastbound)				Berkley Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	4	
7:15 AM	2	0	1	0	0	1	4	0	0	0	2	0	0	0	0	0	10	
7:30 AM	0	0	0	0	0	1	5	0	0	1	1	0	0	4	0	0	12	
7:45 AM	0	1	0	0	0	1	4	0	4	3	0	0	0	0	0	0	13	39
8:00 AM	1	0	0	0	0	0	5	0	4	0	1	0	0	0	0	0	11	46
8:15 AM	1	4	0	0	0	0	1	0	1	0	2	0	0	0	1	0	10	46
8:30 AM	0	0	0	0	0	1	4	0	1	1	1	0	0	0	1	0	9	43
8:45 AM	1	0	0	0	0	1	3	0	3	0	1	0	0	1	0	0	10	40
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	4	0	0	0	4	16	0	16	12	0	0	0	0	0	0	52	
Heavy Trucks	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	
Pedestrians	8				4				0				0				12	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Oakwood Dr -- Berkley Road
CITY/STATE: Chapel Hill, NC

QC JOB #: 10941468
DATE: Thu, Apr 25 2013

Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



15-Min Count Period Beginning At	Oakwood Dr (Northbound)				Oakwood Dr (Southbound)				Berkley Road (Eastbound)				Berkley Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	3	2	0	0	0	1	0	0	0	1	3	0	0	0	0	0	10	
11:15 AM	0	2	0	0	0	1	0	0	0	2	2	0	0	0	0	0	7	
11:30 AM	0	0	0	0	0	1	0	0	0	0	2	0	0	1	0	0	4	
11:45 AM	3	0	2	0	0	0	1	0	0	2	2	0	0	1	0	0	11	32
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	24
12:15 PM	2	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	5	22
12:30 PM	3	2	0	0	0	0	0	0	1	0	3	0	0	0	0	0	9	27
12:45 PM	0	0	1	0	0	0	1	0	0	1	2	0	0	0	0	0	5	21
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	12	0	8	0	0	0	4	0	0	8	8	0	0	4	0	0	44	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC													QC JOB #: 10941464 DIRECTION: NB DATE: Apr 23 2013		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	18	2	1	0	0	0	0	0	0	0	0	0	1	22
12:15 AM	0	16	1	0	1	0	0	0	0	0	0	0	0	1	19
12:30 AM	0	16	0	0	0	0	0	0	0	0	0	0	0	0	16
12:45 AM	0	6	0	0	0	0	0	1	0	0	0	0	0	0	7
1:00 AM	0	8	0	0	0	0	0	1	0	0	0	0	0	0	9
1:15 AM	0	9	0	0	1	0	0	0	0	0	0	0	0	0	10
1:30 AM	0	8	0	1	2	0	0	1	0	0	0	0	0	0	12
1:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
2:00 AM	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
2:15 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
2:30 AM	0	7	1	0	1	0	0	0	0	0	0	0	0	0	9
2:45 AM	0	4	2	0	0	0	0	0	0	0	0	0	0	0	6
3:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
3:15 AM	0	3	1	0	0	0	0	1	0	0	0	0	0	0	5
3:30 AM	0	3	0	0	0	0	0	1	0	0	0	0	0	0	4
3:45 AM	0	3	3	0	0	0	0	0	0	0	0	0	0	0	6
4:00 AM	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
4:15 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
4:30 AM	0	6	1	0	0	0	0	3	0	0	0	0	0	1	11
4:45 AM	0	8	0	0	0	0	0	7	0	0	0	0	0	0	15
5:00 AM	0	12	1	1	0	0	0	2	0	0	0	0	0	0	16
5:15 AM	0	31	4	0	1	0	0	1	0	0	0	0	0	2	39
5:30 AM	0	31	8	0	3	0	0	2	0	0	0	0	0	1	45
5:45 AM	0	47	6	1	2	0	0	2	0	0	0	0	0	5	63
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: NB DATE: Apr 23 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 AM	0	65	10	1	2	0	0	4	0	0	0	0	0	3	85
6:15 AM	0	72	8	0	3	0	0	2	0	1	0	0	0	4	90
6:30 AM	0	114	13	0	6	0	0	4	0	2	0	0	0	9	148
6:45 AM	0	140	19	0	1	1	0	3	0	0	3	1	0	14	182
7:00 AM	0	135	16	1	6	0	0	3	0	0	1	1	0	15	178
7:15 AM	0	181	16	4	4	0	0	3	0	1	2	0	1	26	238
7:30 AM	1	224	32	2	5	1	0	6	1	1	1	1	0	34	309
7:45 AM	0	213	18	1	3	0	0	4	2	2	4	0	0	36	283
8:00 AM	0	190	17	0	3	1	0	1	1	2	1	0	0	26	242
8:15 AM	0	225	18	1	4	0	0	9	0	3	1	1	1	19	282
8:30 AM	0	224	20	2	5	0	0	9	0	2	0	0	0	27	289
8:45 AM	0	186	19	2	4	2	0	4	0	1	0	0	0	40	258
9:00 AM	0	169	27	0	5	1	1	3	0	2	2	0	0	28	238
9:15 AM	0	155	17	1	6	1	0	4	1	4	3	1	0	24	217
9:30 AM	0	165	15	0	3	1	0	6	1	1	1	0	0	20	213
9:45 AM	0	183	18	1	1	2	0	10	0	2	0	2	0	12	231
10:00 AM	0	180	19	3	5	0	0	4	0	0	1	0	0	9	221
10:15 AM	0	149	18	2	4	2	1	7	0	0	2	0	0	12	197
10:30 AM	0	160	22	2	7	0	0	6	0	2	0	0	1	20	220
10:45 AM	1	166	20	1	4	2	0	3	0	0	1	1	1	15	215
11:00 AM	0	173	31	3	4	0	0	5	0	1	1	1	0	13	232
11:15 AM	0	168	22	2	8	0	0	6	0	3	1	1	0	19	230
11:30 AM	0	159	22	1	3	0	0	8	0	1	0	0	0	21	215
11:45 AM	2	202	22	1	9	0	0	5	1	1	4	0	0	18	265
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

QC JOB #: 10941464
DIRECTION: NB
DATE: Apr 23 2013

Report generated on 5/8/2013 7:45 AM SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: NB DATE: Apr 23 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 PM	1	145	12	1	0	2	0	2	0	1	0	0	0	35	199
6:15 PM	0	189	9	0	3	0	0	7	1	6	1	0	0	33	249
6:30 PM	0	223	17	0	6	0	0	8	0	2	2	1	1	22	282
6:45 PM	0	186	9	1	3	0	0	6	0	2	0	0	0	23	230
7:00 PM	0	184	4	0	3	0	0	3	0	2	1	0	0	21	218
7:15 PM	0	207	8	0	2	0	0	4	0	1	0	0	0	27	249
7:30 PM	0	164	14	0	3	0	0	4	0	0	2	1	0	22	210
7:45 PM	0	187	8	0	3	1	0	7	0	0	1	0	0	13	220
8:00 PM	0	185	9	0	1	0	0	3	0	0	1	0	0	15	214
8:15 PM	0	146	10	0	1	1	0	3	1	3	0	1	0	17	183
8:30 PM	0	149	13	0	0	0	0	1	0	0	0	0	0	12	175
8:45 PM	0	114	6	0	2	0	0	1	0	2	1	0	0	10	136
9:00 PM	0	125	4	0	0	0	1	2	0	0	0	0	0	8	140
9:15 PM	0	102	7	0	0	1	0	2	0	1	0	0	0	7	120
9:30 PM	0	116	2	0	0	0	0	2	0	0	0	0	0	6	126
9:45 PM	0	105	4	0	1	0	0	1	0	1	1	0	0	6	119
10:00 PM	0	85	3	0	0	0	0	2	0	0	0	0	0	8	98
10:15 PM	0	72	4	0	1	0	0	0	0	0	0	0	0	5	82
10:30 PM	0	66	1	0	2	0	0	1	0	0	0	0	0	5	75
10:45 PM	0	60	6	0	0	0	0	0	0	0	0	0	0	4	70
11:00 PM	0	44	4	0	0	0	0	0	0	0	0	0	0	1	49
11:15 PM	0	36	1	0	0	0	0	1	0	0	0	0	0	2	40
11:30 PM	0	26	2	0	0	0	0	0	0	1	0	0	0	0	29
11:45 PM	0	31	0	0	1	0	0	0	0	0	0	0	0	0	32
Day Total	14	11744	1097	61	242	34	8	336	12	98	52	24	17	1603	15342
Percent	0.1%	76.5%	7.2%	0.4%	1.6%	0.2%	0.1%	2.2%	0.1%	0.6%	0.3%	0.2%	0.1%	10.4%	
ADT 15342															
AM Peak	11:45 AM	8:15 AM	7:30 AM	7:15 AM	11:45 AM	8:45 AM	9:00 AM	9:45 AM	7:45 AM	9:15 AM	7:45 AM	9:45 AM	7:15 AM	8:45 AM	7:30 AM
Volume	2	225	32	4	9	2	1	10	2	4	4	2	1	40	309
PM Peak	5:30 PM	4:30 PM	12:00 PM	3:30 PM	12:30 PM	12:30 PM	5:45 PM	12:30 PM	2:45 PM	6:15 PM	1:00 PM	1:45 PM	3:30 PM	5:15 PM	3:30 PM
Volume	3	248	26	3	12	3	3	12	1	6	3	2	2	120	316
Comments:															

QC JOB #: 10941464
DIRECTION: NB
DATE: Apr 24 2013

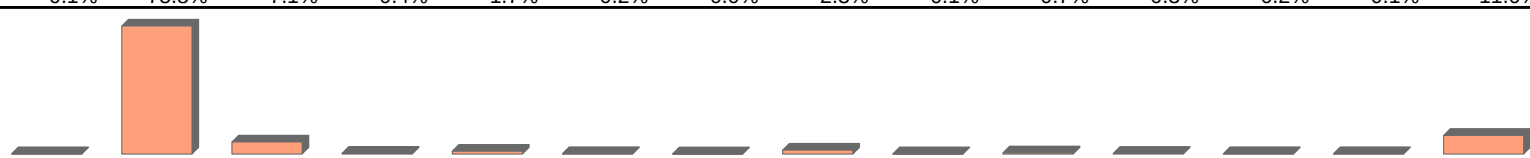
Report generated on 5/8/2013 7:45 AM

QC JOB #: 10941464
DIRECTION: NB
DATE: Apr 24 2013

Report generated on 5/8/2013 7:45 AM

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: NB DATE: Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 PM	0	200	18	1	2	0	0	5	0	4	0	0	0	21	251
12:15 PM	0	166	23	1	5	1	0	6	0	3	1	2	1	31	240
12:30 PM	0	201	25	3	5	0	0	5	0	0	2	1	1	20	263
12:45 PM	1	213	23	1	3	0	0	3	0	1	0	0	1	34	280
1:00 PM	0	207	21	1	7	0	0	5	0	1	0	1	1	29	273
1:15 PM	0	201	22	1	7	1	0	7	0	4	0	0	0	24	267
1:30 PM	0	225	29	3	6	2	0	7	0	2	0	2	0	27	303
1:45 PM	0	193	16	2	7	0	0	8	0	3	0	0	0	21	250
2:00 PM	1	199	21	1	4	1	0	8	0	2	1	1	0	30	269
2:15 PM	0	199	20	0	4	0	0	4	0	1	1	1	0	26	256
2:30 PM	0	198	22	3	11	1	0	5	1	1	4	2	0	40	288
2:45 PM	1	203	18	2	4	2	0	17	0	0	4	2	0	26	279
3:00 PM	0	180	15	2	7	1	0	6	2	4	0	3	0	34	254
3:15 PM	1	211	17	2	5	1	0	7	0	4	1	0	0	29	278
3:30 PM	0	224	17	1	3	1	0	7	0	1	0	0	0	36	290
3:45 PM	0	202	20	1	6	0	0	3	0	3	0	0	0	29	264
4:00 PM	0	222	14	2	4	0	0	7	0	4	0	0	1	26	280
4:15 PM	1	212	13	2	1	0	0	10	0	3	2	1	0	37	282
4:30 PM	1	182	20	1	2	2	0	4	0	0	0	0	0	43	255
4:45 PM	4	189	10	0	7	0	0	2	0	3	0	0	0	35	250
5:00 PM	3	80	4	0	0	0	0	2	0	5	0	1	0	41	136
5:15 PM	1	48	4	0	0	0	0	5	1	1	0	0	0	60	120
5:30 PM	0	34	6	0	0	0	0	1	0	1	0	0	0	81	123
5:45 PM	0	64	6	0	1	0	0	3	0	2	0	0	0	79	155
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: NB DATE: Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 PM	0	50	4	0	1	1	2	3	0	2	0	0	1	75	139
6:15 PM	2	109	6	0	1	0	0	1	1	2	1	1	0	44	168
6:30 PM	0	185	9	0	2	0	0	6	1	1	1	0	0	32	237
6:45 PM	0	183	11	0	1	0	0	7	0	2	1	0	0	20	225
7:00 PM	0	178	11	0	2	0	0	4	0	0	2	0	1	17	215
7:15 PM	1	175	14	0	3	0	0	2	0	6	2	0	0	19	222
7:30 PM	0	166	7	1	1	0	0	2	0	5	2	0	1	22	207
7:45 PM	0	189	13	0	3	0	0	2	0	1	1	0	0	25	234
8:00 PM	0	154	10	0	0	0	0	6	1	1	0	0	0	13	185
8:15 PM	0	170	14	0	1	0	0	3	0	0	0	0	1	19	208
8:30 PM	0	148	11	1	1	0	0	5	1	4	0	1	0	16	188
8:45 PM	0	125	8	0	1	0	0	4	0	0	0	0	0	10	148
9:00 PM	0	150	6	0	2	1	1	5	0	2	0	0	0	15	182
9:15 PM	0	138	1	1	2	0	0	4	0	0	0	0	0	16	162
9:30 PM	1	112	4	0	2	0	0	1	0	0	0	1	0	5	126
9:45 PM	0	82	5	0	1	0	0	0	0	1	0	0	0	9	98
10:00 PM	0	80	2	0	2	0	0	2	0	0	0	0	1	4	91
10:15 PM	0	74	2	0	2	0	0	2	0	0	0	0	0	5	85
10:30 PM	0	81	12	0	1	0	0	0	0	0	0	0	0	2	96
10:45 PM	0	79	3	0	0	0	0	1	0	0	0	0	0	2	85
11:00 PM	0	48	3	1	0	0	0	0	0	0	0	0	0	2	54
11:15 PM	0	34	2	0	1	0	0	1	0	0	0	0	0	3	41
11:30 PM	0	21	1	0	0	0	0	1	0	0	0	0	0	1	24
11:45 PM	0	22	0	0	1	0	0	1	0	0	0	0	0	0	24
Day Total	18	11348	1075	61	262	18	5	370	12	115	42	24	22	1754	15126
Percent	0.1%	75.0%	7.1%	0.4%	1.7%	0.1%	0.0%	2.4%	0.1%	0.8%	0.3%	0.2%	0.1%	11.6%	
ADT 15126															
AM Peak Volume	7:30 AM 246	9:00 AM 33	7:00 AM 3	8:00 AM 10	7:30 AM 1	8:15 AM 1	11:45 AM 14	8:45 AM 1	8:45 AM 4	10:45 AM 3	7:00 AM 1	7:15 AM 2	7:30 AM 43	7:30 AM 322	
PM Peak Volume	4:45 PM 4	1:30 PM 225	1:30 PM 29	12:30 PM 3	2:30 PM 11	1:30 PM 2	6:00 PM 2	2:45 PM 17	3:00 PM 2	7:15 PM 6	2:30 PM 4	3:00 PM 3	12:15 PM 1	5:30 PM 81	1:30 PM 303
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: NB DATE: Apr 23 2013 - Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	32	23092	2172	122	504	52	13	706	24	213	94	48	39	3357	30468
Percent	0.1%	75.8%	7.1%	0.4%	1.7%	0.2%	0.0%	2.3%	0.1%	0.7%	0.3%	0.2%	0.1%	11.0%	
ADT 15234															
Comments:															

Report generated on 5/8/2013 7:45 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: US 15-501 Between NC 54 & Brandon R						QC JOB #: 10941464				
SPECIFIC LOCATION: 0 ft from						DIRECTION: NB				
CITY/STATE: Chapel Hill, NC						DATE: Apr 23 2013 - Apr 25 2013				
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 24-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		22	34	0		19			19	
12:15 AM		19	24			22			22	
12:30 AM		16	28			22			22	
12:45 AM		7	14			11			11	
1:00 AM		9	7			8			8	
1:15 AM		10	12			11			11	
1:30 AM		12	17			15			15	
1:45 AM		3	6			5			5	
2:00 AM		10	6			8			8	
2:15 AM		3	7			5			5	
2:30 AM		9	14			12			12	
2:45 AM		6	10			8			8	
3:00 AM		3	6			5			5	
3:15 AM		5	4			5			5	
3:30 AM		4	6			5			5	
3:45 AM		6	3			5			5	
4:00 AM		4	5			5			5	
4:15 AM		4	7			6			6	
4:30 AM		11	10			11			11	
4:45 AM		15	19			17			17	
5:00 AM		16	20			18			18	
5:15 AM		39	30			35			35	
5:30 AM		45	29			37			37	
5:45 AM		63	60			62			62	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										
Comments:										

LOCATION: US 15-501 Between NC 54 & Brandon R						QC JOB #: 10941464				
SPECIFIC LOCATION: 0 ft from						DIRECTION: NB				
CITY/STATE: Chapel Hill, NC						DATE: Apr 23 2013 - Apr 25 2013				
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 24-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		85	66			76			76	
6:15 AM		90	115			103			103	
6:30 AM		148	140			144			144	
6:45 AM		182	181			182			182	
7:00 AM		178	173			176			176	
7:15 AM		238	227			233			233	
7:30 AM		309	322			316			316	
7:45 AM		283	286			285			285	
8:00 AM		242	265			254			254	
8:15 AM		282	288			285			285	
8:30 AM		289	272			281			281	
8:45 AM		258	301			280			280	
9:00 AM		238	232			235			235	
9:15 AM		217	236			227			227	
9:30 AM		213	251			232			232	
9:45 AM		231	222			227			227	
10:00 AM		221	203			212			212	
10:15 AM		197	214			206			206	
10:30 AM		220	213			217			217	
10:45 AM		215	239			227			227	
11:00 AM		232	236			234			234	
11:15 AM		230	239			235			235	
11:30 AM		215	234			225			225	
11:45 AM		265	243			254			254	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										
Comments:										

LOCATION: US 15-501 Between NC 54 & Brandon R						QC JOB #: 10941464				
SPECIFIC LOCATION: 0 ft from						DIRECTION: NB				
CITY/STATE: Chapel Hill, NC						DATE: Apr 23 2013 - Apr 25 2013				
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 24-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		264	251			258			258	
12:15 PM		230	240			235			235	
12:30 PM		265	263			264			264	
12:45 PM		242	280			261			261	
1:00 PM		258	273			266			266	
1:15 PM		256	267			262			262	
1:30 PM		263	303			283			283	
1:45 PM		269	250			260			260	
2:00 PM		263	269			266			266	
2:15 PM		257	256			257			257	
2:30 PM		264	288			276			276	
2:45 PM		278	279			279			279	
3:00 PM		261	254			258			258	
3:15 PM		277	278			278			278	
3:30 PM		316	290			303			303	
3:45 PM		299	264			282			282	
4:00 PM		288	280			284			284	
4:15 PM		296	282			289			289	
4:30 PM		305	255			280			280	
4:45 PM		246	250			248			248	
5:00 PM		287	136			212			212	
5:15 PM		198	120			159			159	
5:30 PM		126	123			125			125	
5:45 PM		170	155			163			163	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										
Comments:										

LOCATION: US 15-501 Between NC 54 & Brandon R							QC JOB #: 10941464			
SPECIFIC LOCATION: 0 ft from							DIRECTION: NB			
CITY/STATE: Chapel Hill, NC							DATE: Apr 23 2013 - Apr 25 2013			
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 24-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		199	139			169			169	
6:15 PM		249	168			209			209	
6:30 PM		282	237			260			260	
6:45 PM		230	225			228			228	
7:00 PM		218	215			217			217	
7:15 PM		249	222			236			236	
7:30 PM		210	207			209			209	
7:45 PM		220	234			227			227	
8:00 PM		214	185			200			200	
8:15 PM		183	208			196			196	
8:30 PM		175	188			182			182	
8:45 PM		136	148			142			142	
9:00 PM		140	182			161			161	
9:15 PM		120	162			141			141	
9:30 PM		126	126			126			126	
9:45 PM		119	98			109			109	
10:00 PM		98	91			95			95	
10:15 PM		82	85			84			84	
10:30 PM		75	96			86			86	
10:45 PM		70	85			78			78	
11:00 PM		49	54			52			52	
11:15 PM		40	41			41			41	
11:30 PM		29	24			27			27	
11:45 PM		32	24			28			28	
Day Total		15342	15126	0		15254			15254	
% Weekday Average		100.6%	99.2%	0.0%						
% Week Average		100.6%	99.2%	0.0%		100.0%				
AM Peak Volume		7:30 AM 309	7:30 AM 322	12:00 AM 0		7:30 AM 316			7:30 AM 316	
PM Peak Volume		3:30 PM 316	1:30 PM 303			3:30 PM 303			3:30 PM 303	
Comments:										

QC JOB #: 10941464
DIRECTION: NB/SB
DATE: Apr 23 2013

Report generated on 5/8/2013 7:45 AM

LOCATION: US 15-501 Between NC 54 & Brandon R														QC JOB #: 10941464	
SPECIFIC LOCATION: 0 ft from														DIRECTION: NB/SB	
CITY/STATE: Chapel Hill, NC														DATE: Apr 23 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 AM	0	116	22	1	3	0	0	4	0	0	0	0	0	7	153
6:15 AM	0	134	28	0	13	0	0	5	0	1	0	0	0	10	191
6:30 AM	0	215	32	1	12	0	0	9	0	2	1	0	0	21	293
6:45 AM	0	239	42	1	12	1	0	6	0	0	3	1	0	33	338
7:00 AM	0	277	42	1	7	0	0	3	0	0	1	1	0	36	368
7:15 AM	0	381	49	5	9	0	0	8	0	1	2	0	1	53	509
7:30 AM	1	478	74	6	12	1	0	14	1	2	3	1	1	56	650
7:45 AM	0	458	57	3	9	1	0	9	3	2	6	0	0	56	604
8:00 AM	0	477	65	1	14	1	0	7	2	2	2	0	0	43	614
8:15 AM	0	503	64	2	16	0	0	12	0	4	1	1	1	39	643
8:30 AM	0	457	63	4	17	1	0	15	1	3	1	0	0	47	609
8:45 AM	0	435	64	4	13	2	0	9	0	2	0	0	0	61	590
9:00 AM	0	382	64	3	17	1	1	7	0	2	3	0	0	37	517
9:15 AM	0	363	60	1	14	1	0	12	1	4	4	1	0	34	495
9:30 AM	0	384	65	2	13	1	0	20	1	1	1	0	0	32	520
9:45 AM	0	402	74	2	6	2	0	14	1	2	2	2	0	24	531
10:00 AM	0	363	58	7	17	0	0	8	0	0	2	0	0	13	468
10:15 AM	0	343	64	4	10	2	1	10	0	0	2	0	0	24	460
10:30 AM	0	363	71	2	24	1	0	10	0	2	0	0	1	30	504
10:45 AM	1	386	59	2	11	2	0	7	0	0	1	1	1	23	494
11:00 AM	0	397	71	5	17	0	0	12	0	1	2	1	0	27	533
11:15 AM	0	387	53	6	22	2	0	13	0	3	2	1	0	30	519
11:30 AM	0	398	75	1	16	1	0	15	0	1	2	0	0	32	541
11:45 AM	2	478	70	5	20	0	0	10	1	1	5	0	0	27	619
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R														QC JOB #: 10941464	
SPECIFIC LOCATION: 0 ft from														DIRECTION: NB/SB	
CITY/STATE: Chapel Hill, NC														DATE: Apr 23 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 PM	0	449	59	2	10	1	0	12	0	0	3	2	0	29	567
12:15 PM	0	402	62	5	12	1	0	13	0	3	0	1	1	41	541
12:30 PM	0	420	54	4	20	3	0	18	0	0	2	1	0	36	558
12:45 PM	0	402	65	2	12	0	1	10	0	0	0	0	1	33	526
1:00 PM	0	445	68	0	15	0	0	12	1	3	4	0	1	30	579
1:15 PM	0	425	66	3	6	0	0	12	0	3	0	0	1	46	562
1:30 PM	0	435	75	3	11	0	0	12	0	0	2	0	0	28	566
1:45 PM	0	459	56	0	19	1	0	16	0	2	0	2	0	32	587
2:00 PM	0	426	55	3	14	1	0	10	0	1	0	0	0	41	551
2:15 PM	0	418	63	7	15	1	0	19	0	1	1	2	0	39	566
2:30 PM	0	433	57	6	14	0	0	13	1	4	3	0	1	41	573
2:45 PM	0	480	64	2	18	0	1	10	1	1	0	2	0	31	610
3:00 PM	1	432	84	5	18	1	0	9	0	4	2	0	0	54	610
3:15 PM	1	500	70	1	13	1	0	9	0	4	1	0	1	40	641
3:30 PM	1	501	69	5	20	2	0	5	1	3	0	0	3	56	666
3:45 PM	0	514	73	3	17	0	0	16	0	2	2	1	1	57	686
4:00 PM	0	486	73	4	16	2	0	8	1	3	1	0	0	45	639
4:15 PM	0	570	78	3	12	1	0	16	0	1	1	3	1	52	738
4:30 PM	0	543	71	4	10	2	0	10	2	3	0	0	0	44	689
4:45 PM	0	526	67	1	10	1	0	10	0	1	1	0	1	48	666
5:00 PM	0	505	64	4	18	2	0	15	0	3	1	1	0	63	676
5:15 PM	2	408	66	2	8	0	0	3	0	1	2	1	1	144	638
5:30 PM	3	376	52	1	9	3	0	8	0	1	2	0	0	89	544
5:45 PM	1	407	51	2	8	0	3	10	0	1	1	0	1	98	583
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: NB/SB DATE: Apr 23 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 PM	1	450	60	1	9	2	1	6	0	1	1	0	0	60	592
6:15 PM	0	455	51	0	12	2	0	13	1	6	1	0	0	55	596
6:30 PM	0	448	68	1	14	1	1	8	0	2	3	1	1	46	594
6:45 PM	0	407	47	1	12	1	0	9	0	2	1	0	0	40	520
7:00 PM	0	355	41	1	9	0	0	7	0	2	1	0	0	34	450
7:15 PM	0	377	33	0	7	0	0	6	0	1	0	0	0	47	471
7:30 PM	0	325	44	0	8	0	0	4	0	0	2	1	0	30	414
7:45 PM	0	336	42	0	6	1	0	7	0	0	1	0	0	23	416
8:00 PM	0	297	37	2	5	1	0	5	0	0	2	0	0	21	370
8:15 PM	0	296	38	1	7	1	0	4	1	3	0	1	0	22	374
8:30 PM	0	262	35	0	1	0	0	1	0	0	0	0	0	13	312
8:45 PM	0	210	22	0	3	0	0	2	0	3	2	0	0	16	258
9:00 PM	0	211	18	0	6	0	1	2	0	0	0	0	0	13	251
9:15 PM	0	208	29	0	2	1	0	3	0	1	0	0	0	10	254
9:30 PM	0	210	13	0	1	1	0	2	0	0	0	0	0	8	235
9:45 PM	0	179	19	0	4	1	0	1	0	1	1	0	0	10	216
10:00 PM	0	141	17	1	3	0	0	2	0	0	0	0	0	9	173
10:15 PM	0	128	18	0	2	0	0	1	0	0	0	0	0	7	156
10:30 PM	0	107	15	0	3	0	0	1	0	0	0	0	0	5	131
10:45 PM	0	97	13	1	0	0	0	0	0	0	0	0	0	5	116
11:00 PM	0	84	11	0	2	0	0	1	0	0	0	0	0	5	103
11:15 PM	0	70	8	0	1	0	0	1	0	0	0	0	0	4	84
11:30 PM	0	63	11	0	4	0	0	0	0	1	0	0	0	1	80
11:45 PM	0	52	3	0	1	0	0	0	0	0	0	0	0	1	57
Day Total	14	26103	3745	159	803	55	10	630	20	104	90	29	20	2530	34312
Percent	0.0%	76.1%	10.9%	0.5%	2.3%	0.2%	0.0%	1.8%	0.1%	0.3%	0.3%	0.1%	0.1%	7.4%	
ADT 34312															
AM Peak Volume	11:45 AM	8:15 AM	11:30 AM	10:00 AM	10:30 AM	8:45 AM	9:00 AM	9:30 AM	7:45 AM	8:15 AM	7:45 AM	9:45 AM	7:15 AM	8:45 AM	7:30 AM
	2	503	75	7	24	2	1	20	3	4	6	2	1	61	650
PM Peak Volume	5:30 PM	4:15 PM	3:00 PM	2:15 PM	12:30 PM	12:30 PM	5:45 PM	2:15 PM	4:30 PM	6:15 PM	1:00 PM	4:15 PM	3:30 PM	5:15 PM	4:15 PM
	3	570	84	7	20	3	3	19	2	6	4	3	3	144	738
Comments:															

QC JOB #: 10941464
DIRECTION: NB/SB
DATE: Apr 24 2013

Report generated on 5/8/2013 7:45 AM

LOCATION: US 15-501 Between NC 54 & Brandon R														QC JOB #: 10941464	
SPECIFIC LOCATION: 0 ft from														DIRECTION: NB/SB	
CITY/STATE: Chapel Hill, NC														DATE: Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 AM	0	94	20	0	9	0	0	2	0	0	0	0	0	11	136
6:15 AM	0	143	25	1	12	0	0	3	0	1	0	0	0	20	205
6:30 AM	0	180	39	3	12	0	0	7	0	1	0	0	1	33	276
6:45 AM	0	227	44	1	12	0	0	6	0	0	1	0	1	47	339
7:00 AM	0	259	54	4	12	0	0	8	0	2	1	1	0	39	380
7:15 AM	0	339	64	6	7	0	0	14	0	0	1	1	3	56	491
7:30 AM	0	479	75	3	9	1	0	8	0	1	1	0	0	72	649
7:45 AM	0	483	65	4	12	1	0	14	0	0	2	0	1	53	635
8:00 AM	0	416	67	2	19	0	0	16	0	2	1	0	0	48	571
8:15 AM	0	510	70	4	17	0	1	17	0	3	0	2	0	54	678
8:30 AM	0	446	85	4	18	2	0	8	0	2	3	1	0	47	616
8:45 AM	0	481	69	1	21	0	0	23	1	4	1	0	0	70	671
9:00 AM	0	364	76	5	14	0	0	11	0	4	2	1	2	42	521
9:15 AM	0	413	74	4	23	0	1	16	0	2	1	0	1	37	572
9:30 AM	0	382	63	0	13	0	0	16	0	0	0	0	1	33	508
9:45 AM	0	383	74	0	21	0	0	13	0	1	0	0	0	33	525
10:00 AM	0	328	77	3	19	1	0	12	1	2	1	0	2	28	474
10:15 AM	0	348	72	1	19	0	0	15	0	3	1	0	0	22	481
10:30 AM	0	354	73	2	18	0	0	12	0	1	1	0	0	27	488
10:45 AM	0	408	83	2	28	0	0	11	1	2	4	0	1	31	571
11:00 AM	0	351	79	5	26	0	0	18	0	4	1	0	0	33	517
11:15 AM	0	359	68	3	22	0	0	10	1	2	1	0	2	41	509
11:30 AM	0	424	64	1	14	1	0	15	0	1	2	0	1	33	556
11:45 AM	0	421	79	3	24	1	0	22	0	3	1	0	0	33	587
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R														QC JOB #: 10941464	
SPECIFIC LOCATION: 0 ft from														DIRECTION: NB/SB	
CITY/STATE: Chapel Hill, NC														DATE: Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 PM	0	459	74	1	14	0	0	10	0	4	2	1	0	27	592
12:15 PM	0	433	71	4	25	1	0	15	0	3	1	2	1	43	599
12:30 PM	0	414	78	4	15	1	0	10	0	0	2	2	2	35	563
12:45 PM	1	454	78	1	15	0	0	5	0	1	0	0	1	48	604
1:00 PM	0	419	65	2	22	0	0	16	0	1	0	1	1	41	568
1:15 PM	0	460	76	2	17	1	0	12	0	5	0	0	0	38	611
1:30 PM	0	450	72	3	19	2	0	10	0	2	2	2	1	46	609
1:45 PM	0	402	69	6	17	2	0	14	0	3	2	1	0	34	550
2:00 PM	1	443	67	3	15	2	0	14	0	2	2	1	0	44	594
2:15 PM	0	432	67	0	18	0	0	11	0	2	1	1	0	43	575
2:30 PM	0	460	87	4	22	1	0	11	1	2	5	2	0	57	652
2:45 PM	1	425	69	4	15	3	0	26	0	1	5	2	0	40	591
3:00 PM	0	428	74	7	17	1	0	10	2	4	1	3	0	47	594
3:15 PM	1	435	71	3	16	3	0	11	0	4	2	0	0	54	600
3:30 PM	0	485	73	4	12	1	0	15	0	1	0	0	0	55	646
3:45 PM	0	478	75	4	14	0	0	9	0	3	0	0	0	49	632
4:00 PM	0	458	64	4	19	1	0	14	1	4	0	0	2	55	622
4:15 PM	1	492	76	4	13	1	0	24	0	3	2	1	0	56	673
4:30 PM	1	490	67	1	14	2	0	10	0	1	1	0	0	69	656
4:45 PM	4	531	69	0	13	0	0	10	1	3	2	0	1	61	695
5:00 PM	3	399	71	1	9	1	0	8	0	5	0	1	1	62	561
5:15 PM	2	386	49	0	7	0	0	18	1	2	1	0	0	88	554
5:30 PM	0	350	48	1	9	0	0	7	0	1	1	0	1	106	524
5:45 PM	0	372	64	3	13	2	0	10	0	2	1	0	0	102	569
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R														QC JOB #: 10941464	
SPECIFIC LOCATION: 0 ft from														DIRECTION: NB/SB	
CITY/STATE: Chapel Hill, NC														DATE: Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 PM	0	298	58	1	11	1	2	9	0	2	2	0	1	92	477
6:15 PM	2	394	55	0	11	0	0	4	1	2	3	1	0	60	533
6:30 PM	0	423	52	0	14	0	0	8	1	1	4	0	1	47	551
6:45 PM	0	419	48	0	5	0	0	11	0	2	1	0	0	42	528
7:00 PM	0	372	40	0	3	1	0	8	0	0	2	0	1	28	455
7:15 PM	1	340	47	0	9	0	0	5	0	6	3	0	1	25	437
7:30 PM	0	340	52	2	10	0	0	4	0	5	3	0	1	37	454
7:45 PM	0	355	58	0	10	0	0	4	0	1	1	0	0	36	465
8:00 PM	0	294	32	1	4	0	0	7	1	1	0	0	0	19	359
8:15 PM	0	312	40	2	2	0	0	6	0	0	0	0	1	22	385
8:30 PM	0	267	35	1	6	0	0	5	1	4	0	1	0	21	341
8:45 PM	0	248	42	3	4	0	0	6	0	0	0	0	0	13	316
9:00 PM	0	237	30	1	5	1	1	6	0	2	0	0	0	22	305
9:15 PM	0	223	29	1	6	0	0	7	0	0	0	0	0	21	287
9:30 PM	1	189	18	0	3	0	0	1	0	0	0	1	0	6	219
9:45 PM	0	151	15	0	1	0	0	2	0	1	0	0	0	15	185
10:00 PM	0	144	16	0	3	0	0	2	0	0	0	0	1	6	172
10:15 PM	0	126	19	0	7	0	0	3	0	0	0	0	0	7	162
10:30 PM	0	131	16	0	1	0	0	1	0	0	0	0	0	2	151
10:45 PM	0	120	11	0	1	0	0	1	0	0	0	0	0	3	136
11:00 PM	0	81	11	3	2	0	0	1	0	0	0	0	0	5	103
11:15 PM	0	67	7	0	3	0	0	2	0	0	0	0	0	8	87
11:30 PM	0	54	9	0	0	0	0	2	0	0	0	0	0	1	66
11:45 PM	0	55	9	0	2	0	0	1	0	0	0	0	0	2	69
Day Total	19	25363	4064	150	917	35	5	744	14	128	78	29	34	2821	34401
Percent	0.1%	73.7%	11.8%	0.4%	2.7%	0.1%	0.0%	2.2%	0.0%	0.4%	0.2%	0.1%	0.1%	8.2%	
ADT 34401															
AM Peak Volume	8:15 AM	8:30 AM	7:15 AM	10:45 AM	8:30 AM	8:15 AM	8:45 AM	8:45 AM	8:45 AM	10:45 AM	8:15 AM	7:15 AM	7:30 AM	8:15 AM	
	510	85	6	28	2	1	23	1	4	4	2	3	72	678	
PM Peak Volume	4:45 PM	4:45 PM	2:30 PM	3:00 PM	12:15 PM	2:45 PM	6:00 PM	2:45 PM	3:00 PM	7:15 PM	2:30 PM	3:00 PM	12:30 PM	5:30 PM	4:45 PM
	4	531	87	7	25	3	2	26	2	6	5	3	2	106	695
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: NB/SB DATE: Apr 23 2013 - Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	33	51466	7809	309	1720	90	15	1374	34	232	168	58	54	5351	68713
Percent	0.0%	74.9%	11.4%	0.4%	2.5%	0.1%	0.0%	2.0%	0.0%	0.3%	0.2%	0.1%	0.1%	7.8%	
ADT 34356															
Comments:															



LOCATION: US 15-501 Between NC 54 & Brandon R						QC JOB #: 10941464				
SPECIFIC LOCATION: 0 ft from						DIRECTION: NB/SB				
CITY/STATE: Chapel Hill, NC						DATE: Apr 23 2013 - Apr 25 2013				
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 24-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		45	64	0		36			36	
12:15 AM		40	42			41			41	
12:30 AM		50	54			52			52	
12:45 AM		30	31			31			31	
1:00 AM		26	18			22			22	
1:15 AM		22	23			23			23	
1:30 AM		18	32			25			25	
1:45 AM		19	14			17			17	
2:00 AM		20	12			16			16	
2:15 AM		7	17			12			12	
2:30 AM		16	19			18			18	
2:45 AM		12	20			16			16	
3:00 AM		7	16			12			12	
3:15 AM		12	11			12			12	
3:30 AM		9	13			11			11	
3:45 AM		12	14			13			13	
4:00 AM		9	13			11			11	
4:15 AM		15	19			17			17	
4:30 AM		24	31			28			28	
4:45 AM		31	29			30			30	
5:00 AM		42	41			42			42	
5:15 AM		79	57			68			68	
5:30 AM		87	68			78			78	
5:45 AM		135	116			126			126	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										
Comments:										

LOCATION: US 15-501 Between NC 54 & Brandon R						QC JOB #: 10941464				
SPECIFIC LOCATION: 0 ft from						DIRECTION: NB/SB				
CITY/STATE: Chapel Hill, NC						DATE: Apr 23 2013 - Apr 25 2013				
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 24-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		153	136			145			145	
6:15 AM		192	204			198			198	
6:30 AM		292	275			284			284	
6:45 AM		334	334			334			334	
7:00 AM		361	366			364			364	
7:15 AM		494	480			487			487	
7:30 AM		633	605			619			619	
7:45 AM		539	607			573			573	
8:00 AM		584	556			570			570	
8:15 AM		614	656			635			635	
8:30 AM		587	608			598			598	
8:45 AM		540	621			581			581	
9:00 AM		490	507			499			499	
9:15 AM		461	547			504			504	
9:30 AM		508	476			492			492	
9:45 AM		517	486			502			502	
10:00 AM		452	460			456			456	
10:15 AM		446	466			456			456	
10:30 AM		486	476			481			481	
10:45 AM		482	552			517			517	
11:00 AM		517	487			502			502	
11:15 AM		494	496			495			495	
11:30 AM		521	548			535			535	
11:45 AM		582	555			569			569	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										
Comments:										

LOCATION: US 15-501 Between NC 54 & Brandon R						QC JOB #: 10941464				
SPECIFIC LOCATION: 0 ft from						DIRECTION: NB/SB				
CITY/STATE: Chapel Hill, NC						DATE: Apr 23 2013 - Apr 25 2013				
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 25-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		546	565			556			556	
12:15 PM		525	567			546			546	
12:30 PM		555	545			550			550	
12:45 PM		488	545			517			517	
1:00 PM		566	545			556			556	
1:15 PM		515	594			555			555	
1:30 PM		535	584			560			560	
1:45 PM		573	540			557			557	
2:00 PM		526	531			529			529	
2:15 PM		540	562			551			551	
2:30 PM		519	619			569			569	
2:45 PM		589	541			565			565	
3:00 PM		585	571			578			578	
3:15 PM		602	580			591			591	
3:30 PM		623	612			618			618	
3:45 PM		655	587			621			621	
4:00 PM		613	605			609			609	
4:15 PM		703	637			670			670	
4:30 PM		664	535			600			600	
4:45 PM		564	582			573			573	
5:00 PM		619	228			424			424	
5:15 PM		395	247			321			321	
5:30 PM		259	293			276			276	
5:45 PM		317	342			330			330	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										
Comments:										

LOCATION: US 15-501 Between NC 54 & Brandon R										QC JOB #: 10941464
SPECIFIC LOCATION: 0 ft from										DIRECTION: NB/SB
CITY/STATE: Chapel Hill, NC										DATE: Apr 23 2013 - Apr 25 2013
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 25-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		430	279			355			355	
6:15 PM		560	333			447			447	
6:30 PM		579	461			520			520	
6:45 PM		505	512			509			509	
7:00 PM		443	444			444			444	
7:15 PM		458	426			442			442	
7:30 PM		397	448			423			423	
7:45 PM		409	453			431			431	
8:00 PM		363	352			358			358	
8:15 PM		371	383			377			377	
8:30 PM		310	336			323			323	
8:45 PM		260	311			286			286	
9:00 PM		249	300			275			275	
9:15 PM		253	286			270			270	
9:30 PM		234	219			227			227	
9:45 PM		216	184			200			200	
10:00 PM		173	170			172			172	
10:15 PM		156	162			159			159	
10:30 PM		131	150			141			141	
10:45 PM		116	136			126			126	
11:00 PM		103	104			104			104	
11:15 PM		83	88			86			86	
11:30 PM		80	67			74			74	
11:45 PM		57	67			62			62	
Day Total		32058	31506	0		31786			31786	
% Weekday Average		100.9%	99.1%	0.0%						
% Week Average		100.9%	99.1%	0.0%		100.0%				
AM Peak		7:30 AM	8:15 AM	12:00 AM		8:15 AM			8:15 AM	
Volume		633	656	0		635			635	
PM Peak		4:15 PM	4:15 PM			4:15 PM			4:15 PM	
Volume		703	637			670			670	
Comments:										

QC JOB #: 10941464
DIRECTION: SB
DATE: Apr 23 2013

Report generated on 5/8/2013 7:45 AM

LOCATION: US 15-501 Between NC 54 & Brandon R														QC JOB #: 10941464	
SPECIFIC LOCATION: 0 ft from														DIRECTION: SB	
CITY/STATE: Chapel Hill, NC														DATE: Apr 23 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 AM	0	51	12	0	1	0	0	0	0	0	0	0	0	4	68
6:15 AM	0	62	20	0	10	0	0	3	0	0	0	0	0	6	101
6:30 AM	0	101	19	1	6	0	0	5	0	0	1	0	0	12	145
6:45 AM	0	99	23	1	11	0	0	3	0	0	0	0	0	19	156
7:00 AM	0	142	26	0	1	0	0	0	0	0	0	0	0	21	190
7:15 AM	0	200	33	1	5	0	0	5	0	0	0	0	0	27	271
7:30 AM	0	254	42	4	7	0	0	8	0	1	2	0	1	22	341
7:45 AM	0	245	39	2	6	1	0	5	1	0	2	0	0	20	321
8:00 AM	0	287	48	1	11	0	0	6	1	0	1	0	0	17	372
8:15 AM	0	278	46	1	12	0	0	3	0	1	0	0	0	20	361
8:30 AM	0	233	43	2	12	1	0	6	1	1	1	0	0	20	320
8:45 AM	0	249	45	2	9	0	0	5	0	1	0	0	0	21	332
9:00 AM	0	213	37	3	12	0	0	4	0	0	1	0	0	9	279
9:15 AM	0	208	43	0	8	0	0	8	0	0	1	0	0	10	278
9:30 AM	0	219	50	2	10	0	0	14	0	0	0	0	0	12	307
9:45 AM	0	219	56	1	5	0	0	4	1	0	2	0	0	12	300
10:00 AM	0	183	39	4	12	0	0	4	0	0	1	0	0	4	247
10:15 AM	0	194	46	2	6	0	0	3	0	0	0	0	0	12	263
10:30 AM	0	203	49	0	17	1	0	4	0	0	0	0	0	10	284
10:45 AM	0	220	39	1	7	0	0	4	0	0	0	0	0	8	279
11:00 AM	0	224	40	2	13	0	0	7	0	0	1	0	0	14	301
11:15 AM	0	219	31	4	14	2	0	7	0	0	1	0	0	11	289
11:30 AM	0	239	53	0	13	1	0	7	0	0	2	0	0	11	326
11:45 AM	0	276	48	4	11	0	0	5	0	0	1	0	0	9	354
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R														QC JOB #: 10941464	
SPECIFIC LOCATION: 0 ft from														DIRECTION: SB	
CITY/STATE: Chapel Hill, NC														DATE: Apr 23 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 PM	0	236	33	2	7	1	0	9	0	0	2	1	0	12	303
12:15 PM	0	232	48	4	8	0	0	8	0	1	0	0	0	10	311
12:30 PM	0	227	35	3	8	0	0	6	0	0	1	1	0	12	293
12:45 PM	0	220	40	1	10	0	0	4	0	0	0	0	0	9	284
1:00 PM	0	245	45	0	10	0	0	4	1	0	1	0	0	15	321
1:15 PM	0	234	45	2	4	0	0	6	0	0	0	0	0	15	306
1:30 PM	0	221	51	3	9	0	0	6	0	0	1	0	0	12	303
1:45 PM	0	235	44	0	17	0	0	8	0	0	0	0	0	14	318
2:00 PM	0	224	31	2	8	1	0	7	0	0	0	0	0	15	288
2:15 PM	0	224	46	6	11	0	0	12	0	0	0	0	0	10	309
2:30 PM	0	237	35	4	9	0	0	7	1	0	2	0	1	13	309
2:45 PM	0	255	44	2	12	0	0	5	0	0	0	1	0	13	332
3:00 PM	0	245	63	3	13	0	0	3	0	0	1	0	0	21	349
3:15 PM	0	295	44	0	9	0	0	3	0	0	1	0	0	12	364
3:30 PM	0	268	45	2	11	1	0	0	0	0	0	0	1	22	350
3:45 PM	0	286	53	2	12	0	0	11	0	0	2	0	0	21	387
4:00 PM	0	265	48	1	14	1	0	5	0	0	1	0	0	16	351
4:15 PM	0	348	57	1	10	1	0	5	0	0	0	1	0	19	442
4:30 PM	0	295	51	2	9	1	0	6	2	0	0	0	0	18	384
4:45 PM	0	327	54	1	7	0	0	6	0	0	1	0	0	24	420
5:00 PM	0	295	44	3	10	1	0	7	0	0	0	0	0	29	389
5:15 PM	0	343	60	1	6	0	0	3	0	0	2	1	0	24	440
5:30 PM	0	335	49	1	9	1	0	6	0	0	1	0	0	16	418
5:45 PM	0	333	47	2	8	0	0	4	0	0	0	0	0	19	413
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: SB DATE: Apr 23 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 PM	0	305	48	0	9	0	1	4	0	0	1	0	0	25	393
6:15 PM	0	266	42	0	9	2	0	6	0	0	0	0	0	22	347
6:30 PM	0	225	51	1	8	1	1	0	0	0	1	0	0	24	312
6:45 PM	0	221	38	0	9	1	0	3	0	0	1	0	0	17	290
7:00 PM	0	171	37	1	6	0	0	4	0	0	0	0	0	13	232
7:15 PM	0	170	25	0	5	0	0	2	0	0	0	0	0	20	222
7:30 PM	0	161	30	0	5	0	0	0	0	0	0	0	0	8	204
7:45 PM	0	149	34	0	3	0	0	0	0	0	0	0	0	10	196
8:00 PM	0	112	28	2	4	1	0	2	0	0	1	0	0	6	156
8:15 PM	0	150	28	1	6	0	0	1	0	0	0	0	0	5	191
8:30 PM	0	113	22	0	1	0	0	0	0	0	0	0	0	1	137
8:45 PM	0	96	16	0	1	0	0	1	0	1	1	0	0	6	122
9:00 PM	0	86	14	0	6	0	0	0	0	0	0	0	0	5	111
9:15 PM	0	106	22	0	2	0	0	1	0	0	0	0	0	3	134
9:30 PM	0	94	11	0	1	1	0	0	0	0	0	0	0	2	109
9:45 PM	0	74	15	0	3	1	0	0	0	0	0	0	0	4	97
10:00 PM	0	56	14	1	3	0	0	0	0	0	0	0	0	1	75
10:15 PM	0	56	14	0	1	0	0	1	0	0	0	0	0	2	74
10:30 PM	0	41	14	0	1	0	0	0	0	0	0	0	0	0	56
10:45 PM	0	37	7	1	0	0	0	0	0	0	0	0	0	1	46
11:00 PM	0	40	7	0	2	0	0	1	0	0	0	0	0	4	54
11:15 PM	0	34	7	0	1	0	0	0	0	0	0	0	0	2	44
11:30 PM	0	37	9	0	4	0	0	0	0	0	0	0	0	1	51
11:45 PM	0	21	3	0	0	0	0	0	0	0	0	0	0	1	25
Day Total	0	14359	2648	98	561	21	2	294	8	6	38	5	3	927	18970
Percent	0.0%	75.7%	14.0%	0.5%	3.0%	0.1%	0.0%	1.5%	0.0%	0.0%	0.2%	0.0%	0.0%	4.9%	
ADT 18970															
AM Peak Volume	8:00 AM	9:45 AM	7:30 AM	10:30 AM	11:15 AM	9:30 AM	7:45 AM	7:30 AM	7:30 AM	7:30 AM	7:30 AM	7:30 AM	7:15 AM	8:00 AM	
	287	56	4	17	2	14	1	1	2	1	2	1	27	372	
PM Peak Volume	4:15 PM	3:00 PM	2:15 PM	1:45 PM	6:15 PM	6:00 PM	2:15 PM	4:30 PM	12:15 PM	12:00 PM	12:00 PM	2:30 PM	5:00 PM	4:15 PM	
	348	63	6	17	2	1	12	2	1	2	1	1	29	442	
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC													QC JOB #: 10941464 DIRECTION: SB DATE: Apr 24 2013		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	24	2	1	1	0	0	0	0	0	0	0	0	2	30
12:15 AM	0	15	3	0	0	0	0	0	0	0	0	0	0	0	18
12:30 AM	0	22	3	1	0	0	0	0	0	0	0	0	0	1	27
12:45 AM	0	11	3	0	0	0	0	2	0	0	0	0	0	0	16
1:00 AM	0	9	2	0	0	0	0	0	0	0	0	0	0	0	11
1:15 AM	0	10	0	0	1	0	0	0	0	0	0	0	0	0	11
1:30 AM	0	12	0	0	1	0	0	0	0	0	0	0	0	2	15
1:45 AM	0	7	0	0	0	0	0	0	0	0	0	0	0	1	8
2:00 AM	0	4	2	0	0	0	0	0	0	0	0	0	0	0	6
2:15 AM	0	5	3	0	2	0	0	0	0	0	0	0	0	0	10
2:30 AM	0	3	2	0	0	0	0	0	0	0	0	0	0	0	5
2:45 AM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
3:00 AM	0	4	0	0	1	0	0	2	0	0	0	0	0	1	8
3:15 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	2	7
3:30 AM	0	4	0	1	0	0	0	0	0	0	0	0	0	2	7
3:45 AM	0	8	2	0	0	0	0	1	0	0	0	0	0	0	11
4:00 AM	0	2	2	0	1	0	0	1	0	0	0	0	0	1	7
4:15 AM	0	3	2	0	1	0	0	2	0	0	0	0	0	2	10
4:30 AM	0	17	3	1	0	0	0	0	0	0	0	0	0	0	21
4:45 AM	0	7	2	0	1	0	0	0	0	0	0	0	0	0	10
5:00 AM	0	12	4	0	0	0	0	1	0	0	0	0	0	3	20
5:15 AM	0	18	4	0	1	0	0	1	0	0	0	0	0	4	28
5:30 AM	0	30	6	0	0	0	0	2	0	0	0	0	0	1	39
5:45 AM	0	36	9	1	5	0	0	2	0	0	0	0	0	2	55
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC													QC JOB #: 10941464 DIRECTION: SB DATE: Apr 24 2013		
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 AM	0	41	12	0	5	0	0	1	0	0	0	0	0	11	70
6:15 AM	0	60	14	1	7	0	0	2	0	1	0	0	0	5	90
6:30 AM	0	72	26	3	8	0	0	2	0	0	0	0	0	25	136
6:45 AM	0	95	26	1	8	0	0	3	0	0	1	0	0	24	158
7:00 AM	0	135	40	1	5	0	0	4	0	0	0	0	0	22	207
7:15 AM	0	165	48	4	7	0	0	9	0	0	1	0	1	29	264
7:30 AM	0	233	53	1	8	0	0	3	0	0	0	0	0	29	327
7:45 AM	0	261	44	3	7	1	0	6	0	0	2	0	0	25	349
8:00 AM	0	214	43	2	9	0	0	7	0	0	1	0	0	30	306
8:15 AM	0	289	49	2	15	0	0	10	0	1	0	1	0	23	390
8:30 AM	0	233	62	3	13	1	0	5	0	1	1	1	0	24	344
8:45 AM	0	264	45	1	15	0	0	14	0	0	1	0	0	30	370
9:00 AM	0	203	43	3	10	0	0	7	0	0	1	0	0	22	289
9:15 AM	0	231	60	2	14	0	0	10	0	1	0	0	1	17	336
9:30 AM	0	183	45	0	10	0	0	7	0	0	0	0	0	12	257
9:45 AM	0	221	49	0	12	0	0	9	0	0	0	0	0	12	303
10:00 AM	0	186	57	3	14	0	0	5	0	0	0	0	0	6	271
10:15 AM	0	185	51	0	13	0	0	7	0	1	0	0	0	10	267
10:30 AM	0	195	48	2	13	0	0	5	0	0	0	0	0	12	275
10:45 AM	0	230	59	1	21	0	0	5	0	0	1	0	0	15	332
11:00 AM	0	177	56	2	18	0	0	12	0	1	1	0	0	14	281
11:15 AM	0	189	43	1	18	0	0	5	0	0	0	0	1	13	270
11:30 AM	0	234	51	1	10	1	0	8	0	0	0	0	1	16	322
11:45 AM	0	253	50	0	19	1	0	8	0	1	0	0	0	12	344
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: SB DATE: Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 PM	0	259	56	0	12	0	0	5	0	0	2	1	0	6	341
12:15 PM	0	267	48	3	20	0	0	9	0	0	0	0	0	12	359
12:30 PM	0	213	53	1	10	1	0	5	0	0	0	1	1	15	300
12:45 PM	0	241	55	0	12	0	0	2	0	0	0	0	0	14	324
1:00 PM	0	212	44	1	15	0	0	11	0	0	0	0	0	12	295
1:15 PM	0	259	54	1	10	0	0	5	0	1	0	0	0	14	344
1:30 PM	0	225	43	0	13	0	0	3	0	0	2	0	1	19	306
1:45 PM	0	209	53	4	10	2	0	6	0	0	2	1	0	13	300
2:00 PM	0	244	46	2	11	1	0	6	0	0	1	0	0	14	325
2:15 PM	0	233	47	0	14	0	0	7	0	1	0	0	0	17	319
2:30 PM	0	262	65	1	11	0	0	6	0	1	1	0	0	17	364
2:45 PM	0	222	51	2	11	1	0	9	0	1	1	0	0	14	312
3:00 PM	0	248	59	5	10	0	0	4	0	0	1	0	0	13	340
3:15 PM	0	224	54	1	11	2	0	4	0	0	1	0	0	25	322
3:30 PM	0	261	56	3	9	0	0	8	0	0	0	0	0	19	356
3:45 PM	0	276	55	3	8	0	0	6	0	0	0	0	0	20	368
4:00 PM	0	236	50	2	15	1	0	7	1	0	0	0	1	29	342
4:15 PM	0	280	63	2	12	1	0	14	0	0	0	0	0	19	391
4:30 PM	0	308	47	0	12	0	0	6	0	1	1	0	0	26	401
4:45 PM	0	342	59	0	6	0	0	8	1	0	2	0	1	26	445
5:00 PM	0	319	67	1	9	1	0	6	0	0	0	0	1	21	425
5:15 PM	1	338	45	0	7	0	0	13	0	1	1	0	0	28	434
5:30 PM	0	316	42	1	9	0	0	6	0	0	1	0	1	25	401
5:45 PM	0	308	58	3	12	2	0	7	0	0	1	0	0	23	414
Day Total															
Percent															
AM Peak															
Volume															
PM Peak															
Volume															
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: SB DATE: Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
6:00 PM	0	248	54	1	10	0	0	6	0	0	2	0	0	17	338
6:15 PM	0	285	49	0	10	0	0	3	0	0	2	0	0	16	365
6:30 PM	0	238	43	0	12	0	0	2	0	0	3	0	1	15	314
6:45 PM	0	236	37	0	4	0	0	4	0	0	0	0	0	22	303
7:00 PM	0	194	29	0	1	1	0	4	0	0	0	0	0	11	240
7:15 PM	0	165	33	0	6	0	0	3	0	0	1	0	1	6	215
7:30 PM	0	174	45	1	9	0	0	2	0	0	1	0	0	15	247
7:45 PM	0	166	45	0	7	0	0	2	0	0	0	0	0	11	231
8:00 PM	0	140	22	1	4	0	0	1	0	0	0	0	0	6	174
8:15 PM	0	142	26	2	1	0	0	3	0	0	0	0	0	3	177
8:30 PM	0	119	24	0	5	0	0	0	0	0	0	0	0	5	153
8:45 PM	0	123	34	3	3	0	0	2	0	0	0	0	0	3	168
9:00 PM	0	87	24	1	3	0	0	1	0	0	0	0	0	7	123
9:15 PM	0	85	28	0	4	0	0	3	0	0	0	0	0	5	125
9:30 PM	0	77	14	0	1	0	0	0	0	0	0	0	0	1	93
9:45 PM	0	69	10	0	0	0	0	2	0	0	0	0	0	6	87
10:00 PM	0	64	14	0	1	0	0	0	0	0	0	0	0	2	81
10:15 PM	0	52	17	0	5	0	0	1	0	0	0	0	0	2	77
10:30 PM	0	50	4	0	0	0	0	1	0	0	0	0	0	0	55
10:45 PM	0	41	8	0	1	0	0	0	0	0	0	0	0	1	51
11:00 PM	0	33	8	2	2	0	0	1	0	0	0	0	0	3	49
11:15 PM	0	33	5	0	2	0	0	1	0	0	0	0	0	5	46
11:30 PM	0	33	8	0	0	0	0	1	0	0	0	0	0	0	42
11:45 PM	0	33	9	0	1	0	0	0	0	0	0	0	0	2	45
Day Total	1	14015	2989	89	655	17	0	374	2	13	36	5	12	1067	19275
Percent	0.0%	72.7%	15.5%	0.5%	3.4%	0.1%	0.0%	1.9%	0.0%	0.1%	0.2%	0.0%	0.1%	5.5%	
ADT 19275															
AM Peak Volume	8:15 AM 289	8:30 AM 62	7:15 AM 4	10:45 AM 21	7:45 AM 1			8:45 AM 14		6:15 AM 1	7:45 AM 2	8:15 AM 1	7:15 AM 1	8:00 AM 30	8:15 AM 390
PM Peak Volume	5:15 PM 1	4:45 PM 342	5:00 PM 67	3:00 PM 5	12:15 PM 20	1:45 PM 2		4:15 PM 14	4:00 PM 1	1:15 PM 1	6:30 PM 3	12:00 PM 1	12:30 PM 1	4:00 PM 29	4:45 PM 445
Comments:															

LOCATION: US 15-501 Between NC 54 & Brandon R SPECIFIC LOCATION: 0 ft from CITY/STATE: Chapel Hill, NC														QC JOB #: 10941464 DIRECTION: SB DATE: Apr 23 2013 - Apr 24 2013	
Start Time	Motor-cycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	1	28374	5637	187	1216	38	2	668	10	19	74	10	15	1994	38245
Percent	0.0%	74.2%	14.7%	0.5%	3.2%	0.1%	0.0%	1.7%	0.0%	0.0%	0.2%	0.0%	0.0%	5.2%	
ADT 19122															
Comments:															

Report generated on 5/8/2013 7:45 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: US 15-501 Between NC 54 & Brandon R						QC JOB #: 10941464				
SPECIFIC LOCATION: 0 ft from						DIRECTION: SB				
CITY/STATE: Chapel Hill, NC						DATE: Apr 23 2013 - Apr 25 2013				
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 24-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		23	30	0		18			18	
12:15 AM		21	18			20			20	
12:30 AM		34	26			30			30	
12:45 AM		23	17			20			20	
1:00 AM		17	11			14			14	
1:15 AM		12	11			12			12	
1:30 AM		6	15			11			11	
1:45 AM		16	8			12			12	
2:00 AM		10	6			8			8	
2:15 AM		4	10			7			7	
2:30 AM		7	5			6			6	
2:45 AM		6	10			8			8	
3:00 AM		4	10			7			7	
3:15 AM		7	7			7			7	
3:30 AM		5	7			6			6	
3:45 AM		6	11			9			9	
4:00 AM		5	8			7			7	
4:15 AM		11	12			12			12	
4:30 AM		13	21			17			17	
4:45 AM		16	10			13			13	
5:00 AM		26	21			24			24	
5:15 AM		40	27			34			34	
5:30 AM		42	39			41			41	
5:45 AM		72	56			64			64	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										
Comments:										

LOCATION: US 15-501 Between NC 54 & Brandon R						QC JOB #: 10941464				
SPECIFIC LOCATION: 0 ft from						DIRECTION: SB				
CITY/STATE: Chapel Hill, NC						DATE: Apr 23 2013 - Apr 25 2013				
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 25-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 AM		68	70			69			69	
6:15 AM		102	89			96			96	
6:30 AM		144	135			140			140	
6:45 AM		152	153			153			153	
7:00 AM		183	193			188			188	
7:15 AM		256	253			255			255	
7:30 AM		324	283			304			304	
7:45 AM		256	321			289			289	
8:00 AM		342	291			317			317	
8:15 AM		332	368			350			350	
8:30 AM		298	336			317			317	
8:45 AM		282	320			301			301	
9:00 AM		252	275			264			264	
9:15 AM		244	311			278			278	
9:30 AM		295	225			260			260	
9:45 AM		286	264			275			275	
10:00 AM		231	257			244			244	
10:15 AM		249	252			251			251	
10:30 AM		266	263			265			265	
10:45 AM		267	313			290			290	
11:00 AM		285	251			268			268	
11:15 AM		264	257			261			261	
11:30 AM		306	314			310			310	
11:45 AM		317	312			315			315	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										
Comments:										

LOCATION: US 15-501 Between NC 54 & Brandon R						QC JOB #: 10941464				
SPECIFIC LOCATION: 0 ft from						DIRECTION: SB				
CITY/STATE: Chapel Hill, NC						DATE: Apr 23 2013 - Apr 25 2013				
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 25-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 PM		282	314			298			298	
12:15 PM		295	327			311			311	
12:30 PM		290	282			286			286	
12:45 PM		246	265			256			256	
1:00 PM		308	272			290			290	
1:15 PM		259	327			293			293	
1:30 PM		272	281			277			277	
1:45 PM		304	290			297			297	
2:00 PM		263	262			263			263	
2:15 PM		283	306			295			295	
2:30 PM		255	331			293			293	
2:45 PM		311	262			287			287	
3:00 PM		324	317			321			321	
3:15 PM		325	302			314			314	
3:30 PM		307	322			315			315	
3:45 PM		356	323			340			340	
4:00 PM		325	325			325			325	
4:15 PM		407	355			381			381	
4:30 PM		359	280			320			320	
4:45 PM		318	332			325			325	
5:00 PM		332	92			212			212	
5:15 PM		197	127			162			162	
5:30 PM		133	170			152			152	
5:45 PM		147	187			167			167	
Day Total										
% Weekday Average										
% Week Average										
AM Peak Volume										
PM Peak Volume										
Comments:										

LOCATION: US 15-501 Between NC 54 & Brandon R							QC JOB #: 10941464			
SPECIFIC LOCATION: 0 ft from							DIRECTION: SB			
CITY/STATE: Chapel Hill, NC							DATE: Apr 23 2013 - Apr 25 2013			
Start Time	Mon 23-Apr-13	Tue 24-Apr-13	Wed 25-Apr-13	Thu 25-Apr-13	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
6:00 PM		231	140			186			186	
6:15 PM		311	165			238			238	
6:30 PM		297	224			261			261	
6:45 PM		275	287			281			281	
7:00 PM		225	229			227			227	
7:15 PM		209	204			207			207	
7:30 PM		187	241			214			214	
7:45 PM		189	219			204			204	
8:00 PM		149	167			158			158	
8:15 PM		188	175			182			182	
8:30 PM		135	148			142			142	
8:45 PM		124	163			144			144	
9:00 PM		109	118			114			114	
9:15 PM		133	124			129			129	
9:30 PM		108	93			101			101	
9:45 PM		97	86			92			92	
10:00 PM		75	79			77			77	
10:15 PM		74	77			76			76	
10:30 PM		56	54			55			55	
10:45 PM		46	51			49			49	
11:00 PM		54	50			52			52	
11:15 PM		43	47			45			45	
11:30 PM		51	43			47			47	
11:45 PM		25	43			34			34	
Day Total		16716	16380	0		16562			16562	
% Weekday Average		100.9%	98.9%	0.0%						
% Week Average		100.9%	98.9%	0.0%		100.0%				
AM Peak Volume		8:00 AM 342	8:15 AM 368	12:00 AM 0		8:15 AM 350			8:15 AM 350	
PM Peak Volume		4:15 PM 407	4:15 PM 355			4:15 PM 381			4:15 PM 381	
Comments:										

Appendix C – Trip Generation Data

Final Results of Multi-Use Trip Generation
Average Weekday Driveway Volumes

Project: Glen Lennox Redevelopment TIS
Phase: 2018 Phase 1A Net

Open Date: 2018
Analysis Date: 5/25/13

Description: Town of Chapel Hill Traffic Impact Study

	24 Hour Two-Way Volume	AM Pk Hour Enter Exit	PM Pk Hour Enter Exit
220 : Apartments 232 Dwelling Units [E]	1529	23 94	94 51
820 : Shopping Center 25 Th.Sq.Ft. GLA [E]	2758	41 26	114 123
Unadjusted Total Driveway Volume	4287	64 120	208 174
Unadjusted Peak Hour Pass-By Trips		0 0	67 72
Total Peak Hour Internal Vehicle Trips		1 1	43 43
Total Peak Hour Driveway Volume		63 119	165 131
Total Peak Hour Pass-By Trips		0 0	53 54
Total Peak Hour Vol. Added to Adjacent Streets		63 119	112 77

Total AM Peak Hour Internal Capture = 1 Percent
Total PM Peak Hour Internal Capture = 23 Percent

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012
Transportation Research Board - NCHRP Report 684, 2011

TRIP GENERATION 2013, TRAFFICWARE, LLC

Final Results of Multi-Use Trip Generation
Average Weekday Driveway Volumes

Project: Glen Lennox Redevelopment TIS
Phase: 2018 Phase 1B Net

Open Date: 2018
Analysis Date: 5/25/13

Description: Town of Chapel Hill Traffic Impact Study

	24 Hour Two-Way Volume	AM Pk Hour Enter Exit	PM Pk Hour Enter Exit
ITE:Land Use			
820 : Shopping Center 59.052 Th.Sq.Ft. GLA [E]	4822	70 43	202 219
710 : General Office Building 5.084 Th.Sq.Ft. GFA [E]	136	16 2	14 70
220 : Apartments 26 Dwelling Units [E]	281	3 13	21 11
Unadjusted Total Driveway Volume	5239	89 58	237 300
Unadjusted Peak Hour Pass-By Trips		0 0	92 100
Total Peak Hour Internal Vehicle Trips		2 2	34 34
Total Peak Hour Driveway Volume		87 56	203 266
Total Peak Hour Pass-By Trips		0 0	79 89
Total Peak Hour Vol. Added to Adjacent Streets		87 56	124 177

Total AM Peak Hour Internal Capture = 3 Percent
Total PM Peak Hour Internal Capture = 13 Percent

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012
Transportation Research Board - NCHRP Report 684, 2011

TRIP GENERATION 2013, TRAFFICWARE, LLC

Final Results of Multi-Use Trip Generation
Average Weekday Driveway Volumes

Project: Glen Lennox Redevelopment TIS
Phase: 2018 Phase 1C Net

Open Date: 2018
Analysis Date: 5/25/13

Description: Town of Chapel Hill Traffic Impact Study

	24 Hour Two-Way Volume	AM Pk Hour Enter Exit	PM Pk Hour Enter Exit
ITE:Land Use			
820 : Shopping Center 15 Th.Sq.Ft. GLA [E]	1979	30 19	81 87
310 : Hotel 150 Rooms [R]	1226	47 33	47 43
220 : Apartments 51 Dwelling Units [E]	433	6 23	30 16
Unadjusted Total Driveway Volume	3638	83 75	158 146
Unadjusted Peak Hour Pass-By Trips		0 0	55 59
Total Peak Hour Internal Vehicle Trips		1 1	27 27
Total Peak Hour Driveway Volume		82 74	131 119
Total Peak Hour Pass-By Trips		0 0	46 48
Total Peak Hour Vol. Added to Adjacent Streets		82 74	85 71

Total AM Peak Hour Internal Capture = 1 Percent
Total PM Peak Hour Internal Capture = 18 Percent

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012
Transportation Research Board - NCHRP Report 684, 2011

TRIP GENERATION 2013, TRAFFICWARE, LLC

Final Results of Multi-Use Trip Generation
Average Weekday Driveway Volumes

Project: Glen Lennox Redevelopment TIS
Phase: 2018 Phase 1D Net

Open Date: 2018
Analysis Date: 5/25/13

Description: Town of Chapel Hill Traffic Impact Study

ITE:Land Use	24 Hour Two-Way Volume	AM Pk Hour		PM Pk Hour	
		Enter	Exit	Enter	Exit
220 : Apartments	954	14	57	60	33
137 Dwelling Units [E]					
710 : General Office Building	1313	168	23	32	158
100 Th.Sq.Ft. GFA [E]					
Unadjusted Total Driveway Volume	2267	182	80	92	191
Unadjusted Peak Hour Pass-By Trips		0	0	0	0
Total Peak Hour Internal Vehicle Trips		1	1	3	3
Total Peak Hour Driveway Volume		181	79	89	188
Total Peak Hour Pass-By Trips		0	0	0	0
Total Peak Hour Vol. Added to Adjacent Streets		181	79	89	188

Total AM Peak Hour Internal Capture = 1 Percent

Total PM Peak Hour Internal Capture = 2 Percent

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012
Transportation Research Board - NCHRP Report 684, 2011

TRIP GENERATION 2013, TRAFFICWARE, LLC

Final Results of Multi-Use Trip Generation
Average Weekday Driveway Volumes

Project: Glen Lennox Redevelopment TIS
Phase: 2023 Phase 2A Net

Open Date: 2023
Analysis Date: 5/25/13

Description: Town of Chapel Hill Traffic Impact Study

ITE:Land Use	24 Hour Two-Way Volume	AM Pk Hour		PM Pk Hour	
		Enter	Exit	Enter	Exit
220 : Apartments	324	4	16	23	13
33 Dwelling Units [E]					
820 : Shopping Center	3105	46	29	128	139
30 Th.Sq.Ft. GLA [E]					
Unadjusted Total Driveway Volume	3429	50	45	151	152
Unadjusted Peak Hour Pass-By Trips		0	0	71	77
Total Peak Hour Internal Vehicle Trips		0	0	16	16
Total Peak Hour Driveway Volume		50	45	135	136
Total Peak Hour Pass-By Trips		0	0	63	69
Total Peak Hour Vol. Added to Adjacent Streets		50	45	72	67

Total AM Peak Hour Internal Capture = 0 Percent
Total PM Peak Hour Internal Capture = 11 Percent

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012
Transportation Research Board - NCHRP Report 684, 2011

TRIP GENERATION 2013, TRAFFICWARE, LLC

Summary of Multi-Use Trip Generation
Average Weekday Driveway Volumes (Unadjusted for Internal Trips)

Project: Glen Lennox Redevelopment TIS
Phase: 2023 Phase 2B Net

Open Date: 2023
Analysis Date: 5/25/13

Description: Town of Chapel Hill Traffic Impact Study

ITE:Land Use	24 Hour Two-Way Volume	AM Pk Hour		PM Pk Hour	
		Enter	Exit	Enter	Exit
710: General Office Building 180 Th.Sq.Ft. GFA [E]	2052	269	37	48	232
Total Driveway Volume	2052	269	37	48	232
Total Peak Hour Pass-By Trips		0	0	0	0
Total Peak Hour Vol. Added to Adjacent Streets		269	37	48	232

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

Final Results of Multi-Use Trip Generation
Average Weekday Driveway Volumes

Project: Glen Lennox Redevelopment TIS
Phase: 2023 Phase 2C Net

Open Date: 2023
Analysis Date: 5/25/13

Description: Town of Chapel Hill Traffic Impact Study

ITE:Land Use	24 Hour Two-Way Volume	AM Pk Hour		PM Pk Hour	
		Enter	Exit	Enter	Exit
710 : General Office Building	3178	427	58	74	363
320 Th.Sq.Ft. GFA [E]					
220 : Apartments	2699	42	170	163	88
425 Dwelling Units [E]					
Unadjusted Total Driveway Volume	5877	469	228	237	451
Unadjusted Peak Hour Pass-By Trips		0	0	0	0
Total Peak Hour Internal Vehicle Trips		3	3	11	11
Total Peak Hour Driveway Volume		466	225	226	440
Total Peak Hour Pass-By Trips		0	0	0	0
Total Peak Hour Vol. Added to Adjacent Streets		466	225	226	440

Total AM Peak Hour Internal Capture = 1 Percent

Total PM Peak Hour Internal Capture = 3 Percent

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012
Transportation Research Board - NCHRP Report 684, 2011

TRIP GENERATION 2013, TRAFFICWARE, LLC

Summary of Multi-Use Trip Generation
Average Weekday Driveway Volumes (Unadjusted for Internal Trips)

Project: Glen Lennox Redevelopment TIS
Phase: 2028 Phase 3A Net

Open Date: 2028
Analysis Date: 5/25/13

Description: Town of Chapel Hill Traffic Impact Study

	24 Hour Two-Way Volume	AM Pk Hour Enter	Exit	PM Pk Hour Enter	Exit
220: Apartments 255 Dwelling Units [E]	1669	26	103	103	55
Total Driveway Volume	1669	26	103	103	55
Total Peak Hour Pass-By Trips		0	0	0	0
Total Peak Hour Vol. Added to Adjacent Streets		26	103	103	55

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

Summary of Multi-Use Trip Generation
Average Weekday Driveway Volumes (Unadjusted for Internal Trips)

Project: Glen Lennox Redevelopment TIS
Phase: 2028 Phase 3B Net

Open Date: 2028
Analysis Date: 5/25/13

Description: Town of Chapel Hill Traffic Impact Study

ITE:Land Use	24 Hour Two-Way Volume	AM Pk Hour		PM Pk Hour	
		Enter	Exit	Enter	Exit
220: Apartments 173 Dwelling Units [E]	1172	18	71	73	40
Total Driveway Volume	1172	18	71	73	40
Total Peak Hour Pass-By Trips		0	0	0	0
Total Peak Hour Vol. Added to Adjacent Streets		18	71	73	40

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

Appendix D – Site Traffic Assignment Data

PHASE 1 SUMMARY

AM Peak Primary Trip Assignment

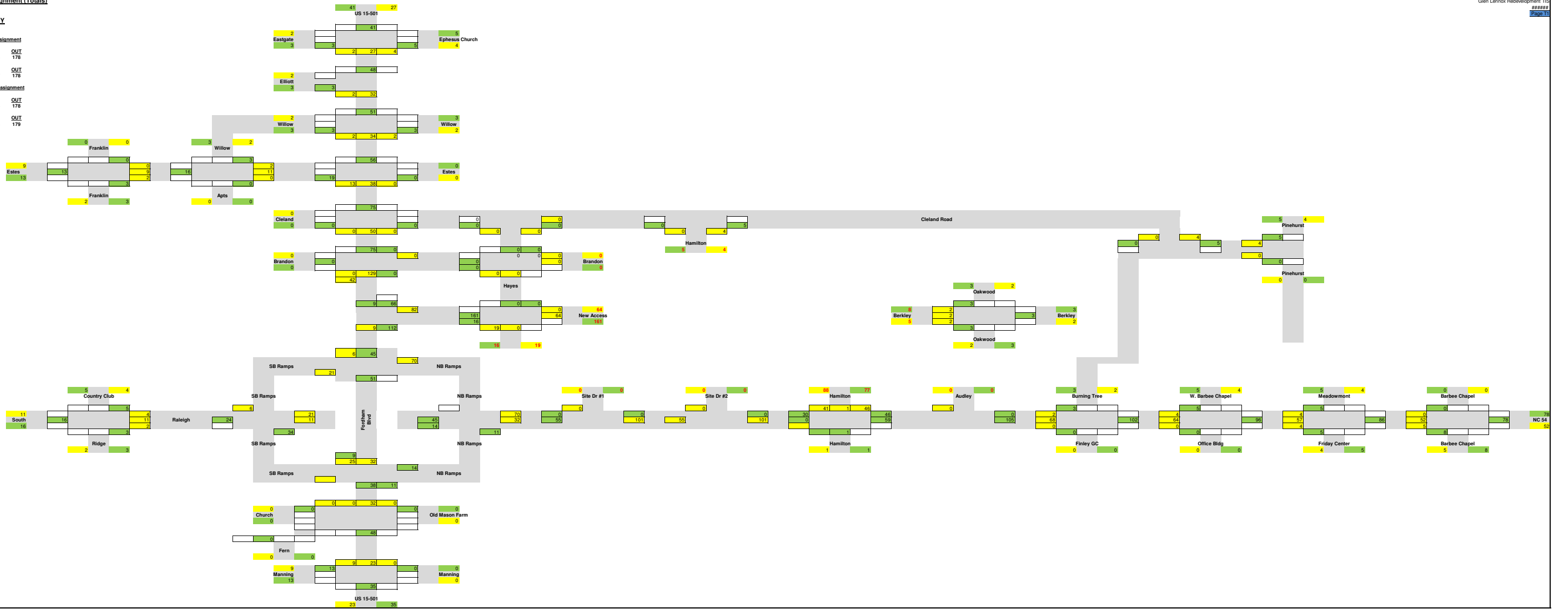
Inputs	IN	OUT
	268	178

<u>External Checks</u>	<u>IN</u>	<u>OUT</u>
	267	178

AM Peak Driveway Trip Assignment

Inputs	IN	OUT
	268	178

<u>Internal Checks</u>	<u>IN</u>	<u>OUT</u>
	268	179



PHASE 1 SUMMARY

Noon Peak Primary Trip Assignment

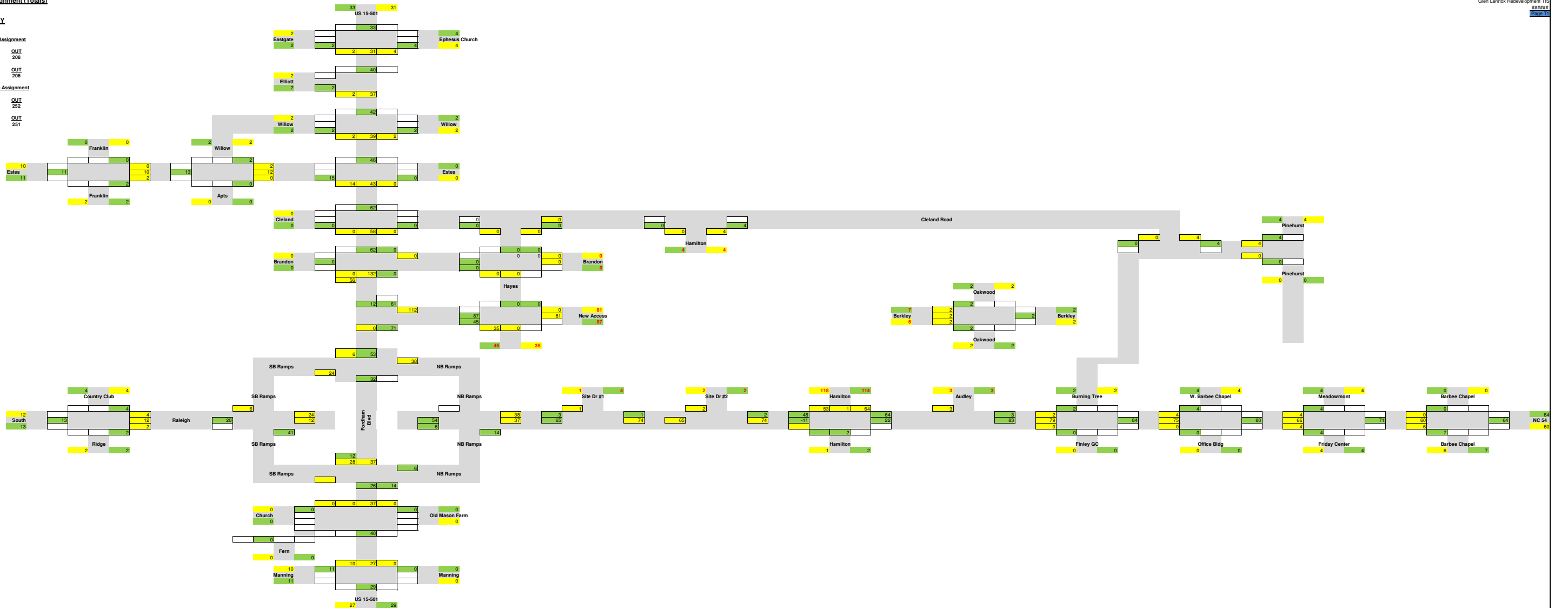
<u>Inputs</u>	<u>IN</u>	<u>OUT</u>
	221	208

<u>External Checks</u>	<u>IN</u>	<u>OUT</u>
	221	206

Noon Peak Driveway Trip Assignment

<u>Inputs</u>	<u>IN</u>	<u>OUT</u>
	265	252

<u>Internal Checks</u>	<u>IN</u>	<u>OUT</u>
	265	251



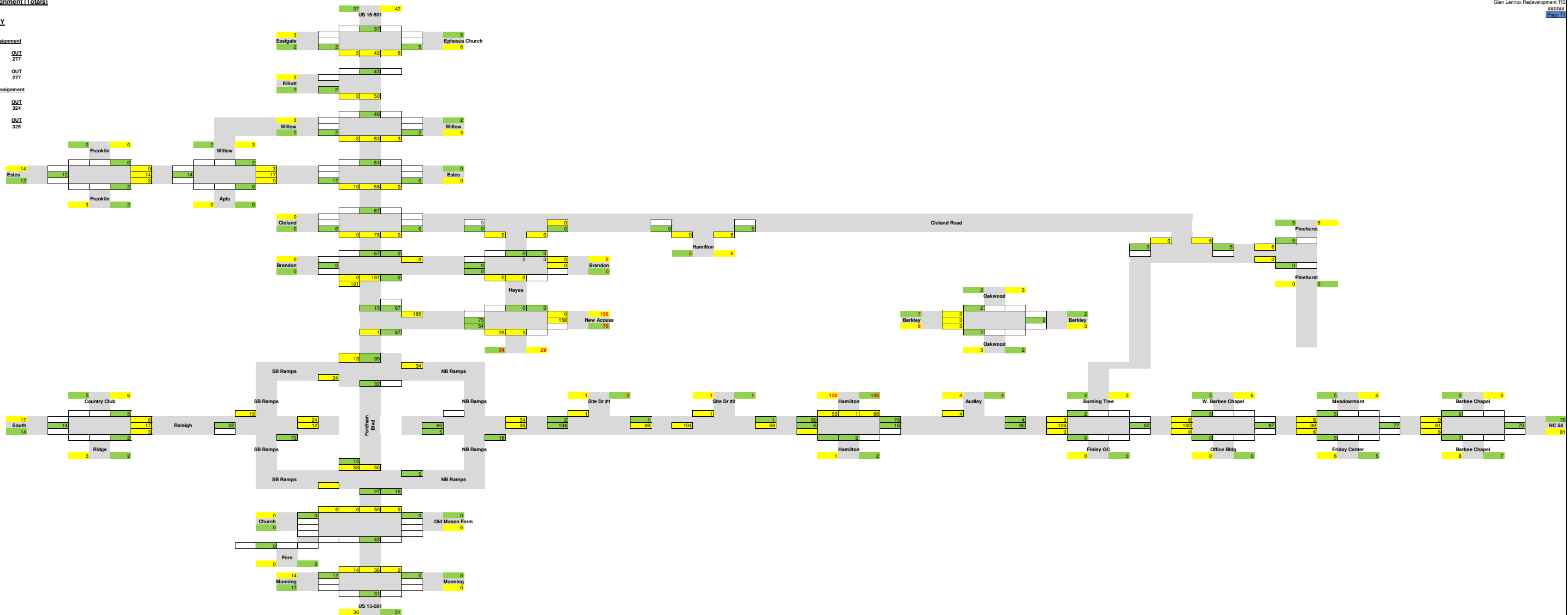
PM Peak Primary Trip Assignment

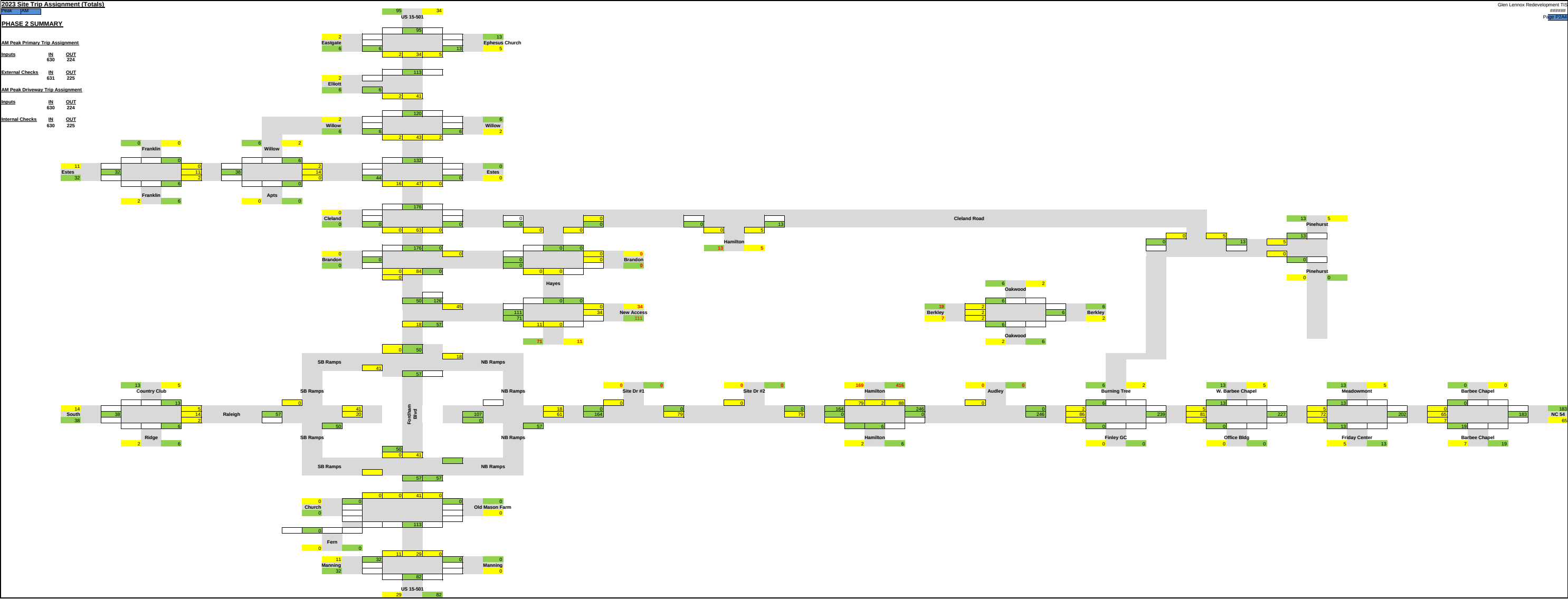
Inputs	IN	OUT

<u>External Checks</u>	<u>IN</u>	<u>OUT</u>
	241	277

Inputs	IN	OUT

Internal Checks	IN	OUT
	288	225





PHASE 2 SUMMARY

Noon Peak Primary Trip Assignment

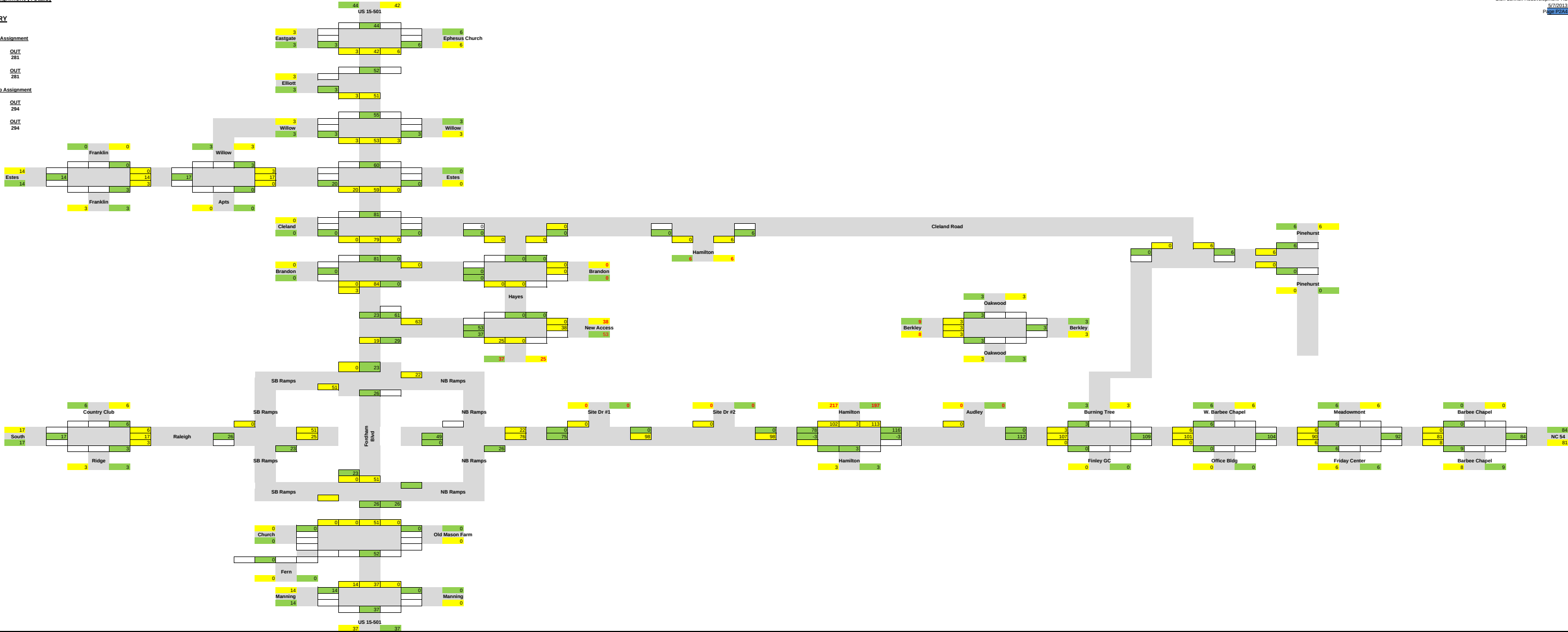
Inputs IN OUT
288 281

External Checks IN OUT
289 281

Noon Peak Driveway Trip Assignment

Inputs IN OUT
301 294

Internal Checks IN OUT
301 294



PM Peak Primary Trip Assignment

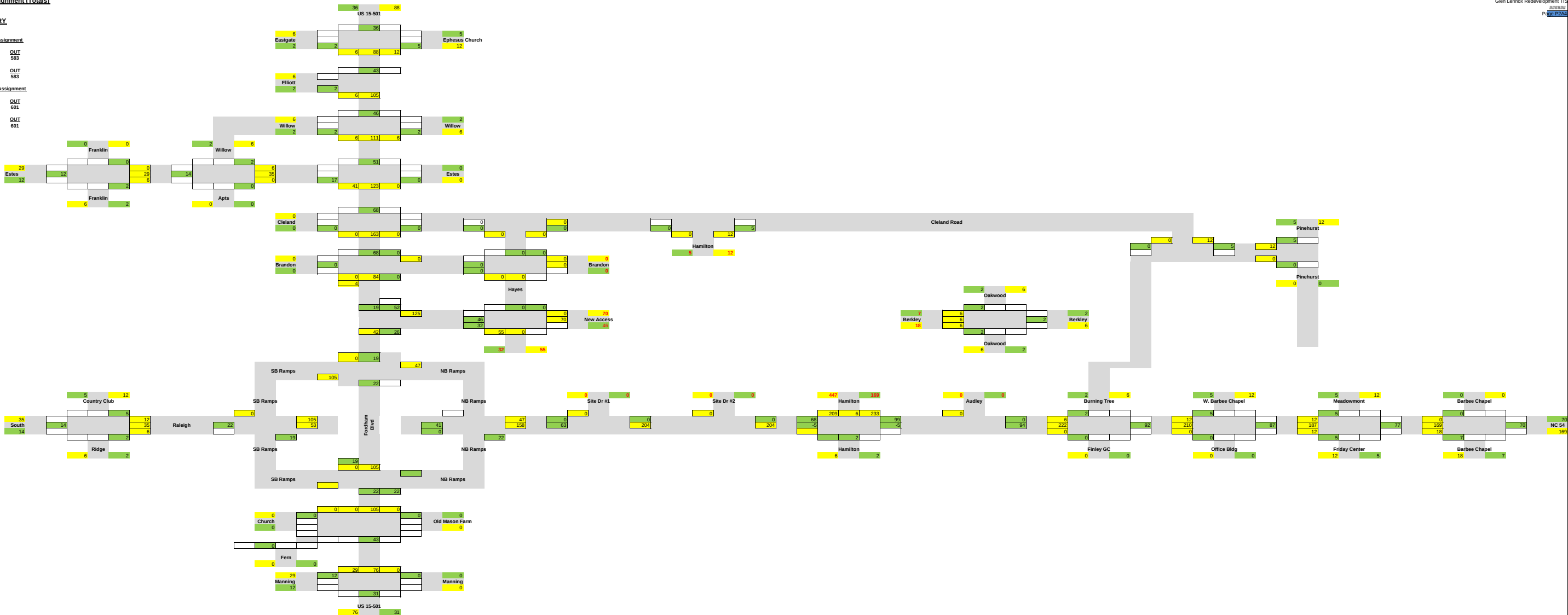
Inputs IN OUT
242 583

External Checks IN OUT
241 583

PM Peak Driveway Trip Assignment

Inputs IN OUT
260 601

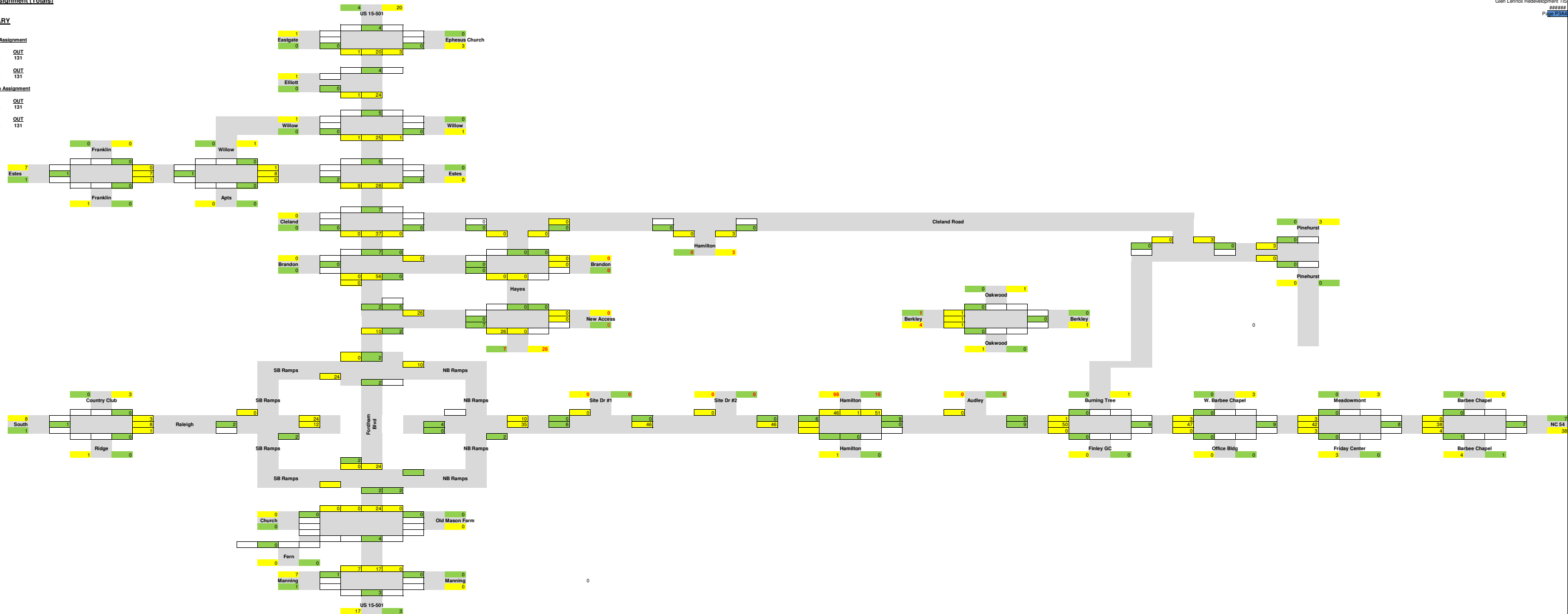
Internal Checks IN OUT
259 601



AM Peak Primary Trip Assignment

<u>External Checks</u>	<u>IN</u>	<u>OUT</u>
	24	131

<u>Inputs</u>	<u>IN</u>	<u>OUT</u>
	24	131



PHASE 3 SUMMARY

Noon Peak Primary Trip Assignment

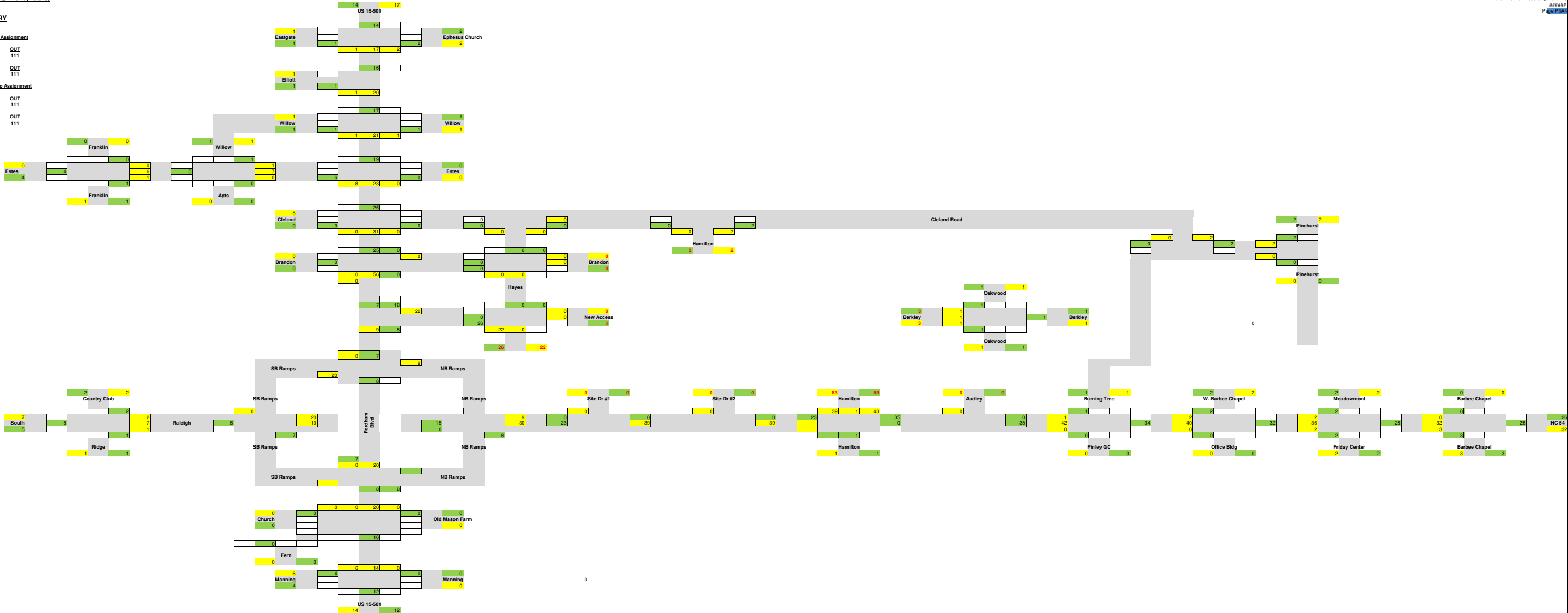
Inputs IN 89 OUT 111

External Checks IN 90 OUT 111

Noon Peak Driveway Trip Assignment

Inputs IN 89 OUT 111

Internal Checks IN 89 OUT 111



PHASE 3 SUMMARY

PM Peak Primary Trip Assignment

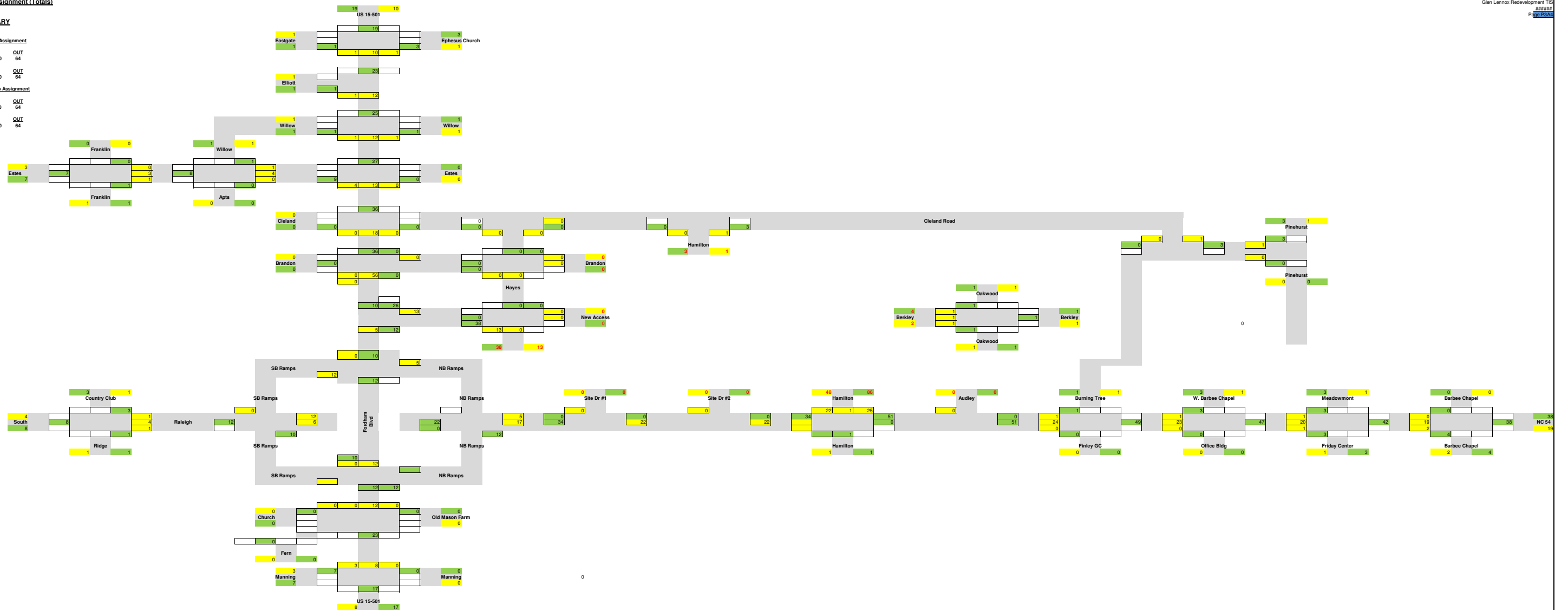
Inputs	IN	OUT
	130	64

<u>External Checks</u>	<u>IN</u>	<u>OUT</u>
	130	64

PM Peak Driveway Trip Assignment

Inputs	IN	OUT
	130	64

<u>Internal Checks</u>	<u>IN</u>	<u>OUT</u>
	130	64



Appendix E – SYNCHRO Signalized Analysis Output

2013 Existing

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	55	22	288	116	54	69	1004	211	66	1116	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	175		0	375		325	225		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.957			0.965				0.850		0.998	
Flt Protected	0.950			0.950	0.988		0.950			0.950		
Satd. Flow (prot)	1702	1715	0	1571	1625	0	1744	3487	1508	1702	3515	0
Flt Permitted	0.950			0.950	0.988		0.950			0.950		
Satd. Flow (perm)	1700	1715	0	1571	1625	0	1744	3487	1508	1702	3515	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	28	65	26	306	123	57	73	1068	224	75	1268	14
Shared Lane Traffic (%)				20%								
Lane Group Flow (vph)	28	91	0	245	241	0	73	1068	224	75	1282	0
Turn Type	Split			Split			Prot		Free	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases									Free			
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	20.0	20.0		33.0	33.0		20.0	80.0		18.0	68.0	
Total Split (s)	20.0	20.0	0.0	33.0	33.0	0.0	20.0	107.0	0.0	20.0	107.0	0.0
Total Split (%)	11.1%	11.1%	0.0%	18.3%	18.3%	0.0%	11.1%	59.4%	0.0%	11.1%	59.4%	0.0%
Maximum Green (s)	13.7	13.7		27.2	27.2		13.8	101.2		13.7	101.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	13.5	13.5		29.5	29.5		15.0	104.7	180.0	12.3	102.0	
Actuated g/C Ratio	0.08	0.08		0.16	0.16		0.08	0.58	1.00	0.07	0.57	
v/c Ratio	0.22	0.71		0.95	0.91		0.50	0.53	0.15	0.65	0.64	
Control Delay	81.6	108.9		117.5	107.7		107.4	35.5	0.2	106.0	28.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	81.6	108.9		117.5	107.7		107.4	35.5	0.2	106.0	28.5	
LOS	F	F		F	F		F	D	A	F	C	
Approach Delay		102.5			112.6			33.5			32.8	
Approach LOS		F			F			C			C	
Queue Length 50th (ft)	31	106		~310	302		91	550	0	88	531	
Queue Length 95th (ft)	65	164		#518	#497		150	642	0	145	583	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			175			375		325	225		
Base Capacity (vph)	142	143		257	266		145	2029	1508	142	1992	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.20	0.64		0.95	0.91		0.50	0.53	0.15	0.53	0.64	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 67 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 47.3

Intersection LOS: D

Intersection Capacity Utilization 69.5%

ICU Level of Service C

Analysis Period (min) 15

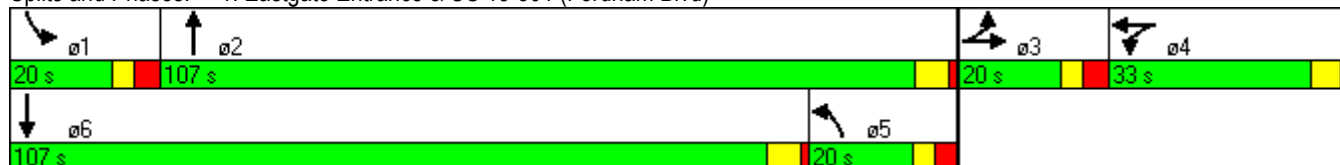
~ Volume exceeds capacity, queue is theoretically infinite.

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: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2013 Existing AM Peak
Timing Plan: AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	45	101	120	1270	14	1376	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12
Storage Length (ft)	175	0	250		125		125
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25	25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Ped Bike Factor			1.00				0.98
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1719	1487	1752	3505	1811	3505	1568
Flt Permitted	0.950		0.127		0.155		
Satd. Flow (perm)	1719	1487	234	3505	295	3505	1536
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			45		45	
Link Distance (ft)	423			800		1344	
Travel Time (s)	8.2			12.1		20.4	
Confl. Peds. (#/hr)			1				1
Peak Hour Factor	0.84	0.84	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	54	120	135	1427	16	1546	91
Shared Lane Traffic (%)							
Lane Group Flow (vph)	54	120	135	1427	16	1546	91
Turn Type		pm+ov	pm+pt		pm+pt		pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases		4	2		6		6
Detector Phase	4	5	5	2	1	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	20.0	30.0	30.0	135.0	15.0	115.0	20.0
Total Split (s)	30.0	30.0	30.0	135.0	15.0	120.0	30.0
Total Split (%)	16.7%	16.7%	16.7%	75.0%	8.3%	66.7%	16.7%
Maximum Green (s)	24.4	24.1	24.1	129.1	9.7	114.1	24.4
Yellow Time (s)	3.0	3.0	3.0	4.5	3.0	4.5	3.0
All-Red Time (s)	2.6	2.9	2.9	1.4	2.3	1.4	2.6
Lost Time Adjust (s)	-0.6	-0.9	-0.9	-0.9	-0.3	-0.9	-0.6
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	1.0	1.0	1.0	2.0	1.0	2.0	1.0
Recall Mode	None	None	None	C-Max	None	C-Max	None
Act Effect Green (s)	9.9	39.9	152.7	152.7	130.1	130.1	140.0
Actuated g/C Ratio	0.06	0.22	0.85	0.85	0.72	0.72	0.78
v/c Ratio	0.57	0.36	0.33	0.48	0.06	0.61	0.08
Control Delay	104.9	62.4	9.3	2.3	13.7	22.7	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.9	62.4	9.3	2.3	13.7	22.8	7.5

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	F	E	A	A	B	C	A
Approach Delay	75.6			2.9		21.9	
Approach LOS	E			A		C	
Queue Length 50th (ft)	64	122	14	91	8	551	37
Queue Length 95th (ft)	107	172	47	101	m13	m618	m59
Internal Link Dist (ft)	343			720		1264	
Turn Bay Length (ft)	175		250		125		125
Base Capacity (vph)	239	330	409	2973	297	2533	1242
Starvation Cap Reductn	0	0	0	141	0	0	0
Spillback Cap Reductn	0	0	0	0	0	69	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.36	0.33	0.50	0.05	0.63	0.07

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 168 (93%), Referenced to phase 2:NBTL and 6:SBTU, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 15.9

Intersection LOS: B

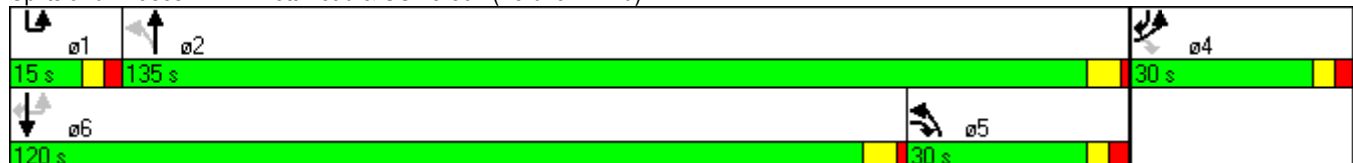
Intersection Capacity Utilization 63.0%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	22	13	37	51	15	46	1100	5	6	1158	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.944			0.966			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1767	0	1761	1790	0	1778	3553	0	1778	3557	1591
Flt Permitted	0.415			0.729			0.154			0.182		
Satd. Flow (perm)	777	1767	0	1351	1790	0	288	3553	0	341	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Peak Hour Factor	0.81	0.81	0.81	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88
Adj. Flow (vph)	79	27	16	45	62	18	49	1183	5	7	1316	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	43	0	45	80	0	49	1188	0	7	1316	152
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		33.0	33.0		15.0	90.0		15.0	80.0	80.0
Total Split (s)	20.0	53.0	0.0	33.0	33.0	0.0	25.0	112.0	0.0	15.0	102.0	102.0
Total Split (%)	11.1%	29.4%	0.0%	18.3%	18.3%	0.0%	13.9%	62.2%	0.0%	8.3%	56.7%	56.7%
Maximum Green (s)	13.7	46.6		26.6	26.6		18.9	105.9		9.4	95.9	95.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	29.0	28.9		13.9	13.9		135.8	135.8		118.3	118.3	118.3
Actuated g/C Ratio	0.16	0.16		0.08	0.08		0.75	0.75		0.66	0.66	0.66
v/c Ratio	0.40	0.15		0.43	0.58		0.13	0.44		0.02	0.56	0.15
Control Delay	69.2	61.7		90.7	95.9		2.1	2.4		14.3	20.7	13.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	0.0
Total Delay	69.2	61.7		90.7	95.9		2.1	2.4		14.3	20.9	13.9

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	E		F	F		A	A		B	C	B
Approach Delay		66.6			94.0			2.4			20.1	
Approach LOS		E			F			A			C	
Queue Length 50th (ft)	81	43		52	93		2	27		2	671	52
Queue Length 95th (ft)	117	72		88	138		6	41		m4	671	73
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	214	471		210	278		383	2680		304	2337	1046
Starvation Cap Reductn	0	0		0	0		0	0		0	231	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.37	0.09		0.21	0.29		0.13	0.44		0.02	0.62	0.15

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

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

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 17.8

Intersection LOS: B

Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	3	252	7	7	12	263	1301	5	13	1287	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-1%	
Storage Length (ft)	0		400	0		0	450		0	100		150
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99			0.99							
Frt			0.850		0.938			0.999				0.850
Flt Protected		0.955			0.987		0.950			0.950		
Satd. Flow (prot)	0	1703	2668	0	1510	0	3383	3484	0	1744	3489	1561
Flt Permitted		0.955			0.987		0.950			0.950		
Satd. Flow (perm)	0	1679	2668	0	1510	0	3383	3484	0	1744	3489	1561
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		566			126			1593			286	
Travel Time (s)		35.6			10.9			24.1			4.3	
Confl. Peds. (#/hr)	10					10						
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.91	0.91	0.91	0.86	0.86	0.86
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	49	3	280	10	10	17	289	1430	5	15	1497	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	280	0	37	0	289	1435	0	15	1497	73
Turn Type	Split		pm+ov	Split			Prot			Prot		pm+ov
Protected Phases	3	3	5	4	4		5	2		1	6	3
Permitted Phases			3									6
Detector Phase	3	3	5	4	4		5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	10.9	7.0
Minimum Split (s)	20.0	20.0	45.0	41.0	41.0		45.0	59.0		15.0	17.0	20.0
Total Split (s)	20.0	20.0	45.0	41.0	41.0	0.0	45.0	104.0	0.0	15.0	74.0	20.0
Total Split (%)	11.1%	11.1%	25.0%	22.8%	22.8%	0.0%	25.0%	57.8%	0.0%	8.3%	41.1%	11.1%
Maximum Green (s)	13.4	13.4	38.3	34.3	34.3		38.3	97.9		8.5	67.9	13.4
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	4.4		3.0	4.6	3.8
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	1.7		3.5	1.5	2.8
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	-1.7	-1.1	0.0	-1.5	-1.1	-1.6
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	6.0		2.0	6.0	1.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	None
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		10.8	37.0		10.4		21.2	137.5		9.4	120.3	132.1
Actuated g/C Ratio		0.06	0.21		0.06		0.12	0.76		0.05	0.67	0.73
v/c Ratio		0.51	0.51		0.42		0.72	0.54		0.16	0.64	0.06
Control Delay		98.7	66.1		95.8		87.0	11.4		66.1	8.4	2.0
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		98.7	66.1		95.8		87.0	11.4		66.1	8.4	2.0
LOS		F	E		F		F	B		E	A	A
Approach Delay		71.2			95.8			24.1			8.6	
Approach LOS		E			F			C			A	
Queue Length 50th (ft)		61	169		43		172	392		17	136	6
Queue Length 95th (ft)		111	213		68		222	530		m32	177	13
Internal Link Dist (ft)		486			46			1513			206	
Turn Bay Length (ft)			400				450			100		150
Base Capacity (vph)		142	827		302		752	2662		97	2332	1182
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.37	0.34		0.12		0.38	0.54		0.15	0.64	0.06

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 24 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 22.4

Intersection LOS: C

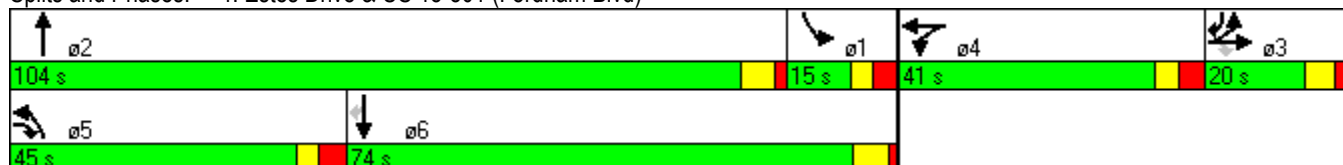
Intersection Capacity Utilization 69.4%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	0	1	4	0	96	0	1458	17	55	1455	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	200		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.988			0.871			0.998			0.999	
Flt Protected		0.957			0.998					0.950		
Satd. Flow (prot)	0	1761	0	0	1588	0	1845	3498	0	1752	3501	0
Flt Permitted		0.957			0.998					0.950		
Satd. Flow (perm)	0	1761	0	0	1588	0	1845	3498	0	1752	3501	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			2038			1593	
Travel Time (s)		7.9			3.4			30.9			24.1	
Peak Hour Factor	0.69	0.69	0.69	0.71	0.71	0.71	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	10	0	1	6	0	135	0	1568	18	64	1692	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	141	0	0	1586	0	64	1705	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 58.4% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	1	11	8	1	38	12	1476	22	36	1355	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	125		0	175		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.930			0.890			0.998			0.999	
Flt Protected		0.978			0.992		0.950			0.950		
Satd. Flow (prot)	0	1694	0	0	1645	0	1752	3498	0	1752	3501	0
Flt Permitted		0.978			0.992		0.950			0.950		
Satd. Flow (perm)	0	1694	0	0	1645	0	1752	3498	0	1752	3501	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		104			85			1461			2038	
Travel Time (s)		2.8			2.3			22.1			30.9	
Peak Hour Factor	0.69	0.69	0.69	0.80	0.80	0.80	0.91	0.91	0.91	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	14	1	16	10	1	48	13	1622	24	42	1576	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	59	0	13	1646	0	42	1582	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.5% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	855	0	0	254	0	1256	25	0	1216	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	1006	0	0	302	0	1396	28	0	1267	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1006	0	0	302	0	1396	28	0	1267	170
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	0.0
Total Split (%)	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%
Maximum Green (s)			69.9								69.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			62.8			150.0		150.0	150.0		77.2	150.0
Actuated g/C Ratio			0.42			1.00		1.00	1.00		0.51	1.00
v/c Ratio			0.88			0.19		0.40	0.02		0.70	0.11
Control Delay			49.5			0.3		0.3	0.0		31.4	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			49.5			0.3		0.3	0.0		31.4	0.1
LOS			D			A		A	A		C	A
Approach Delay								0.3			27.7	
Approach LOS								A			C	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			502			0		0	0		493	0
Queue Length 95th (ft)			516			0		0	0		630	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1275			1580		3505	1583		1804	1568
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			0.79			0.19		0.40	0.02		0.70	0.11

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 21.6

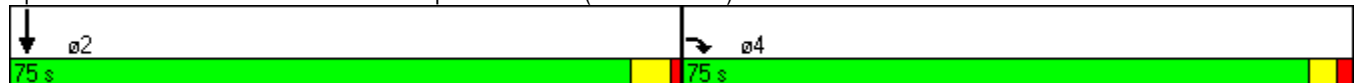
Intersection LOS: C

Intersection Capacity Utilization 71.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2013 Existing AM Peak
Timing Plan: AM Peak

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	54	0	1227	0	0	1805	266	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	60	0	1363	0	0	2006	296	0	12
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	60	0	1363	0	0	2006	296	0	12
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 59.9% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL
Lane Configurations												
Volume (vph)	10	4	8	79	1	5	10	130	19	46	13	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%				2%			
Storage Length (ft)	0		0	50		0			125	0		350
Storage Lanes	0		0	1		0			2	0		1
Taper Length (ft)	25		25	25		25			25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.99							
Frt		0.951			0.860				0.911			
Flt Protected		0.978		0.950				0.950	0.980			0.950
Satd. Flow (prot)	0	1732	0	1743	1557	0	0	1664	1564	0	0	1770
Flt Permitted		0.842		0.950				0.950	0.980			0.950
Satd. Flow (perm)	0	1492	0	1743	1557	0	0	1664	1564	0	0	1770
Right Turn on Red			No				No				No	
Satd. Flow (RTOR)												
Link Speed (mph)		30			35				25			
Link Distance (ft)		305			620				359			
Travel Time (s)		6.9			12.1				9.8			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.61	0.61	0.61	0.52	0.52	0.52	0.52	0.47	0.47	0.47	0.47	0.96
Adj. Flow (vph)	16	7	13	152	2	10	19	277	40	98	28	96
Shared Lane Traffic (%)								17%				
Lane Group Flow (vph)	0	36	0	152	31	0	0	230	213	0	0	96
Turn Type	Perm			Split				Split				Prot
Protected Phases		7		3	3			4	4			5
Permitted Phases	7											
Detector Phase	7	7		3	3			4	4			5
Switch Phase												
Minimum Initial (s)	5.0	5.0		7.0	7.0			5.0	5.0			7.0
Minimum Split (s)	13.0	13.0		36.0	36.0			13.0	13.0			14.0
Total Split (s)	13.0	13.0	0.0	37.0	37.0	0.0	0.0	30.0	30.0	0.0	0.0	30.0
Total Split (%)	6.5%	6.5%	0.0%	18.5%	18.5%	0.0%	0.0%	15.0%	15.0%	0.0%	0.0%	15.0%
Maximum Green (s)	5.8	5.8		30.4	30.4			22.6	22.6			23.0
Yellow Time (s)	3.0	3.0		3.6	3.6			3.0	3.0			3.0
All-Red Time (s)	4.2	4.2		3.0	3.0			4.4	4.4			4.0
Lost Time Adjust (s)	0.0	-2.2	-2.2	-1.6	-1.6	-1.6	-1.6	-2.0	-2.4	-2.4	0.0	-2.0
Total Lost Time (s)	7.2	5.0	1.8	5.0	5.0	2.4	2.4	5.4	5.0	1.6	4.0	5.0
Lead/Lag				Lead	Lead			Lag	Lag			Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Recall Mode	None	None		None	None			None	None			None
Walk Time (s)				4.0	4.0							
Flash Dont Walk (s)				25.0	25.0							
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)		8.3		23.4	23.4			35.8	36.2			19.6
Actuated g/C Ratio		0.04		0.12	0.12			0.18	0.18			0.10
v/c Ratio		0.58		0.75	0.17			0.77	0.75			0.55
Control Delay		127.5		106.4	79.2			94.4	93.6			81.0

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

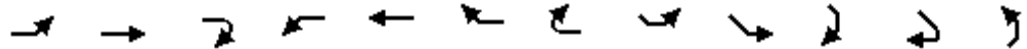
Timing Plan: AM Peak

					
Lane Group	NET	NER	SWL	SWT	SWR
Lane Configurations	↑↑	↑	↓	↑↑	↑
Volume (vph)	2218	179	17	1602	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Grade (%)	0%			0%	
Storage Length (ft)		300	150		100
Storage Lanes		1	1		1
Taper Length (ft)		25	25		25
Lane Util. Factor	*1.00	1.00	1.00	*1.00	1.00
Ped Bike Factor					
Frt		0.850			0.850
Flt Protected			0.950		
Satd. Flow (prot)	3725	1583	1770	3725	1583
Flt Permitted			0.950		
Satd. Flow (perm)	*3787	1583	1770	*3771	1583
Right Turn on Red		No			
Satd. Flow (RTOR)					
Link Speed (mph)	45			45	
Link Distance (ft)	1485			2107	
Travel Time (s)	22.5			31.9	
Confl. Peds. (#/hr)					
Peak Hour Factor	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	2310	186	20	1841	3
Shared Lane Traffic (%)					
Lane Group Flow (vph)	2310	186	20	1841	3
Turn Type		pm+ov	Prot		Perm
Protected Phases	2	3	1	6	
Permitted Phases		2			6
Detector Phase	2	3	1	6	6
Switch Phase					
Minimum Initial (s)	12.0	7.0	7.0	12.0	12.0
Minimum Split (s)	33.0	36.0	15.0	25.0	25.0
Total Split (s)	105.0	37.0	15.0	90.0	90.0
Total Split (%)	52.5%	18.5%	7.5%	45.0%	45.0%
Maximum Green (s)	98.8	30.4	9.1	83.9	83.9
Yellow Time (s)	4.6	3.6	3.0	4.4	4.4
All-Red Time (s)	1.6	3.0	2.9	1.7	1.7
Lost Time Adjust (s)	-1.2	-1.6	-0.9	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?					
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0
Recall Mode	C-Max	None	None	C-Max	C-Max
Walk Time (s)	7.0	4.0		7.0	7.0
Flash Dont Walk (s)	16.0	25.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0
Act Effct Green (s)	106.3	131.7	8.5	90.0	90.0
Actuated g/C Ratio	0.53	0.66	0.04	0.45	0.45
v/c Ratio	1.17	0.18	0.27	1.10	0.00
Control Delay	117.0	8.9	101.2	103.2	33.3

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL
Queue Delay		0.0		0.0	0.0			0.0	0.0			0.0
Total Delay		127.5		106.4	79.2			94.4	93.6			81.0
LOS		F		F	E			F	F			F
Approach Delay		127.5			101.8				94.0			
Approach LOS		F			F				F			
Queue Length 50th (ft)		48		197	38			309	285			113
Queue Length 95th (ft)		64		151	42			214	201			m110
Internal Link Dist (ft)		225			540				279			
Turn Bay Length (ft)				50				125	125			350
Base Capacity (vph)		63		279	249			298	283			221
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		0.57		0.54	0.12			0.77	0.75			0.43

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 150 (75%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 104.9

Intersection LOS: F

Intersection Capacity Utilization 98.7%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

ø2	ø1	ø3	ø4	
105 s	15 s	37 s	30 s	13 s
ø6	ø5			
90 s	30 s			

Lanes, Volumes, Timings
 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing AM Peak
 Timing Plan: AM Peak



Lane Group	NET	NER	SWL	SWT	SWR
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	117.0	8.9	101.2	103.2	33.3
LOS	F	A	F	F	C
Approach Delay	107.9			103.1	
Approach LOS	F			F	
Queue Length 50th (ft)	~1866	44	26	~1429	2
Queue Length 95th (ft)	m#1637	m33	58	#1457	10
Internal Link Dist (ft)	1405			2027	
Turn Bay Length (ft)		300	150		100
Base Capacity (vph)	1980	1110	89	1677	713
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.17	0.17	0.22	1.10	0.00
Intersection Summary					

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	240	0	34	15	6	39	191	2144	2	6	1113	680
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	400		0	200		0
Storage Lanes	0		1	0		1	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.99		0.99							
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.966		0.950			0.950		
Satd. Flow (prot)	3434	1863	1584	0	1604	1568	3519	3628	0	1719	3438	1538
Flt Permitted	0.950				0.966		0.950			0.950		
Satd. Flow (perm)	*3819	1863	1564	0	1596	1568	3519	*3811	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			1485	
Travel Time (s)		7.4			14.0			8.8			22.5	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.88	0.88	0.88	0.68	0.68	0.68	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	273	0	39	22	9	57	203	2281	2	6	1172	716
Shared Lane Traffic (%)												
Lane Group Flow (vph)	273	0	39	0	31	57	203	2283	0	6	1172	716
Turn Type	Split		Free	Split		pm+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	1	5	2		1	6	4
Permitted Phases			Free			3						6
Detector Phase	4	4		3	3	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	32.0	32.0		14.0	14.0	14.0	14.0	19.0		14.0	19.0	32.0
Total Split (s)	32.0	32.0	0.0	25.0	25.0	25.0	25.0	118.0	0.0	25.0	118.0	32.0
Total Split (%)	16.0%	16.0%	0.0%	12.5%	12.5%	12.5%	12.5%	59.0%	0.0%	12.5%	59.0%	16.0%
Maximum Green (s)	25.8	25.8		18.8	18.8	18.8	18.8	111.9		18.8	111.7	25.8
Yellow Time (s)	3.8	3.8		3.8	3.8	3.0	3.0	4.7		3.0	4.5	3.8
All-Red Time (s)	2.4	2.4		2.4	2.4	3.2	3.2	1.4		3.2	1.8	2.4
Lost Time Adjust (s)	-1.2	-1.2	0.0	-2.5	-1.2	-1.2	-1.2	-1.1	0.0	-1.2	-1.3	-1.2
Total Lost Time (s)	5.0	5.0	4.0	3.7	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0	1.0	1.0	6.0		1.0	6.0	1.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)	7.0	7.0										7.0
Flash Dont Walk (s)	18.0	18.0										18.0
Pedestrian Calls (#/hr)	0	0										0
Act Effct Green (s)	38.3		200.0		9.5	31.8	16.1	114.9		20.0	118.8	158.1
Actuated g/C Ratio	0.19		1.00		0.05	0.16	0.08	0.57		0.10	0.59	0.79

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.42		0.02		0.41	0.23	0.72	1.10		0.03	0.57	0.59
Control Delay	73.8		0.0		107.7	73.9	103.8	91.0		77.0	18.0	21.0
Queue Delay	0.0		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	73.8		0.0		107.7	73.9	103.8	91.0		77.0	18.0	21.0
LOS	E		A		F	E	F	F		E	B	C
Approach Delay					85.8			92.1			19.3	
Approach LOS					F			F			B	
Queue Length 50th (ft)	164		0		41	66	137	~1803		7	672	873
Queue Length 95th (ft)	215		0		62	86	183	#1904		m8	m662	m821
Internal Link Dist (ft)		302			435			504			1405	
Turn Bay Length (ft)			225			75	400			200		
Base Capacity (vph)	657		1564		160	249	352	2084		172	2042	1215
Starvation Cap Reductn	0		0		0	0	0	0		0	0	0
Spillback Cap Reductn	0		0		0	0	0	0		0	0	0
Storage Cap Reductn	0		0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.42		0.02		0.19	0.23	0.58	1.10		0.03	0.57	0.59

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 61.3

Intersection LOS: E

Intersection Capacity Utilization 91.9%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø3	 ø4
118 s	25 s	25 s	32 s
 ø5	 ø6		
25 s	118 s		

Lanes, Volumes, Timings
11: South Road & Country Club Road

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	151	30	473	355	436	30	53	93	339	130	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99		0.96		1.00	0.98	1.00	1.00	
Frt		0.975				0.850			0.850		0.993	
Flt Protected	0.950			0.950				0.982		0.950	0.979	
Satd. Flow (prot)	1517	3041	0	1752	1845	1672	0	1883	1482	1625	1948	0
Flt Permitted	0.531			0.497				0.982		0.950	0.979	
Satd. Flow (perm)	838	3041	0	912	1845	1613	0	1879	1456	1620	1945	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				479			118		2	
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	7		3	3		7	6		3	3		6
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.79	0.79	0.79	0.88	0.88	0.88
Heavy Vehicles (%)	15%	15%	15%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	11	172	34	520	390	479	38	67	118	385	148	12
Shared Lane Traffic (%)										30%		
Lane Group Flow (vph)	11	206	0	520	390	479	0	105	118	269	276	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	33.0	33.0	0.0	32.0	65.0	37.0	28.0	28.0	32.0	37.0	37.0	0.0
Total Split (%)	25.4%	25.4%	0.0%	24.6%	50.0%	28.5%	21.5%	21.5%	24.6%	28.5%	28.5%	0.0%
Maximum Green (s)	25.7	25.7		25.2	57.7	30.3	21.3	21.3	25.2	30.3	30.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	28.0	28.0		60.0	60.0	88.3		26.7	53.7	28.3	28.3	
Actuated g/C Ratio	0.22	0.22		0.46	0.46	0.68		0.21	0.41	0.22	0.22	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.06	0.31		0.87	0.46	0.38		0.27	0.17	0.76	0.65	
Control Delay	41.8	40.9		44.8	26.1	1.3		47.4	4.5	61.5	52.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	41.8	40.9		44.8	26.1	1.3		47.4	4.5	61.5	52.9	
LOS	D	D		D	C	A		D	A	E	D	
Approach Delay		40.9			24.6			24.7			57.2	
Approach LOS		D			C			C			E	
Queue Length 50th (ft)	7	71		329	220	0		77	0	220	217	
Queue Length 95th (ft)	24	105		#519	309	25		117	24	313	305	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	180	668		595	852	1296		386	676	400	481	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.06	0.31		0.87	0.46	0.37		0.27	0.17	0.67	0.57	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 33.6

Intersection LOS: C

Intersection Capacity Utilization 89.0%

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.

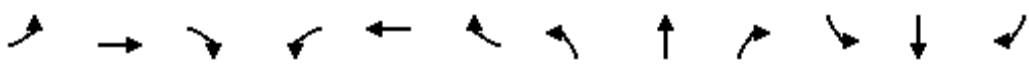
Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
32 s	33 s	37 s	28 s
 ø6			
65 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	624	11	0	1168	855	0	0	266	0	0	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	678	12	0	1270	929	0	0	289	0	0	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	678	12	0	1270	929	0	0	289	0	0	177
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

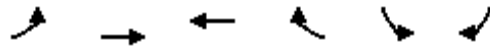
Intersection Capacity Utilization 56.3% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2013 Existing AM Peak

Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	894	1975	254	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.983			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	4999	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	4999	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	993	2297	295	0	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	993	2592	0	0	29
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.8%

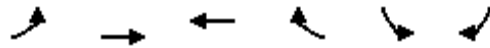
ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
14: NC 54 (Raleigh Road) & Glen Lennox Dr #1

2013 Existing AM Peak

Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	10	1935	2238	28	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.998			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1752	5036	4978	0	0	1596
Flt Permitted	0.950					
Satd. Flow (perm)	1752	5036	4978	0	0	1596
Link Speed (mph)		45	45		30	
Link Distance (ft)		164	247		247	
Travel Time (s)		2.5	3.7		5.6	
Confl. Peds. (#/hr)	1			1		2
Peak Hour Factor	0.90	0.90	0.87	0.87	1.00	0.78
Heavy Vehicles (%)	3%	3%	4%	4%	3%	3%
Adj. Flow (vph)	11	2150	2572	32	0	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	2150	2604	0	0	46
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 54.5%

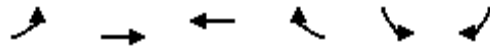
ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2013 Existing AM Peak

Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	1935	2256	9	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5080	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5080	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		247	359		229	
Travel Time (s)		3.7	5.4		6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2103	2452	10	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2103	2462	0	0	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.8%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

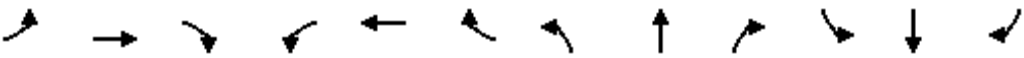
2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	1692	177	59	2034	21	172	31	94	39	25	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	250		0	150		150	50		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98		0.98	0.99	0.98	
Frt		0.986			0.998				0.850		0.916	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	4946	0	1736	4975	0	1736	1827	1553	1719	1631	0
Flt Permitted	0.059			0.059			0.714			0.726		
Satd. Flow (perm)	109	4946	0	108	4975	0	1284	1827	1523	1305	1631	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		359			576			537			463	
Travel Time (s)		5.4			8.7			14.6			12.6	
Confl. Peds. (#/hr)	9		6	6		9	13		6	6		13
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86	0.86
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%	5%
Adj. Flow (vph)	36	1923	201	66	2285	24	265	48	145	45	29	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	2124	0	66	2309	0	265	48	145	45	66	0
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	27.0		13.0	26.0		41.0	41.0	13.0	39.0	39.0	
Total Split (s)	19.0	78.0	0.0	21.0	80.0	0.0	41.0	41.0	21.0	41.0	41.0	0.0
Total Split (%)	13.6%	55.7%	0.0%	15.0%	57.1%	0.0%	29.3%	29.3%	15.0%	29.3%	29.3%	0.0%
Maximum Green (s)	13.4	72.4		15.6	74.1		34.6	34.6	15.6	34.5	34.5	
Yellow Time (s)	3.0	3.8		3.0	4.1		3.1	3.1	3.0	3.2	3.2	
All-Red Time (s)	2.6	1.8		2.4	1.8		3.3	3.3	2.4	3.3	3.3	
Lost Time Adjust (s)	-0.6	-0.6	0.0	-0.4	-0.9	0.0	-1.4	-1.4	-0.4	-1.5	-1.5	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	2.0		2.0	2.0		3.0	3.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			13.0		27.0	27.0		25.0	25.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	76.0	76.0		86.5	86.5		33.0	33.0	49.0	33.0	33.0	
Actuated g/C Ratio	0.54	0.54		0.62	0.62		0.24	0.24	0.35	0.24	0.24	
v/c Ratio	0.24	0.79		0.26	0.75		0.87	0.11	0.27	0.15	0.17	
Control Delay	19.9	29.0		13.2	3.9		79.2	41.1	30.0	42.1	42.5	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2013 Existing AM Peak
Timing Plan: AM Peak

												
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	
Total Delay	19.9	29.0		13.2	3.9		79.2	41.1	30.0	42.1	42.5	
LOS	B	C		B	A		E	D	C	D	D	
Approach Delay		28.8			4.2			59.6			42.3	
Approach LOS		C			A			E			D	
Queue Length 50th (ft)	16	578		12	22		227	34	86	32	47	
Queue Length 95th (ft)	34	618		m27	23		223	49	95	63	84	
Internal Link Dist (ft)		279			496			457			383	
Turn Bay Length (ft)	275			250			150		150	50		
Base Capacity (vph)	223	2685		253	3075		330	470	536	336	419	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.16	0.79		0.26	0.75		0.80	0.10	0.27	0.13	0.16	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 27 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 20.4

Intersection LOS: C

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

 ø2		 ø1		 ø4	
78 s		21 s		41 s	
 ø5		 ø6		 ø8	
19 s		80 s		41 s	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2013 Existing AM Peak

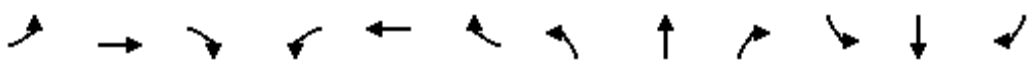
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	1758	36	92	2036	14	15	4	168	30	7	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99	0.99		0.99	
Frt		0.997			0.999				0.850		0.944	
Flt Protected	0.950			0.950				0.962			0.977	
Satd. Flow (prot)	1770	5066	0	1736	4981	0	0	1775	1568	0	1703	0
Flt Permitted	0.045			0.074				0.791			0.854	
Satd. Flow (perm)	84	5066	0	135	4981	0	0	1450	1548	0	1488	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	6		8	8		6	9		1	1		9
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	22	1870	38	102	2262	16	19	5	207	39	9	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	1908	0	102	2278	0	0	24	207	0	82	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	12.9	29.2		12.9	31.2		47.2	47.2	47.2	45.3	45.3	
Total Split (s)	22.0	74.0	0.0	18.0	70.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	15.7%	52.9%	0.0%	12.9%	50.0%	0.0%	34.3%	34.3%	34.3%	34.3%	34.3%	0.0%
Maximum Green (s)	16.1	67.8		12.1	63.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	0.0	-0.9	-1.2	0.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	102.5	90.3		100.5	92.3			24.5	24.5		24.5	
Actuated g/C Ratio	0.73	0.64		0.72	0.66			0.18	0.18		0.18	
v/c Ratio	0.10	0.58		0.48	0.69			0.09	0.76		0.31	
Control Delay	6.0	6.6		36.0	4.1			46.0	72.2		51.7	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2013 Existing AM Peak

Timing Plan: AM Peak

												
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	
Total Delay	6.0	6.6		36.0	4.1			46.0	72.2		51.7	
LOS	A	A		D	A			D	E		D	
Approach Delay		6.6			5.5			69.5			51.7	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	3	102		31	85			19	182		66	
Queue Length 95th (ft)	m4	132		m63	86			39	224		93	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	266	3266		252	3283			445	475		457	
Starvation Cap Reductn	0	0		0	24			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.08	0.58		0.40	0.70			0.05	0.44		0.18	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 29 (21%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 10.0

Intersection LOS: A

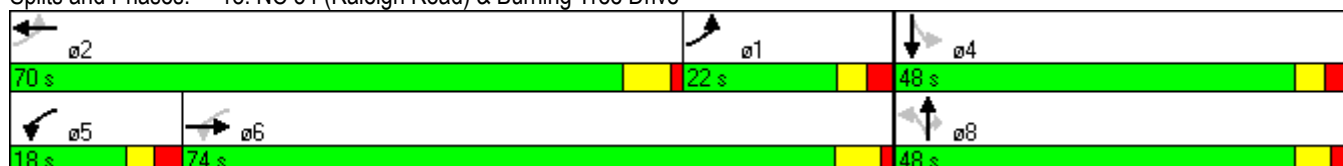
Intersection Capacity Utilization 74.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	191	1692	120	111	2078	24	24	0	5	9	12	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95			0.97						
Frt			0.850			0.850		0.850			0.865	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1724	5036	1568	1736	4988	1553	1770	1583	0	1736	1580	0
Flt Permitted	0.045			0.092			0.491			0.753		
Satd. Flow (perm)	82	5036	1485	168	4988	1507	915	1583	0	1376	1580	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	8		10	10		8						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.73	0.73	0.73	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	205	1819	129	119	2234	26	33	0	7	9	13	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	1819	129	119	2234	26	33	7	0	9	132	0
Turn Type	D,P+P		Perm	D,P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	28.0	28.0	14.0	19.0	19.0	14.0	14.0		15.0	15.0	
Total Split (s)	23.0	88.0	88.0	23.0	61.0	61.0	29.0	29.0	0.0	29.0	29.0	0.0
Total Split (%)	16.4%	62.9%	62.9%	16.4%	43.6%	43.6%	20.7%	20.7%	0.0%	20.7%	20.7%	0.0%
Maximum Green (s)	16.7	81.7	81.7	16.7	54.7	54.7	22.2	22.2		21.7	21.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	-1.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	107.6	97.9	97.9	107.6	91.4	91.4	17.4	17.4		17.4	17.4	
Actuated g/C Ratio	0.77	0.70	0.70	0.77	0.65	0.65	0.12	0.12		0.12	0.12	
v/c Ratio	0.81	0.52	0.12	0.50	0.69	0.03	0.29	0.04		0.05	0.67	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2013 Existing AM Peak
Timing Plan: AM Peak

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	19%
Maximum Green (s)	23.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	49.7	15.9	12.8	26.8	6.8	2.3	60.2	50.8		51.4	74.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	49.7	15.9	12.8	26.8	6.8	2.3	60.2	50.8		51.4	74.4	
LOS	D	B	B	C	A	A	E	D		D	E	
Approach Delay		18.9			7.8			58.5			73.0	
Approach LOS		B			A			E			E	
Queue Length 50th (ft)	140	336	51	22	449	1	28	6		7	117	
Queue Length 95th (ft)	#252	382	97	m59	197	m2	48	16		24	180	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	281	3522	1039	337	3257	984	157	271		236	271	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.73	0.52	0.12	0.35	0.69	0.03	0.21	0.03		0.04	0.49	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 18 (13%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 15.2

Intersection LOS: B

Intersection Capacity Utilization 80.8%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
23 s	88 s	29 s
 ø5	 ø10	 ø6
23 s	27 s	61 s
		 ø8
		29 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	1449	159	629	2044	144	69	15	51	54	24	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor			0.98	1.00				1.00		1.00		
Frt			0.850			0.850		0.970	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.976		0.950		
Satd. Flow (prot)	3434	5086	1584	3383	5011	1560	1427	1358	1276	3451	1872	1591
Flt Permitted	0.950			0.950			0.950	0.976		0.950		
Satd. Flow (perm)	3434	5086	1548	3377	5011	1560	1427	1358	1276	3442	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)			7	7					1	1		
Peak Hour Factor	0.86	0.86	0.86	0.94	0.94	0.94	0.78	0.78	0.78	0.79	0.79	0.79
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	19%	19%	19%	3%	3%	3%
Adj. Flow (vph)	121	1685	185	669	2174	153	88	19	65	68	30	130
Shared Lane Traffic (%)							33%		18%			
Lane Group Flow (vph)	121	1685	185	669	2174	153	59	60	53	68	30	130
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	27.0	56.0	25.0	39.0	68.0	20.0	25.0	25.0	64.0	20.0	20.0	47.0
Total Split (%)	19.3%	40.0%	17.9%	27.9%	48.6%	14.3%	17.9%	17.9%	45.7%	14.3%	14.3%	33.6%
Maximum Green (s)	19.8	49.4	17.9	31.9	61.5	12.7	17.9	17.9		12.7	12.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	0.0	-2.3	-2.3	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.1	5.0	5.0	7.3
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effect Green (s)	10.9	58.7	72.7	34.0	81.8	100.1	14.0	14.0	43.8	13.3	13.3	19.6
Actuated g/C Ratio	0.08	0.42	0.52	0.24	0.58	0.72	0.10	0.10	0.31	0.10	0.10	0.14
v/c Ratio	0.45	0.79	0.23	0.81	0.74	0.14	0.41	0.44	0.13	0.21	0.17	0.59

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	63.4	48.6	20.7	40.1	9.7	3.6	66.8	68.6	20.7	59.3	59.6	46.9
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	63.4	48.6	20.7	40.1	9.7	3.6	66.8	68.6	20.7	59.3	59.6	46.9
LOS	E	D	C	D	A	A	E	E	C	E	E	D
Approach Delay	46.9			16.2			53.2			52.3		
Approach LOS	D			B			D			D		
Queue Length 50th (ft)	55	593	117	307	215	24	53	57	26	29	25	86
Queue Length 95th (ft)	78	616	136	m318	m242	m38	86	92	41	47	51	110
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	540	2133	854	822	2929	1135	204	194	454	370	201	368
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	0.22	0.79	0.22	0.81	0.74	0.13	0.29	0.31	0.12	0.18	0.15	0.35

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 108 (77%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 30.2

Intersection LOS: C

Intersection Capacity Utilization 68.1%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

			
ø2	ø1	ø3	ø4
56 s	39 s	20 s	25 s
			
ø5	ø6		
27 s	68 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	8	1406	125	30	2164	176	606	93	62	137	26	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.976			0.977	
Flt Protected	0.950			0.950			0.950	0.971		0.950	0.973	
Satd. Flow (prot)	1761	4448	1575	1761	5061	1576	1656	1652	0	1664	1665	0
Flt Permitted	0.058			0.064			0.950	0.971		0.950	0.973	
Satd. Flow (perm)	107	4448	1527	119	5061	1576	1656	1652	0	1664	1665	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	9	1512	134	32	2278	185	638	98	65	165	31	16
Shared Lane Traffic (%)							37%			36%		
Lane Group Flow (vph)	9	1512	134	32	2278	185	402	399	0	106	106	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	19.0	67.0	33.0	16.0	64.0	24.0	33.0	33.0	0.0	24.0	24.0	0.0
Total Split (%)	13.6%	47.9%	23.6%	11.4%	45.7%	17.1%	23.6%	23.6%	0.0%	17.1%	17.1%	0.0%
Maximum Green (s)	12.2	59.5	25.8	9.0	56.5	16.8	25.8	25.8		16.8	16.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	77.0	68.4	100.3	75.0	75.2	95.3	31.9	31.9		15.1	15.1	
Actuated g/C Ratio	0.55	0.49	0.72	0.54	0.54	0.68	0.23	0.23		0.11	0.11	
v/c Ratio	0.06	0.70	0.12	0.17	0.84	0.17	1.06	1.06		0.59	0.59	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	1.9	4.9	1.0	27.2	31.3	8.8	114.8	113.5		72.6	72.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	1.9	4.9	1.0	27.2	31.3	8.8	114.8	113.5		72.6	72.5	
LOS	A	A	A	C	C	A	F	F		E	E	
Approach Delay		4.5			29.6			114.2			72.5	
Approach LOS		A			C			F			E	
Queue Length 50th (ft)	0	43	3	13	590	52	~429	~424		97	97	
Queue Length 95th (ft)	m1	62	m8	29	#863	103	#689	#684		147	147	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	225	2173	1105	193	2720	1117	378	377		226	226	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.70	0.12	0.17	0.84	0.17	1.06	1.06		0.47	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 103 (74%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 36.4

Intersection LOS: D

Intersection Capacity Utilization 81.3%

ICU Level of Service D

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ 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.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

			
ø2	ø1	ø3	ø4
67 s	16 s	24 s	33 s
			
ø5	ø6		
19 s	64 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2013 Existing AM Peak

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	356	338	57	134	220	81	48	399	88	72	571	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00		0.98	0.99	1.00		1.00	0.99	
Frt		0.978				0.850		0.973			0.956	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1577	1800	0	1719	1810	1538	1703	3304	0	1703	3210	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1572	1800	0	1714	1810	1513	1688	3304	0	1699	3210	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	3		4	4		3	7		4	4		7
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Parking (#/hr)	0											
Adj. Flow (vph)	387	367	62	144	237	87	51	424	94	77	614	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	387	429	0	144	237	87	51	518	0	77	869	0
Turn Type	Prot			Prot		pm+ov	Prot			Prot		
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	
Total Split (s)	35.0	35.0	0.0	35.0	35.0	20.0	20.0	40.0	0.0	20.0	40.0	0.0
Total Split (%)	26.9%	26.9%	0.0%	26.9%	26.9%	15.4%	15.4%	30.8%	0.0%	15.4%	30.8%	0.0%
Maximum Green (s)	29.1	29.1		29.4	29.4	14.1	13.8	34.3		14.1	34.6	
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	37.8	43.8		15.9	21.9	33.2	9.4	39.0		11.3	43.5	
Actuated g/C Ratio	0.29	0.34		0.12	0.17	0.26	0.07	0.30		0.09	0.33	
v/c Ratio	0.84	0.71		0.69	0.78	0.22	0.41	0.52		0.52	0.81	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	61.8	45.9		74.8	74.2	24.0	67.5	40.7		68.9	47.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	61.8	45.9		74.8	74.2	24.0	67.5	40.7		68.9	47.6	
LOS	E	D		E	E	C	E	D		E	D	
Approach Delay	53.4			65.0			43.1			49.3		
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	307	312		124	206	34	42	191		63	359	
Queue Length 95th (ft)	#550	#497		194	271	m55	84	260		114	#502	
Internal Link Dist (ft)	718			652			519			599		
Turn Bay Length (ft)	200											
Base Capacity (vph)	459	607		397	418	433	197	991		197	1074	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.84	0.71		0.36	0.57	0.20	0.26	0.52		0.39	0.81	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 124 (95%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 51.9

Intersection LOS: D

Intersection Capacity Utilization 80.5%

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.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
20 s	40 s	35 s	35 s
 ø5	 ø6	 ø8	 ø7
20 s	40 s	35 s	35 s

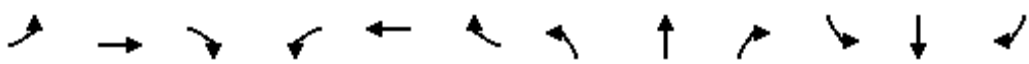
Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	162	239	6	5	267	39	13	3	7	24	3	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			1.00	0.99
Frt		0.996			0.981			0.958				0.850
Flt Protected	0.950			0.950				0.973			0.958	
Satd. Flow (prot)	1719	3422	0	1752	3426	0	0	1727	0	0	1734	1538
Flt Permitted	0.479			0.580				0.845				
Satd. Flow (perm)	863	3422	0	1064	3426	0	0	1499	0	0	1802	1519
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	4		4	4		4	1		6	6		1
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.60	0.60	0.60	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	184	272	7	6	297	43	22	5	12	28	4	246
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	279	0	6	340	0	0	39	0	0	32	246
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	18.0	42.0	0.0	24.0	24.0	0.0	23.0	23.0	0.0	23.0	23.0	18.0
Total Split (%)	27.7%	64.6%	0.0%	36.9%	36.9%	0.0%	35.4%	35.4%	0.0%	35.4%	35.4%	27.7%
Maximum Green (s)	12.9	36.9		18.8	18.8		17.3	17.3		17.2	17.2	12.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	54.8	57.8		38.7	38.7			7.8			7.9	14.3
Actuated g/C Ratio	0.84	0.89		0.60	0.60			0.12			0.12	0.22
v/c Ratio	0.21	0.09		0.01	0.17			0.22			0.15	0.73
Control Delay	3.9	2.8		9.0	7.8			29.0			27.3	34.0
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	3.9	2.8		9.0	7.8			29.0			27.3	34.0
LOS	A	A		A	A			C			C	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		3.2			7.9			29.0			33.2	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	0	0		1	24			14			12	92
Queue Length 95th (ft)	m82	52		7	67			25			32	110
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	902	3042		633	2040			415			499	390
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.20	0.09		0.01	0.17			0.09			0.06	0.63

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 7 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 12.9

Intersection LOS: B

Intersection Capacity Utilization 48.0%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2013 Existing AM Peak
Timing Plan: AM Peak

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	65	4	2	93	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1812	0	0	1825	1770	0
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1812	0	0	1825	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.82	0.82	0.77	0.77	0.45	0.45
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	79	5	3	121	18	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	0	0	124	18	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	16.5%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2013 Existing AM Peak
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	57	5	1	39	1	12	1	0	0	2	0
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			0.997							
Flt Protected		0.999			0.999			0.957				
Satd. Flow (prot)	0	1771	0	0	1855	0	0	1783	0	0	1863	0
Flt Permitted		0.999			0.999			0.957				
Satd. Flow (perm)	0	1771	0	0	1855	0	0	1783	0	0	1863	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.83	0.83	0.83	0.79	0.79	0.79	0.65	0.65	0.65	0.50	0.50	0.50
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	69	6	1	49	1	18	2	0	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	51	0	0	20	0	0	4	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	17.8%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2013 Existing AM Peak
Timing Plan: AM Peak



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	1816	1227	1108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	1	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	666		536		2107	
Travel Time (s)	15.1		8.1		31.9	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	1816	1363	1231
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1816	1363	1231
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 71.9% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
61: NC 54 EB Off Ramp &

2013 Existing AM Peak
Timing Plan: AM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1108	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			666	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1231	0	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1231	0	43
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	61.6%			ICU Level of Service B		
Analysis Period (min)	15					

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2013 Existing AM Peak

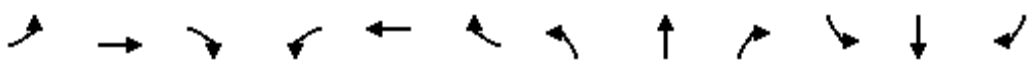
Timing Plan: AM Peak

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	840	54	0	2219	0	1108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	5085	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			164	476	
Travel Time (s)	1.4			2.5	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1000	64	0	2466	0	1142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1000	64	0	2466	0	1142
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	98.5%			ICU Level of Service F		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	103	66	287	108	45	150	952	213	49	860	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	175		0	375		325	225		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.99				1.00							
Frt		0.941			0.969				0.850		0.996	
Flt Protected	0.950			0.950	0.985		0.950			0.950		
Satd. Flow (prot)	1702	1686	0	1601	1657	0	1744	3487	1508	1686	3475	0
Flt Permitted	0.950			0.950	0.985		0.950			0.950		
Satd. Flow (perm)	1692	1686	0	1601	1657	0	1744	3487	1508	1686	3475	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	95	118	76	319	120	50	163	1035	232	52	915	22
Shared Lane Traffic (%)				23%								
Lane Group Flow (vph)	95	194	0	246	243	0	163	1035	232	52	937	0
Turn Type	Split			Split			Prot		Free	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases									Free			
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		18.0	68.0	
Total Split (s)	25.0	25.0	0.0	35.0	35.0	0.0	35.0	100.0	0.0	20.0	85.0	0.0
Total Split (%)	13.9%	13.9%	0.0%	19.4%	19.4%	0.0%	19.4%	55.6%	0.0%	11.1%	47.2%	0.0%
Maximum Green (s)	18.7	18.7		29.2	29.2		28.8	94.2		13.7	79.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.0	3.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	20.0	20.0		29.4	29.4		30.0	101.2	180.0	12.0	80.6	
Actuated g/C Ratio	0.11	0.11		0.16	0.16		0.17	0.56	1.00	0.07	0.45	
v/c Ratio	0.50	1.04		0.94	0.90		0.56	0.53	0.15	0.46	0.60	
Control Delay	85.3	149.8		114.7	106.4		76.1	25.6	0.2	93.3	39.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	85.3	149.8		114.7	106.4		76.1	25.6	0.2	93.3	39.8	
LOS	F	F		F	F		E	C	A	F	D	
Approach Delay		128.6			110.6			27.2			42.6	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	108	~245		306	300		193	458	0	60	441	
Queue Length 95th (ft)	170	#402		#492	#473		m268	m498	m0	111	514	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			175			375		325	225		
Base Capacity (vph)	189	187		267	276		291	1960	1508	141	1555	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.50	1.04		0.92	0.88		0.56	0.53	0.15	0.37	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 30 (17%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 160

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 53.9

Intersection LOS: D

Intersection Capacity Utilization 72.4%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

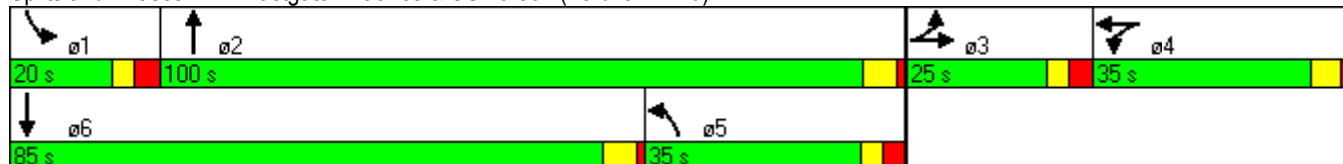
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	138	269	238	1182	10	1121	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12
Storage Length (ft)	175	0	250		125		125
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25	25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1770	1531	1752	3505	1811	3505	1568
Flt Permitted	0.950		0.207		0.189		
Satd. Flow (perm)	1770	1531	382	3505	360	3505	1568
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			45		45	
Link Distance (ft)	423			800		1344	
Travel Time (s)	8.2			12.1		20.4	
Peak Hour Factor	0.81	0.81	0.95	0.95	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	3%
Adj. Flow (vph)	170	332	251	1244	10	1168	199
Shared Lane Traffic (%)							
Lane Group Flow (vph)	170	332	251	1244	10	1168	199
Turn Type		pm+ov	pm+pt		pm+pt		pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases		4	2		6		6
Detector Phase	4	5	5	2	1	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	20.0	30.0	30.0	134.0	15.0	119.0	20.0
Total Split (s)	20.0	30.0	30.0	145.0	15.0	130.0	20.0
Total Split (%)	11.1%	16.7%	16.7%	80.6%	8.3%	72.2%	11.1%
Maximum Green (s)	14.4	24.1	24.1	139.1	9.7	124.1	14.4
Yellow Time (s)	3.0	3.0	3.0	4.5	3.0	4.5	3.0
All-Red Time (s)	2.6	2.9	2.9	1.4	2.3	1.4	2.6
Lost Time Adjust (s)	-0.6	-0.9	-0.9	-0.9	-0.3	-0.9	-0.6
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	4.0	1.0	1.0	2.0	1.0	2.0	4.0
Recall Mode	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	15.0	45.0	150.1	150.1	125.0	125.0	145.0
Actuated g/C Ratio	0.08	0.25	0.83	0.83	0.69	0.69	0.81
v/c Ratio	1.15	0.87	0.49	0.43	0.03	0.48	0.16
Control Delay	187.1	86.9	19.3	7.0	1.1	1.8	0.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	187.1	86.9	19.3	7.1	1.1	1.8	0.7
LOS	F	F	B	A	A	A	A
Approach Delay	120.8			9.2		1.6	

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Approach LOS	F			A		A	
Queue Length 50th (ft)	~235	380	63	179	1	37	4
Queue Length 95th (ft)	#345	448	m134	m372	m1	m42	m5
Internal Link Dist (ft)	343			720		1264	
Turn Bay Length (ft)	175		250		125		125
Base Capacity (vph)	148	383	509	2922	331	2434	1263
Starvation Cap Reductn	0	0	0	513	0	0	0
Spillback Cap Reductn	0	0	0	0	0	9	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.87	0.49	0.52	0.03	0.48	0.16

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 178 (99%), Referenced to phase 2:NBT and 6:SBTU, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 22.7

Intersection LOS: C

Intersection Capacity Utilization 64.3%

ICU Level of Service C

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.

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

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	237	52	34	26	49	14	54	1192	24	29	1154	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.97
Frt		0.941			0.966			0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1746	0	1761	1790	0	1744	3477	0	1744	3489	1561
Flt Permitted	0.415			0.691			0.198			0.139		
Satd. Flow (perm)	777	1746	0	1269	1790	0	364	3477	0	255	3489	1520
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			5	5			1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.93	0.93	0.93	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	282	62	40	33	62	18	58	1282	26	30	1190	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	282	102	0	33	80	0	58	1308	0	30	1190	290
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	20.0	32.4		30.0	30.0		15.0	104.0		15.0	104.0	104.0
Total Split (s)	25.0	58.0	0.0	33.0	33.0	0.0	18.0	104.0	0.0	18.0	104.0	104.0
Total Split (%)	13.9%	32.2%	0.0%	18.3%	18.3%	0.0%	10.0%	57.8%	0.0%	10.0%	57.8%	57.8%
Maximum Green (s)	18.7	51.6		26.6	26.6		12.0	97.9		12.4	97.9	97.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.0	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.0	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effct Green (s)	38.9	38.9		13.9	13.9		121.0	121.0		116.7	116.7	116.7
Actuated g/C Ratio	0.22	0.22		0.08	0.08		0.67	0.67		0.65	0.65	0.65
v/c Ratio	1.01	0.27		0.34	0.58		0.17	0.56		0.13	0.53	0.29

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	121.1	59.9		86.4	95.9		14.0	14.8		12.8	16.3	13.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.3	0.0
Total Delay	121.1	59.9		86.4	95.9		14.0	14.8		12.8	16.6	13.4
LOS	F	E		F	F		B	B		B	B	B
Approach Delay	104.8			93.1			14.8			15.9		
Approach LOS	F			F			B			B		
Queue Length 50th (ft)	~319	102		38	93		21	323		11	325	137
Queue Length 95th (ft)	#440	146		67	132		m45	377		m23	525	m189
Internal Link Dist (ft)	500			548			408			720		
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	279	514		197	278		344	2337		273	2262	985
Starvation Cap Reductn	0	0		0	0		0	0		0	419	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.01	0.20		0.17	0.29		0.17	0.56		0.11	0.65	0.29

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 56 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 28.1

Intersection LOS: C

Intersection Capacity Utilization 72.1%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

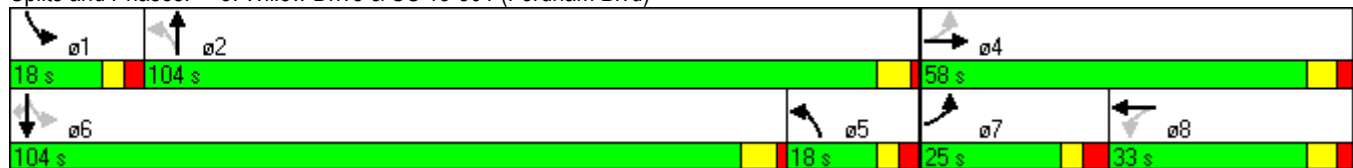
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	6	349	4	5	6	409	1116	7	14	1073	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-1%	
Storage Length (ft)	0		400	0		0	400		0	100		150
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99			0.99			1.00		1.00		
Frt			0.850		0.946			0.999				0.850
Flt Protected		0.955			0.988		0.950			0.950		
Satd. Flow (prot)	0	1753	2746	0	1644	0	3383	3483	0	1761	3522	1576
Flt Permitted		0.955			0.988		0.950			0.950		
Satd. Flow (perm)	0	1735	2746	0	1644	0	3383	3483	0	1758	3522	1576
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		566			126			1593			286	
Travel Time (s)		35.6			10.9			24.1			4.3	
Confl. Peds. (#/hr)	7					7			1	1		
Peak Hour Factor	0.85	0.85	0.85	0.75	0.75	0.75	0.96	0.96	0.96	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	135	7	411	5	7	8	426	1162	7	15	1179	125
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	142	411	0	20	0	426	1169	0	15	1179	125
Turn Type	Split		pm+ov	Split			Prot			Prot		pm+ov
Protected Phases	3	3	5	4	4		5	2		1	6	3
Permitted Phases			3									6
Detector Phase	3	3	5	4	4		5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	41.0	41.0		14.0	19.0		15.0	19.0	14.0
Total Split (s)	20.0	20.0	45.0	41.0	41.0	0.0	45.0	104.0	0.0	15.0	74.0	20.0
Total Split (%)	11.1%	11.1%	25.0%	22.8%	22.8%	0.0%	25.0%	57.8%	0.0%	8.3%	41.1%	11.1%
Maximum Green (s)	13.4	13.4	38.3	34.3	34.3		38.3	97.9		8.5	67.9	13.4
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	4.4		3.0	4.6	3.8
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	1.7		3.5	1.5	2.8
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	-1.7	-1.1	0.0	-1.5	-1.1	-1.6
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lag	Lead		Lag	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	3.0	1.0	1.0		3.0	6.0		3.0	6.0	1.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	None
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		22.1	58.3		9.0		34.2	130.8		9.0	100.2	127.2
Actuated g/C Ratio		0.12	0.32		0.05		0.19	0.73		0.05	0.56	0.71
v/c Ratio		0.66	0.46		0.24		0.66	0.46		0.17	0.60	0.11
Control Delay		90.1	40.9		89.4		72.2	13.0		113.3	20.4	2.0
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		90.1	40.9		89.4		72.2	13.0		113.3	20.4	2.0
LOS		F	D		F		E	B		F	C	A
Approach Delay		53.5			89.4			28.8			19.7	
Approach LOS		D			F			C			B	
Queue Length 50th (ft)		163	180		23		236	344		19	666	11
Queue Length 95th (ft)		227	199		47		294	445		m37	774	16
Internal Link Dist (ft)		486			46			1513			206	
Turn Bay Length (ft)			400				400			100		150
Base Capacity (vph)		215	895		329		752	2531		98	1960	1114
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.66	0.46		0.06		0.57	0.46		0.15	0.60	0.11

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 101 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 29.6

Intersection LOS: C

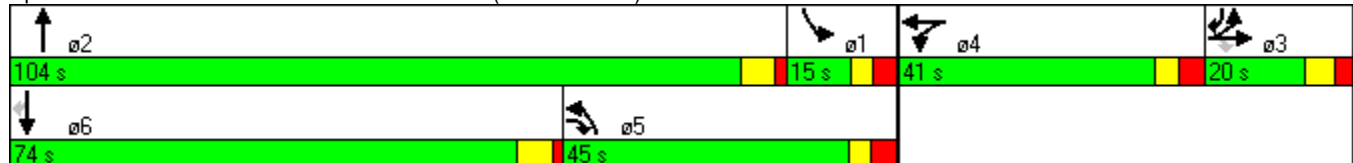
Intersection Capacity Utilization 67.2%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	0	4	2	0	66	4	1444	8	65	1328	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	200		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.938			0.870			0.999			0.998	
Flt Protected		0.974			0.998		0.950			0.950		
Satd. Flow (prot)	0	1702	0	0	1602	0	1752	3501	0	1752	3498	0
Flt Permitted		0.974			0.998		0.950			0.950		
Satd. Flow (perm)	0	1702	0	0	1602	0	1752	3501	0	1752	3498	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			2038			1593	
Travel Time (s)		7.9			3.4			30.9			24.1	
Peak Hour Factor	0.69	0.69	0.69	0.77	0.77	0.77	0.98	0.98	0.98	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	7	0	6	3	0	86	4	1473	8	76	1544	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	89	0	4	1481	0	76	1563	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 58.0% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	1	4	7	0	51	9	1400	15	38	1291	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	125		0	175		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.967			0.881			0.998				
Flt Protected		0.966			0.994		0.950			0.950		
Satd. Flow (prot)	0	1740	0	0	1615	0	1752	3498	0	1752	3505	0
Flt Permitted		0.966			0.994		0.950			0.950		
Satd. Flow (perm)	0	1740	0	0	1615	0	1752	3498	0	1752	3505	0
Link Speed (mph)		25			25			45				45
Link Distance (ft)		104			85			1461				2038
Travel Time (s)		2.8			2.3			22.1				30.9
Peak Hour Factor	0.53	0.53	0.53	0.61	0.61	0.61	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	23	2	8	11	0	84	9	1474	16	41	1403	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	95	0	9	1490	0	41	1407	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 49.6% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

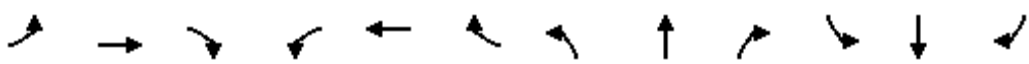
2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	596	0	0	348	0	1037	22	0	1169	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	701	0	0	414	0	1152	24	0	1218	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	701	0	0	414	0	1152	24	0	1218	144
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	73.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.0	0.0
Total Split (%)	0.0%	0.0%	42.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	57.1%	0.0%
Maximum Green (s)			67.9								91.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			50.8			170.0		170.0	170.0		109.2	170.0
Actuated g/C Ratio			0.30			1.00		1.00	1.00		0.64	1.00
v/c Ratio			0.86			0.26		0.33	0.02		0.54	0.09
Control Delay			67.0			0.4		0.3	0.0		18.7	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			67.0			0.4		0.3	0.0		18.7	0.1
LOS			E			A		A	A		B	A
Approach Delay								0.2			16.7	
Approach LOS								A			B	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			421			0		0	0		373	0
Queue Length 95th (ft)			434			0		0	0		508	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1093			1580		3505	1583		2252	1568
Starvation Cap Reductn			0			0		0	0		0	0
Spillback Cap Reductn			0			0		0	0		0	0
Storage Cap Reductn			0			0		0	0		0	0
Reduced v/c Ratio			0.64			0.26		0.33	0.02		0.54	0.09

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

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

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 19.2

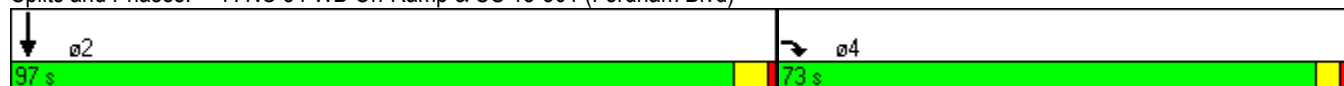
Intersection LOS: B

Intersection Capacity Utilization 61.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2013 Existing Noon Peak
10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	91	0	968	0	0	1506	259	0	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	101	0	1076	0	0	1673	288	0	29
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	101	0	1076	0	0	1673	288	0	29
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.6% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	4	12	5	10	143	4	6	35	48	11	27	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%			3%				2%		
Storage Length (ft)		0		0	50		0			125	0	
Storage Lanes		0		0	1		0			2	0	
Taper Length (ft)		25		25	25		25			25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						0.99						
Frt			0.957			0.863				0.902		
Flt Protected			0.975		0.950				0.950	0.983		
Satd. Flow (prot)	0	0	1738	0	1743	1565	0	0	1664	1553	0	0
Flt Permitted			0.805		0.950				0.950	0.983		
Satd. Flow (perm)	0	0	1435	0	1743	1565	0	0	1664	1553	0	0
Right Turn on Red				No				No				No
Satd. Flow (RTOR)												
Link Speed (mph)			30			35				25		
Link Distance (ft)			305			620				359		
Travel Time (s)			6.9			12.1				9.8		
Confl. Peds. (#/hr)								1				
Peak Hour Factor	0.70	0.70	0.70	0.70	0.77	0.77	0.77	0.77	0.72	0.72	0.72	0.72
Adj. Flow (vph)	6	17	7	14	186	5	8	45	67	15	38	4
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	0	0	44	0	186	58	0	0	60	64	0	0
Turn Type	Perm	Perm			Split				Split			
Protected Phases			7		3	3			4	4		
Permitted Phases	7	7										
Detector Phase	7	7	7		3	3			4	4		
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		7.0	7.0			5.0	5.0		
Minimum Split (s)	13.0	13.0	13.0		36.0	36.0			13.0	13.0		
Total Split (s)	15.0	15.0	15.0	0.0	17.0	17.0	0.0	0.0	15.0	15.0	0.0	0.0
Total Split (%)	15.0%	15.0%	15.0%	0.0%	17.0%	17.0%	0.0%	0.0%	15.0%	15.0%	0.0%	0.0%
Maximum Green (s)	7.8	7.8	7.8		10.4	10.4			7.6	7.6		
Yellow Time (s)	3.0	3.0	3.0		3.6	3.6			3.0	3.0		
All-Red Time (s)	4.2	4.2	4.2		3.0	3.0			4.4	4.4		
Lost Time Adjust (s)	0.0	0.0	-2.2	-2.2	-1.6	-1.6	-1.6	-1.6	-2.0	-2.4	-2.4	0.0
Total Lost Time (s)	7.2	7.2	5.0	1.8	5.0	5.0	2.4	2.4	5.4	5.0	1.6	4.0
Lead/Lag					Lead	Lead			Lag	Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0			2.0	2.0		
Recall Mode	None	None	None		None	None			None	None		
Walk Time (s)					4.0	4.0						
Flash Dont Walk (s)					25.0	25.0						
Pedestrian Calls (#/hr)					0	0						
Act Effect Green (s)			9.0		12.0	12.0			9.0	9.4		
Actuated g/C Ratio			0.09		0.12	0.12			0.09	0.09		
v/c Ratio			0.34		0.89	0.31			0.40	0.44		
Control Delay			49.7		84.0	45.2			51.1	52.5		

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013

							
Lane Group	NEL	NET	NER	SWL	SWT	SWR	SWR2
Lane Configurations							
Volume (vph)	5	1647	120	36	1447	9	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%		
Storage Length (ft)	350		300	150		100	
Storage Lanes	1		1	1		1	
Taper Length (ft)	25		25	25		25	
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor							
Frt			0.850			0.850	
Flt Protected	0.950			0.950			
Satd. Flow (prot)	1770	3725	1583	1770	3725	1583	0
Flt Permitted	0.950			0.950			
Satd. Flow (perm)	1770	*3787	1583	1770	*3771	1583	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45		
Link Distance (ft)		1485			2107		
Travel Time (s)		22.5			31.9		
Confl. Peds. (#/hr)							
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	1830	133	38	1523	9	9
Shared Lane Traffic (%)							
Lane Group Flow (vph)	6	1830	133	38	1523	18	0
Turn Type	Prot		pm+ov	Prot		Perm	
Protected Phases	5	2	3	1	6		
Permitted Phases			2			6	
Detector Phase	5	2	3	1	6	6	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	33.0	36.0	15.0	25.0	25.0	
Total Split (s)	15.0	38.0	17.0	15.0	38.0	38.0	0.0
Total Split (%)	15.0%	38.0%	17.0%	15.0%	38.0%	38.0%	0.0%
Maximum Green (s)	8.0	31.8	10.4	9.1	31.9	31.9	
Yellow Time (s)	3.0	4.6	3.6	3.0	4.4	4.4	
All-Red Time (s)	4.0	1.6	3.0	2.9	1.7	1.7	
Lost Time Adjust (s)	-2.0	-1.2	-1.6	-0.9	-1.1	-1.1	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	C-Max	
Walk Time (s)		7.0	4.0		7.0	7.0	
Flash Dont Walk (s)		16.0	25.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0		0	0	
Act Effct Green (s)	9.0	48.9	66.9	8.5	54.4	54.4	
Actuated g/C Ratio	0.09	0.49	0.67	0.08	0.54	0.54	
v/c Ratio	0.04	1.00	0.13	0.25	0.75	0.02	
Control Delay	38.8	53.3	16.1	46.9	24.8	17.6	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2
Queue Delay			0.0		0.0	0.0			0.0	0.0		
Total Delay			49.7		84.0	45.2			51.1	52.5		
LOS			D		F	D			D	D		
Approach Delay			49.7			74.8				51.8		
Approach LOS			D			E				D		
Queue Length 50th (ft)			27		119	34			38	41		
Queue Length 95th (ft)			47		#190	62			64	67		
Internal Link Dist (ft)			225			540				279		
Turn Bay Length (ft)					50				125	125		
Base Capacity (vph)			144		209	188			160	155		
Starvation Cap Reductn			0		0	0			0	0		
Spillback Cap Reductn			0		0	0			0	0		
Storage Cap Reductn			0		0	0			0	0		
Reduced v/c Ratio			0.31		0.89	0.31			0.38	0.41		

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 80 (80%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 42.1

Intersection LOS: D

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4	 ø7
15 s	38 s	17 s	15 s	15 s
 ø5	 ø6			
15 s	38 s			

Lanes, Volumes, Timings
 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
 10/18/2013

							
Lane Group	NEL	NET	NER	SWL	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	38.8	53.3	16.1	46.9	24.8	17.6	
LOS	D	D	B	D	C	B	
Approach Delay		50.7			25.2		
Approach LOS		D			C		
Queue Length 50th (ft)	4	~813	64	23	409	6	
Queue Length 95th (ft)	m5	#980	m65	55	#723	23	
Internal Link Dist (ft)		1405			2027		
Turn Bay Length (ft)	350		300	150		100	
Base Capacity (vph)	177	1821	1059	177	2026	861	
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	0.03	1.00	0.13	0.21	0.75	0.02	
Intersection Summary							

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	547	2	91	13	3	16	89	1228	4	10	1222	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	400		0	200		0
Storage Lanes	0		1	0		1	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.99		0.99			1.00		1.00		
Frt			0.850			0.850		0.999				0.850
Flt Protected	0.950				0.961		0.950			0.950		
Satd. Flow (prot)	3502	1900	1615	0	1595	1568	3418	3520	0	1736	3471	1553
Flt Permitted	0.950				0.961		0.950			0.950		
Satd. Flow (perm)	*3819	1900	1592	0	1585	1568	3418	*3811	0	1731	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			1485	
Travel Time (s)		7.4			14.0			8.8			22.5	
Confl. Peds. (#/hr)			7	7					4	4		
Peak Hour Factor	0.86	0.86	0.86	0.77	0.77	0.77	0.86	0.86	0.86	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	636	2	106	17	4	21	103	1428	5	11	1343	434
Shared Lane Traffic (%)												
Lane Group Flow (vph)	636	2	106	0	21	21	103	1433	0	11	1343	434
Turn Type	Split		Free	Split		pm+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	1	5	2		1	6	4
Permitted Phases			Free			3						6
Detector Phase	4	4		3	3	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	32.0	32.0		14.0	14.0	14.0	14.0	19.0		14.0	19.0	32.0
Total Split (s)	25.0	25.0	0.0	15.0	15.0	15.0	15.0	45.0	0.0	15.0	45.0	25.0
Total Split (%)	25.0%	25.0%	0.0%	15.0%	15.0%	15.0%	15.0%	45.0%	0.0%	15.0%	45.0%	25.0%
Maximum Green (s)	18.8	18.8		8.8	8.8	8.8	8.8	38.9		8.8	38.7	18.8
Yellow Time (s)	3.8	3.8		3.8	3.8	3.0	3.0	4.7		3.0	4.5	3.8
All-Red Time (s)	2.4	2.4		2.4	2.4	3.2	3.2	1.4		3.2	1.8	2.4
Lost Time Adjust (s)	-1.2	-1.2	0.0	-2.5	-1.2	-1.2	-1.2	-1.1	0.0	-1.2	-1.3	-1.2
Total Lost Time (s)	5.0	5.0	4.0	3.7	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0	1.0	1.0	6.0		1.0	6.0	1.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)	7.0	7.0										7.0
Flash Dont Walk (s)	18.0	18.0										18.0
Pedestrian Calls (#/hr)	0	0										0
Act Effect Green (s)	29.7	29.7	100.0		8.2	11.5	8.7	47.1		8.2	44.0	77.7
Actuated g/C Ratio	0.30	0.30	1.00		0.08	0.12	0.09	0.47		0.08	0.44	0.78

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2013 Existing Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.61	0.00	0.07		0.16	0.12	0.35	0.86		0.08	0.88	0.36
Control Delay	34.9	30.0	0.1		45.8	25.9	46.3	32.1		61.7	24.7	3.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	34.9	30.0	0.1		45.8	25.9	46.3	32.1		61.7	24.7	3.7
LOS	C	C	A		D	C	D	C		E	C	A
Approach Delay		29.9			35.8			33.0			19.8	
Approach LOS		C			D			C			B	
Queue Length 50th (ft)	164	1	0		13	13	32	461		6	460	79
Queue Length 95th (ft)	251	7	0		31	17	55	#574		m10	m#612	m42
Internal Link Dist (ft)		302			435			504			1405	
Turn Bay Length (ft)			225			75	400			200		
Base Capacity (vph)	1041	565	1592		160	208	342	1657		174	1527	1207
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.61	0.00	0.07		0.13	0.10	0.30	0.86		0.06	0.88	0.36

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 26.7

Intersection LOS: C

Intersection Capacity Utilization 69.1%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

			
ø1	ø2	ø3	ø4
15 s	45 s	15 s	25 s
			
ø5	ø6		
15 s	45 s		

Lanes, Volumes, Timings
11: South Road & Country Club Road

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	198	31	186	263	298	33	97	105	289	86	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.95	0.99		0.99		0.93		1.00	0.98	1.00	1.00	
Frt		0.980				0.850			0.850		0.989	
Flt Protected	0.950			0.950				0.987		0.950	0.976	
Satd. Flow (prot)	1646	3317	0	1752	1845	1672	0	1965	1538	1625	1932	0
Flt Permitted	0.589			0.425				0.987		0.950	0.976	
Satd. Flow (perm)	969	3317	0	778	1845	1549	0	1960	1513	1623	1931	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	25		5	5		25	10		1	1		10
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.82	0.82	0.82	0.93	0.93	0.93
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	28	248	39	196	277	314	40	118	128	311	92	15
Shared Lane Traffic (%)										33%		
Lane Group Flow (vph)	28	287	0	196	277	314	0	158	128	208	210	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	22.0	56.0	42.0	32.0	32.0	22.0	42.0	42.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	16.9%	43.1%	32.3%	24.6%	24.6%	16.9%	32.3%	32.3%	0.0%
Maximum Green (s)	26.7	26.7		15.2	48.7	35.3	25.3	25.3	15.2	35.3	35.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-1.8	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.5	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	30.4	30.4		51.0	50.5	75.8		39.2	54.8	24.8	24.8	
Actuated g/C Ratio	0.23	0.23		0.39	0.39	0.58		0.30	0.42	0.19	0.19	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.12	0.37		0.46	0.39	0.34		0.27	0.20	0.67	0.57	
Control Delay	42.2	43.9		31.1	30.6	12.3		38.0	23.1	58.7	52.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.2	43.9		31.1	30.6	12.3		38.0	23.1	58.7	52.9	
LOS	D	D		C	C	B		D	C	E	D	
Approach Delay		43.7			23.4			31.3			55.8	
Approach LOS		D			C			C			E	
Queue Length 50th (ft)	19	108		112	166	117		101	61	173	171	
Queue Length 95th (ft)	41	134		173	244	134		160	105	243	236	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	226	775		433	717	1084		593	657	463	550	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.12	0.37		0.45	0.39	0.29		0.27	0.19	0.45	0.38	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 35.7

Intersection LOS: D

Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
22 s	34 s	42 s	32 s
 ø6			
56 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	641	27	0	633	596	0	0	259	0	0	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	697	29	0	688	648	0	0	282	0	0	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	697	29	0	688	648	0	0	282	0	0	150
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 40.4% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2013 Existing Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	890	1212	348	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.967			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	4917	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	4917	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	0.90	0.90	0.86	0.86	0.90	0.85
Adj. Flow (vph)	0	989	1409	405	0	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	989	1814	0	0	26
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

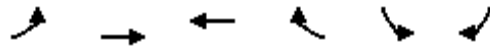
Intersection Capacity Utilization 41.2%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
14: NC 54 (Raleigh Road) & Glen Lennox Dr #1

2013 Existing Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	31	1445	1410	22	0	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.998			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1736	4988	4978	0	0	1565
Flt Permitted	0.950					
Satd. Flow (perm)	1736	4988	4978	0	0	1565
Link Speed (mph)		45	45		30	
Link Distance (ft)		164	247		247	
Travel Time (s)		2.5	3.7		5.6	
Confl. Peds. (#/hr)	1			1		2
Peak Hour Factor	0.97	0.97	0.94	0.94	1.00	0.55
Heavy Vehicles (%)	4%	4%	4%	4%	5%	5%
Adj. Flow (vph)	32	1490	1500	23	0	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	1490	1523	0	0	76
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.6% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2013 Existing Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	1415	1477	20	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.998			0.865
Flt Protected						
Satd. Flow (prot)	0	4940	4978	0	0	1315
Flt Permitted						
Satd. Flow (perm)	0	4940	4978	0	0	1315
Link Speed (mph)		45	45		25	
Link Distance (ft)		247	359		229	
Travel Time (s)		3.7	5.4		6.2	
Peak Hour Factor	1.00	0.97	0.95	0.95	1.00	0.44
Heavy Vehicles (%)	5%	5%	4%	4%	25%	25%
Adj. Flow (vph)	0	1459	1555	21	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1459	1576	0	0	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 39.0% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	1338	36	92	1343	26	141	14	79	49	14	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	250		0	150		150	50		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00		0.99		0.98	0.99	0.99	
Frt		0.996			0.997				0.850		0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	4964	0	1752	5019	0	1752	1845	1568	1736	1617	0
Flt Permitted	0.116			0.122			0.720			0.747		
Satd. Flow (perm)	212	4964	0	225	5019	0	1321	1845	1539	1356	1617	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		359			576			537			463	
Travel Time (s)		5.4			8.7			14.6			12.6	
Confl. Peds. (#/hr)	1		3	3		1	5		6	6		5
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	38	1520	41	100	1460	28	162	16	91	60	17	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	1561	0	100	1488	0	162	16	91	60	56	0
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	28.0		29.0	26.0		41.0	41.0	29.0	39.0	39.0	
Total Split (s)	18.0	60.0	0.0	25.0	67.0	0.0	35.0	35.0	25.0	35.0	35.0	0.0
Total Split (%)	15.0%	50.0%	0.0%	20.8%	55.8%	0.0%	29.2%	29.2%	20.8%	29.2%	29.2%	0.0%
Maximum Green (s)	12.4	54.4		19.6	61.1		28.6	28.6	19.6	28.5	28.5	
Yellow Time (s)	3.0	3.8		3.0	4.1		3.1	3.1	3.0	3.2	3.2	
All-Red Time (s)	2.6	1.8		2.4	1.8		3.3	3.3	2.4	3.3	3.3	
Lost Time Adjust (s)	-0.6	-0.6	0.0	-0.4	-0.9	0.0	-1.4	-1.4	-0.4	-1.5	-1.5	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	1.0	3.0		1.0	3.0		1.0	1.0	1.0	1.0	1.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			13.0		27.0	27.0		25.0	25.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	65.4	65.4		82.8	82.8		19.6	19.6	39.6	19.6	19.6	
Actuated g/C Ratio	0.54	0.54		0.69	0.69		0.16	0.16	0.33	0.16	0.16	
v/c Ratio	0.18	0.58		0.24	0.43		0.75	0.05	0.18	0.27	0.21	
Control Delay	16.7	20.0		8.7	2.0		67.9	39.1	24.6	44.7	42.9	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2013 Existing Noon Peak
10/18/2013

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	
Total Delay	16.7	20.0		8.7	2.0		67.9	39.1	24.6	44.7	42.9	
LOS	B	C		A	A		E	D	C	D	D	
Approach Delay		20.0			2.4			51.5			43.8	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	13	282		15	24		121	11	47	41	38	
Queue Length 95th (ft)	34	368		56	32		177	28	73	70	65	
Internal Link Dist (ft)		279			496			457			383	
Turn Bay Length (ft)	275			250			150		150	50		
Base Capacity (vph)	281	2704		410	3464		330	461	513	339	404	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.14	0.58		0.24	0.43		0.49	0.03	0.18	0.18	0.14	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 52 (43%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 15.3

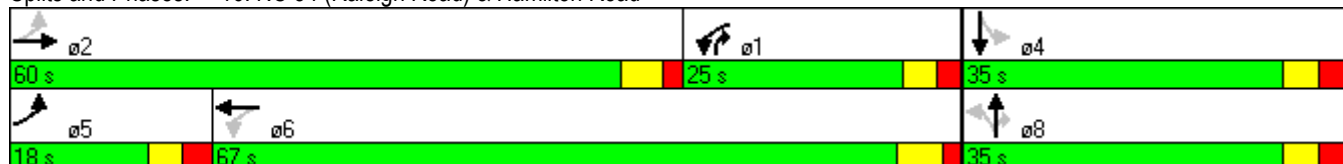
Intersection LOS: B

Intersection Capacity Utilization 62.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road



Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	1440	40	71	1423	14	28	5	126	23	8	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00			1.00			0.99	
Frt		0.996			0.998				0.850		0.936	
Flt Protected	0.950			0.950				0.959			0.981	
Satd. Flow (prot)	1736	4964	0	1752	5024	0	0	1752	1553	0	1534	0
Flt Permitted	0.133			0.100				0.749			0.869	
Satd. Flow (perm)	243	4964	0	184	5024	0	0	1367	1553	0	1359	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	5		3	3		5	2					2
Peak Hour Factor	0.85	0.85	0.85	0.96	0.96	0.96	0.83	0.83	0.83	0.74	0.74	0.74
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Adj. Flow (vph)	38	1694	47	74	1482	15	34	6	152	31	11	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	1741	0	74	1497	0	0	40	152	0	80	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	23.0	72.0	0.0	18.0	67.0	0.0	30.0	30.0	30.0	30.0	30.0	0.0
Total Split (%)	19.2%	60.0%	0.0%	15.0%	55.8%	0.0%	25.0%	25.0%	25.0%	25.0%	25.0%	0.0%
Maximum Green (s)	17.1	65.8		12.1	60.8		23.8	23.8	23.8	23.7	23.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	89.7	82.2		88.7	78.9			17.3	17.3		17.3	
Actuated g/C Ratio	0.75	0.68		0.74	0.66			0.14	0.14		0.14	
v/c Ratio	0.11	0.51		0.31	0.45			0.20	0.68		0.41	
Control Delay	1.9	2.7		11.0	6.8			45.5	63.3		51.5	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2013 Existing Noon Peak
10/18/2013

												
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	
Total Delay	1.9	2.7		11.0	6.8			45.5	63.3		51.5	
LOS	A	A		B	A			D	E		D	
Approach Delay		2.7			7.0			59.6			51.5	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	2	52		10	139			28	113		57	
Queue Length 95th (ft)	m3	55		m33	83			54	159		82	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	406	3402		312	3304			285	324		283	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.09	0.51		0.24	0.45			0.14	0.47		0.28	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 53 (44%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 8.7

Intersection LOS: A

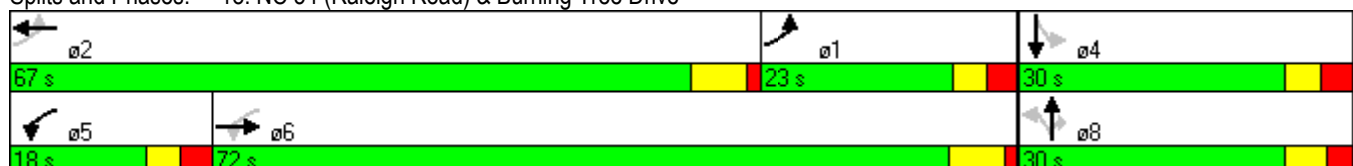
Intersection Capacity Utilization 58.7%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	147	1262	28	14	1275	15	40	6	29	14	5	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97		0.99		1.00		
Frt			0.850			0.850		0.875			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	4988	1553	1736	4988	1553	1770	1607	0	1736	1562	0
Flt Permitted	0.162			0.173			0.446			0.719		
Satd. Flow (perm)	291	4988	1553	316	4988	1513	831	1607	0	1307	1562	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	4					4			3	3		
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.59	0.59	0.59	0.86	0.86	0.86
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	153	1315	29	15	1342	16	68	10	49	16	6	162
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	1315	29	15	1342	16	68	59	0	16	168	0
Turn Type	D,P+P		Perm	D,P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	44.0	44.0	14.0	44.0	44.0	14.0	14.0		15.0	15.0	
Total Split (s)	22.0	72.0	72.0	22.0	45.0	45.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	18.3%	60.0%	60.0%	18.3%	37.5%	37.5%	21.7%	21.7%	0.0%	21.7%	21.7%	0.0%
Maximum Green (s)	15.7	65.7	65.7	15.7	38.7	38.7	19.2	19.2		18.7	18.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lag	Lead	Lead	Lag								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	87.4	83.6	83.6	90.4	75.5	75.5	17.6	17.6		17.6	17.6	
Actuated g/C Ratio	0.73	0.70	0.70	0.75	0.63	0.63	0.15	0.15		0.15	0.15	
v/c Ratio	0.43	0.38	0.03	0.04	0.43	0.02	0.56	0.25		0.08	0.73	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	23%
Maximum Green (s)	23.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	14.1	16.6	16.1	1.9	5.7	4.7	64.5	46.7		43.3	67.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	14.1	16.6	16.1	1.9	5.7	4.7	64.5	46.7		43.3	67.3	
LOS	B	B	B	A	A	A	E	D		D	E	
Approach Delay		16.4			5.7			56.2			65.2	
Approach LOS		B			A			E			E	
Queue Length 50th (ft)	44	110	5	1	60	2	49	41		11	125	
Queue Length 95th (ft)	119	387	m34	m3	77	m5	60	52		30	188	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	422	3475	1082	439	3139	952	145	281		229	273	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.36	0.38	0.03	0.03	0.43	0.02	0.47	0.21		0.07	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 46 (38%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 16.2 Intersection LOS: B
Intersection Capacity Utilization 64.1% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø2	 ø1	 ø4
72 s	22 s	26 s
 ø10	 ø5	 ø6
27 s	22 s	45 s
		 ø8
		26 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	1161	59	65	1078	86	58	31	106	124	23	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00		0.99	1.00	1.00				
Frt			0.850			0.850		0.925	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.996		0.950		
Satd. Flow (prot)	3401	5037	1568	3350	4963	1545	1648	1531	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.996		0.950		
Satd. Flow (perm)	3399	5037	1526	3335	4963	1525	1644	1531	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	1		12	12		1	1					1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.65	0.65	0.65	0.83	0.83	0.83
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	118	1248	63	68	1123	90	89	48	163	149	28	178
Shared Lane Traffic (%)							10%		35%			
Lane Group Flow (vph)	118	1248	63	68	1123	90	80	114	106	149	28	178
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	42.0	15.0	15.0	42.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	24.0	60.0	20.0	20.0	56.0	20.0	20.0	20.0	40.0	20.0	20.0	44.0
Total Split (%)	20.0%	50.0%	16.7%	16.7%	46.7%	16.7%	16.7%	16.7%	33.3%	16.7%	16.7%	36.7%
Maximum Green (s)	16.8	53.4	12.9	12.9	49.5	12.7	12.9	12.9		12.7	12.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lead	Lead	Lag	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	10.3	57.7	70.8	15.0	62.3	76.6	13.1	13.1	33.1	14.2	14.2	29.6
Actuated g/C Ratio	0.09	0.48	0.59	0.12	0.52	0.64	0.11	0.11	0.28	0.12	0.12	0.25
v/c Ratio	0.40	0.52	0.07	0.16	0.44	0.09	0.44	0.68	0.26	0.36	0.12	0.45

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	58.3	33.7	8.5	38.1	11.3	2.0	57.5	71.7	35.3	51.0	48.2	41.9
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	58.3	33.7	8.5	38.1	11.3	2.0	57.5	71.7	35.3	51.0	48.2	41.9
LOS	E	C	A	D	B	A	E	E	D	D	D	D
Approach Delay	34.6			12.0			55.0			46.2		
Approach LOS	C			B			E			D		
Queue Length 50th (ft)	42	247	12	25	91	10	61	93	66	54	19	116
Queue Length 95th (ft)	83	389	61	48	52	2	81	114	82	81	45	165
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	538	2420	929	419	2578	987	206	191	430	439	238	497
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	0.22	0.52	0.07	0.16	0.44	0.09	0.39	0.60	0.25	0.34	0.12	0.36

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 117 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 29.1

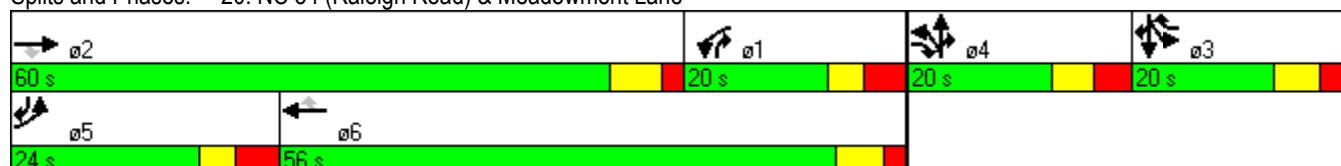
Intersection LOS: C

Intersection Capacity Utilization 55.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane



Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2013 Existing Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	1204	202	36	1063	99	146	48	53	88	39	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97				1.00	1.00			1.00	
Frt			0.850			0.850		0.934			0.973	
Flt Protected	0.950			0.950			0.950	0.992		0.950	0.987	
Satd. Flow (prot)	1727	4363	1545	1761	5061	1576	1656	1616	0	1648	1662	0
Flt Permitted	0.204			0.123			0.950	0.992		0.950	0.987	
Satd. Flow (perm)	371	4363	1495	228	5061	1576	1654	1615	0	1648	1662	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	11	1281	215	38	1119	104	159	52	58	98	43	14
Shared Lane Traffic (%)							14%			21%		
Lane Group Flow (vph)	11	1281	215	38	1119	104	137	132	0	77	78	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	27.0	15.0	14.0	29.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	19.0	60.0	25.0	17.0	58.0	18.0	25.0	25.0	0.0	18.0	18.0	0.0
Total Split (%)	15.8%	50.0%	20.8%	14.2%	48.3%	15.0%	20.8%	20.8%	0.0%	15.0%	15.0%	0.0%
Maximum Green (s)	12.2	52.5	17.8	10.0	50.5	10.8	17.8	17.8		10.8	10.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	1.8	5.0	5.0	1.8
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	75.7	68.3	85.0	73.7	72.9	89.4	16.8	16.8		11.6	11.6	
Actuated g/C Ratio	0.63	0.57	0.71	0.61	0.61	0.74	0.14	0.14		0.10	0.10	
v/c Ratio	0.03	0.52	0.20	0.15	0.36	0.09	0.59	0.58		0.48	0.49	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	3.7	12.0	3.5	10.8	13.9	6.2	58.6	58.5		61.6	61.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	3.7	12.0	3.5	10.8	13.9	6.2	58.6	58.5		61.6	61.7	
LOS	A	B	A	B	B	A	E	E		E	E	
Approach Delay		10.7			13.2			58.5			61.6	
Approach LOS		B			B			E			E	
Queue Length 50th (ft)	1	373	21	10	141	17	105	101		60	61	
Queue Length 95th (ft)	m3	473	51	26	265	59	172	167		112	114	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	392	2482	1108	297	3073	1154	276	269		179	180	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.52	0.19	0.13	0.36	0.09	0.50	0.49		0.43	0.43	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 18.2

Intersection LOS: B

Intersection Capacity Utilization 51.8%

ICU Level of Service A

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø1	 ø2	 ø4	 ø3
17 s	60 s	25 s	18 s
 ø6	 ø5		
58 s	19 s		

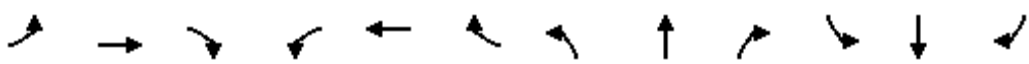
Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	288	249	29	183	268	222	46	549	158	126	444	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		1.00		0.97	0.99	0.99		1.00	0.99	
Frt		0.984				0.850		0.966			0.948	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1577	1812	0	1719	1810	1538	1736	3334	0	1752	3275	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1563	1812	0	1714	1810	1499	1722	3334	0	1744	3275	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	8		3	3		8	5		10	10		5
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Parking (#/hr)	0											
Adj. Flow (vph)	327	283	33	203	298	247	48	572	165	135	477	252
Shared Lane Traffic (%)												
Lane Group Flow (vph)	327	316	0	203	298	247	48	737	0	135	729	0
Turn Type	Prot			Prot		pm+ov	Prot			Prot		
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	
Total Split (s)	40.0	55.0	0.0	24.0	39.0	24.0	24.0	37.0	0.0	24.0	37.0	0.0
Total Split (%)	28.6%	39.3%	0.0%	17.1%	27.9%	17.1%	17.1%	26.4%	0.0%	17.1%	26.4%	0.0%
Maximum Green (s)	34.1	49.1		18.4	33.4	18.1	17.8	31.3		18.1	31.6	
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.2	30.3		29.4	27.5	42.9	9.4	44.9		15.4	53.6	
Actuated g/C Ratio	0.23	0.22		0.21	0.20	0.31	0.07	0.32		0.11	0.38	
v/c Ratio	0.90	0.81		0.56	0.84	0.53	0.41	0.69		0.70	0.58	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	79.9	67.4		52.4	69.6	38.2	73.0	47.6		78.8	39.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	79.9	67.4		52.4	69.6	38.2	73.0	47.6		78.8	39.8	
LOS	E	E		D	E	D	E	D		E	D	
Approach Delay		73.7			54.6			49.2			45.9	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	284	276		148	246	173	43	321		120	293	
Queue Length 95th (ft)	#423	346		m247	m354	m221	85	#483		189	404	
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	200											
Base Capacity (vph)	394	647		361	440	503	236	1070		238	1253	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.83	0.49		0.56	0.68	0.49	0.20	0.69		0.57	0.58	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 108 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 54.8

Intersection LOS: D

Intersection Capacity Utilization 81.1%

ICU Level of Service D

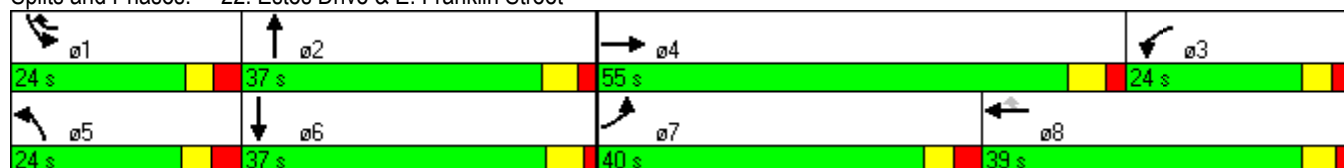
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



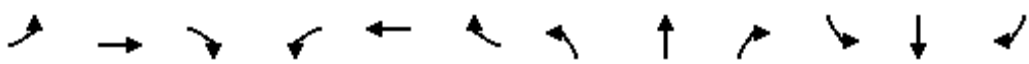
Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	198	308	5	4	318	40	7	4	6	69	9	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.998			0.983			0.950				0.850
Flt Protected	0.950			0.950				0.979			0.957	
Satd. Flow (prot)	1719	3430	0	1736	3398	0	0	1654	0	0	1732	1538
Flt Permitted	0.457			0.535				0.838			0.736	
Satd. Flow (perm)	821	3430	0	970	3398	0	0	1415	0	0	1321	1518
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		6	6		8	2		10	10		2
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	5%	5%	5%
Adj. Flow (vph)	230	358	6	4	349	44	8	4	7	72	9	315
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	364	0	4	393	0	0	19	0	0	81	315
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	15.0	38.0	0.0	23.0	23.0	0.0	32.0	32.0	0.0	32.0	32.0	15.0
Total Split (%)	21.4%	54.3%	0.0%	32.9%	32.9%	0.0%	45.7%	45.7%	0.0%	45.7%	45.7%	21.4%
Maximum Green (s)	9.9	32.9		17.8	17.8		26.3	26.3		26.2	26.2	9.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	53.2	54.2		37.5	37.5			9.3			9.3	18.5
Actuated g/C Ratio	0.76	0.77		0.54	0.54			0.13			0.13	0.26
v/c Ratio	0.30	0.14		0.01	0.22			0.10			0.46	0.78
Control Delay	2.4	1.5		11.2	10.6			26.7			36.2	33.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	2.4	1.5		11.2	10.6			26.7			36.2	33.9
LOS	A	A		B	B			C			D	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		1.9			10.6			26.7			34.4	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	18	14		1	44			7			33	112
Queue Length 95th (ft)	53	40		6	87			24			69	153
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	770	2658		519	1820			546			510	417
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.30	0.14		0.01	0.22			0.03			0.16	0.76

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 59 (84%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 13.8

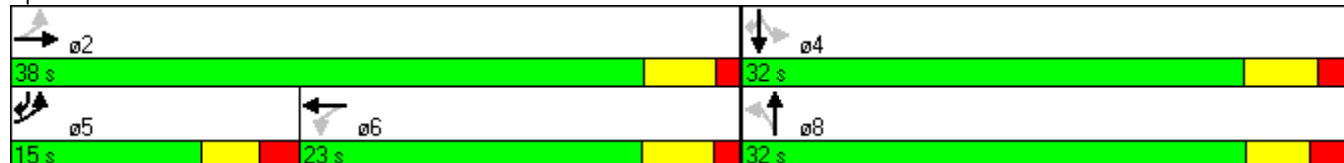
Intersection LOS: B

Intersection Capacity Utilization 55.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2013 Existing Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	66	7	2	49	12	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.987				0.990	
Flt Protected				0.998	0.956	
Satd. Flow (prot)	1803	0	0	1823	1763	0
Flt Permitted				0.998	0.956	
Satd. Flow (perm)	1803	0	0	1823	1763	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.79	0.79	0.71	0.71	0.46	0.46
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	84	9	3	69	26	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	0	0	72	28	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.2%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2013 Existing Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	44	8	1	35	2	8	0	2	3	2	3
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		0.981			0.992			0.978			0.951	
Flt Protected		0.996			0.999			0.960			0.982	
Satd. Flow (prot)	0	1703	0	0	1828	0	0	1749	0	0	1740	0
Flt Permitted		0.996			0.999			0.960			0.982	
Satd. Flow (perm)	0	1703	0	0	1828	0	0	1749	0	0	1740	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.83	0.83	0.83	0.67	0.67	0.67
Heavy Vehicles (%)	9%	9%	9%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	6	63	11	1	47	3	10	0	2	4	3	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	51	0	0	12	0	0	11	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 14.7% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2013 Existing Noon Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	1533	968	739
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	665		536		2107	
Travel Time (s)	15.1		8.1		31.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1703	1076	821
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1703	1076	821
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 57.0% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
61: NC 54 EB Off Ramp &

2013 Existing Noon Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	739	0	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			665	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	821	0	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	821	0	101
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 42.2%	ICU Level of Service A					
Analysis Period (min) 15						

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2013 Existing Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑		↗
Volume (vph)	799	91	0	1560	0	739
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	5085	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			164	476	
Travel Time (s)	1.4			2.5	9.3	
Peak Hour Factor	0.84	0.84	0.90	0.90	0.90	0.97
Adj. Flow (vph)	951	108	0	1733	0	762
Shared Lane Traffic (%)						
Lane Group Flow (vph)	951	108	0	1733	0	762
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	74.5%			ICU Level of Service D		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	84	115	67	358	135	42	141	1185	362	108	1071	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	175		0	375		325	225		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.98				0.99							
Frt		0.945			0.977				0.850		0.998	
Flt Protected	0.950			0.950	0.983		0.950			0.950		
Satd. Flow (prot)	1702	1693	0	1617	1679	0	1761	3522	1523	1719	3550	0
Flt Permitted	0.950			0.950	0.983		0.950			0.950		
Satd. Flow (perm)	1663	1693	0	1617	1679	0	1761	3522	1523	1719	3550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	17					17						
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	89	122	71	377	142	44	148	1247	381	115	1139	16
Shared Lane Traffic (%)				26%								
Lane Group Flow (vph)	89	193	0	279	284	0	148	1247	381	115	1155	0
Turn Type	Split			Split			Prot		Free	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases									Free			
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		15.0	68.0	
Total Split (s)	30.0	30.0	0.0	35.0	35.0	0.0	30.0	90.0	0.0	25.0	85.0	0.0
Total Split (%)	16.7%	16.7%	0.0%	19.4%	19.4%	0.0%	16.7%	50.0%	0.0%	13.9%	47.2%	0.0%
Maximum Green (s)	23.7	23.7		29.2	29.2		23.8	84.2		18.7	79.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	23.5	23.5		31.5	31.5		19.4	85.0	180.0	20.0	85.6	
Actuated g/C Ratio	0.13	0.13		0.18	0.18		0.11	0.47	1.00	0.11	0.48	
v/c Ratio	0.40	0.87		0.98	0.97		0.78	0.75	0.25	0.60	0.68	
Control Delay	77.1	111.0		120.9	115.7		93.5	26.9	0.3	90.2	40.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	77.1	111.0		120.9	115.7		93.5	26.9	0.3	90.2	40.0	
LOS	E	F		F	F		F	C	A	F	D	
Approach Delay		100.3			118.3			26.7			44.5	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	97	225		~371	~370		162	714	0	132	555	
Queue Length 95th (ft)	160	#363		#585	#584		242	616	0	208	675	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			175			375		325	225		
Base Capacity (vph)	236	235		284	294		245	1663	1523	191	1687	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.38	0.82		0.98	0.97		0.60	0.75	0.25	0.60	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 109 (61%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 51.1

Intersection LOS: D

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

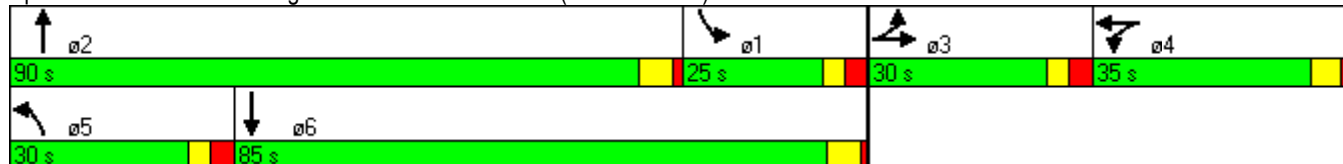
~ Volume exceeds capacity, queue is theoretically infinite.

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: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	141	250	197	1558	12	1420	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12
Storage Length (ft)	175	0	250		125		125
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25	25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Ped Bike Factor			1.00				0.98
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1770	1531	1770	3539	1829	3539	1583
Flt Permitted	0.950		0.105		0.138		
Satd. Flow (perm)	1770	1531	196	3539	266	3539	1548
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			45		45	
Link Distance (ft)	423			800		1344	
Travel Time (s)	8.2			12.1		20.4	
Confl. Peds. (#/hr)			3				3
Peak Hour Factor	0.95	0.95	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	148	263	210	1657	13	1543	205
Shared Lane Traffic (%)							
Lane Group Flow (vph)	148	263	210	1657	13	1543	205
Turn Type		pm+ov	pm+pt		pm+pt		pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases		4	2		6		6
Detector Phase	4	5	5	2	1	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	13.0	13.0	13.0	18.0	13.0	18.0	13.0
Total Split (s)	31.0	40.0	40.0	129.0	20.0	109.0	31.0
Total Split (%)	17.2%	22.2%	22.2%	71.7%	11.1%	60.6%	17.2%
Maximum Green (s)	25.4	34.1	34.1	123.1	14.7	103.1	25.4
Yellow Time (s)	3.0	3.0	3.0	4.5	3.0	4.5	3.0
All-Red Time (s)	2.6	2.9	2.9	1.4	2.3	1.4	2.6
Lost Time Adjust (s)	-0.6	-0.9	-0.9	-0.9	-0.3	-0.9	-0.6
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							
Vehicle Extension (s)	1.0	1.0	1.0	2.0	1.0	2.0	1.0
Recall Mode	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	18.8	43.6	143.2	143.2	126.4	126.4	145.1
Actuated g/C Ratio	0.10	0.24	0.80	0.80	0.70	0.70	0.81
v/c Ratio	0.80	0.71	0.64	0.59	0.05	0.62	0.16
Control Delay	107.6	71.7	42.5	3.2	10.9	11.5	1.7
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	107.6	71.7	42.5	3.8	10.9	11.5	1.7
LOS	F	E	D	A	B	B	A

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Approach Delay	84.6			8.2		10.3	
Approach LOS	F			A		B	
Queue Length 50th (ft)	174	290	90	138	2	196	17
Queue Length 95th (ft)	249	352	m161	156	m7	m557	m23
Internal Link Dist (ft)	343			720		1264	
Turn Bay Length (ft)	175		250		125		125
Base Capacity (vph)	256	500	462	2816	317	2484	1315
Starvation Cap Reductn	0	0	0	698	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.53	0.45	0.78	0.04	0.62	0.16

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 72 (40%), Referenced to phase 2:NBTL and 6:SBTU, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 16.9

Intersection LOS: B

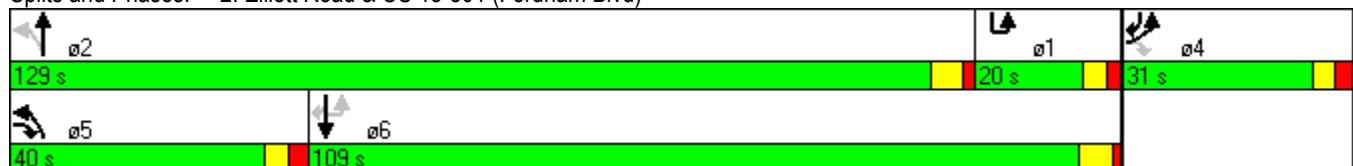
Intersection Capacity Utilization 70.5%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	59	25	42	55	23	36	1403	40	42	1379	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.96
Frt		0.956			0.956			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1779	0	1744	1755	0	1778	3541	0	1778	3557	1591
Flt Permitted	0.400			0.694			0.102			0.083		
Satd. Flow (perm)	749	1779	0	1265	1755	0	191	3541	0	155	3557	1529
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			4	4			3		1	1		3
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	198	69	29	48	62	26	40	1542	44	45	1467	246
Shared Lane Traffic (%)												
Lane Group Flow (vph)	198	98	0	48	88	0	40	1586	0	45	1467	246
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		14.0	14.0		15.0	19.0		15.0	19.0	19.0
Total Split (s)	20.0	53.0	0.0	33.0	33.0	0.0	25.0	92.0	0.0	35.0	102.0	102.0
Total Split (%)	11.1%	29.4%	0.0%	18.3%	18.3%	0.0%	13.9%	51.1%	0.0%	19.4%	56.7%	56.7%
Maximum Green (s)	13.7	46.6		26.6	26.6		18.9	85.9		29.4	95.9	95.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		2									2	2
Act Effct Green (s)	34.9	34.9		14.9	14.9		107.1	107.1		124.3	124.3	124.3
Actuated g/C Ratio	0.19	0.19		0.08	0.08		0.60	0.60		0.69	0.69	0.69
v/c Ratio	0.86	0.28		0.46	0.60		0.21	0.75		0.13	0.60	0.23

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	97.4	63.2		91.4	96.1		13.2	19.8		18.0	16.2	13.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	0.0
Total Delay	97.4	63.2		91.4	96.1		13.2	19.8		18.0	16.4	13.4
LOS	F	E		F	F		B	B		B	B	B
Approach Delay	86.1			94.4			19.6			16.0		
Approach LOS	F			F			B			B		
Queue Length 50th (ft)	215	100		55	102		11	817		18	383	110
Queue Length 95th (ft)	#291	149		100	160		m17	381		m30	380	144
Internal Link Dist (ft)	500			548			408			720		
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	231	474		197	273		290	2106		378	2456	1056
Starvation Cap Reductn	0	0		0	0		0	0		0	237	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.86	0.21		0.24	0.32		0.14	0.75		0.12	0.66	0.23

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 65 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 25.8

Intersection LOS: C

Intersection Capacity Utilization 65.2%

ICU Level of Service C

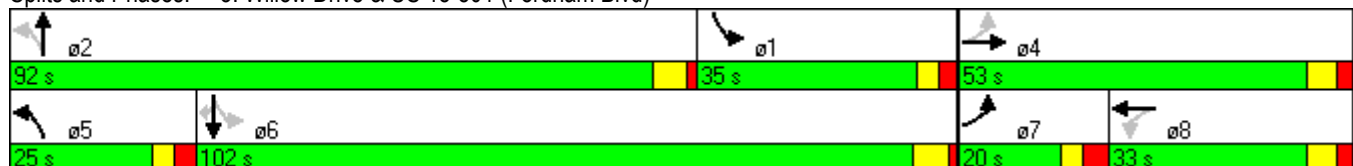
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	13	376	7	9	17	462	1458	8	17	1371	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-1%	
Storage Length (ft)	0		400	0		0	400		0	100		150
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.98			0.98							
Frt			0.850		0.929			0.999				0.850
Flt Protected		0.957			0.990		0.950			0.950		
Satd. Flow (prot)	0	1774	2773	0	1622	0	3416	3518	0	1778	3557	1591
Flt Permitted		0.957			0.990		0.950			0.950		
Satd. Flow (perm)	0	1745	2773	0	1622	0	3416	3518	0	1778	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		566			126			1593			286	
Travel Time (s)		35.6			10.9			24.1			4.3	
Confl. Peds. (#/hr)	12					12						
Peak Hour Factor	0.92	0.92	0.92	0.75	0.75	0.75	0.98	0.98	0.98	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	130	14	409	9	12	23	471	1488	8	18	1413	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	144	409	0	44	0	471	1496	0	18	1413	101
Turn Type	Split		pm+ov	Split			Prot			Prot		pm+ov
Protected Phases	3	3	5	4	4		5	2		1	6	3
Permitted Phases			3									6
Detector Phase	3	3	5	4	4		5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	42.0	42.0		14.0	19.0		15.0	19.0	14.0
Total Split (s)	25.0	25.0	40.0	42.0	42.0	0.0	40.0	98.0	0.0	15.0	73.0	25.0
Total Split (%)	13.9%	13.9%	22.2%	23.3%	23.3%	0.0%	22.2%	54.4%	0.0%	8.3%	40.6%	13.9%
Maximum Green (s)	18.4	18.4	33.3	35.3	35.3		33.3	91.9		8.5	66.9	18.4
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	4.4		3.0	4.6	3.8
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	1.7		3.5	1.5	2.8
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	-1.7	-1.1	0.0	-1.5	-1.1	-1.6
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	6.0		2.0	6.0	1.0
Minimum Gap (s)	1.0	1.0	2.0	1.0	1.0		2.0	6.0		2.0	6.0	1.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	None
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		19.6	56.2		10.8		31.5	128.4		9.4	100.8	121.4
Actuated g/C Ratio		0.11	0.31		0.06		0.18	0.71		0.05	0.56	0.67
v/c Ratio		0.75	0.47		0.45		0.79	0.60		0.19	0.71	0.09
Control Delay		99.7	50.8		96.0		80.6	17.0		65.8	20.4	4.6
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		99.7	50.8		96.0		80.6	17.0		65.8	20.4	4.6
LOS		F	D		F		F	B		E	C	A
Approach Delay		63.5			96.0			32.2			19.8	
Approach LOS		E			F			C			B	
Queue Length 50th (ft)		168	223		51		278	512		21	282	16
Queue Length 95th (ft)		243	251		81		329	695		m34	691	27
Internal Link Dist (ft)		486			46			1513			206	
Turn Bay Length (ft)			400				400			100		150
Base Capacity (vph)		214	930		333		678	2508		99	1992	1092
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.67	0.44		0.13		0.69	0.60		0.18	0.71	0.09

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 72 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 32.5

Intersection LOS: C

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø4	 ø3
98 s	15 s	42 s	25 s
 ø5	 ø6		
40 s	73 s		

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	1	3	0	135	2	1800	90	172	1576	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	200		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.966			0.868			0.993			0.998	
Flt Protected		0.964			0.999		0.950			0.950		
Satd. Flow (prot)	0	1735	0	0	1615	0	1770	3514	0	1770	3532	0
Flt Permitted		0.964			0.999		0.950			0.950		
Satd. Flow (perm)	0	1735	0	0	1615	0	1770	3514	0	1770	3532	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			2038			1593	
Travel Time (s)		7.9			3.4			30.9			24.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	0.50	0.50	0.50	0.70	0.70	0.70	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	6	0	2	4	0	193	2	1935	97	179	1642	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	197	0	2	2032	0	179	1662	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 80.6% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	0	10	5	0	43	10	1828	28	79	1489	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	125		0	175		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.904			0.878			0.998			0.998	
Flt Protected		0.986			0.995		0.950			0.950		
Satd. Flow (prot)	0	1583	0	0	1627	0	1770	3532	0	1770	3532	0
Flt Permitted		0.986			0.995		0.950			0.950		
Satd. Flow (perm)	0	1583	0	0	1627	0	1770	3532	0	1770	3532	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		104			85			1461			2038	
Travel Time (s)		2.8			2.3			22.1			30.9	
Peak Hour Factor	0.68	0.68	0.68	0.80	0.80	0.80	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	6	0	15	6	0	54	10	1904	29	82	1551	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	0	0	60	0	10	1933	0	82	1568	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 69.1% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	897	0	0	387	0	1479	18	0	1425	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	0	0	1055	0	0	461	0	1643	20	0	1484	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1055	0	0	461	0	1643	20	0	1484	86
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.0	0.0
Total Split (%)	0.0%	0.0%	44.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.9%	0.0%
Maximum Green (s)			69.9								89.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			68.5			170.0		170.0	170.0		91.5	170.0
Actuated g/C Ratio			0.40			1.00		1.00	1.00		0.54	1.00
v/c Ratio			0.96			0.29		0.46	0.01		0.78	0.05
Control Delay			67.7			0.5		0.4	0.0		35.2	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			67.7			0.5		0.4	0.0		35.2	0.1
LOS			E			A		A	A		D	A
Approach Delay								0.4			33.3	
Approach LOS								A			C	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			637			0		0	0		691	0
Queue Length 95th (ft)			689			0		0	0		788	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1125			1580		3539	1583		1905	1568
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			0.94			0.29		0.46	0.01		0.78	0.05

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 26.2

Intersection LOS: C

Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

	
ø2	ø4
95 s	75 s

Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2013 Existing PM Peak
10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	209	0	1288	0	0	2090	232	0	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	232	0	1431	0	0	2322	258	0	63
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	232	0	1431	0	0	2322	258	0	63
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 68.0% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2	NEL
Lane Configurations		↔	↔	↔			↔	↔				↔
Volume (vph)	8	3	76	3	3	42	46	5	57	1	6	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%		3%				2%				
Storage Length (ft)	0		50		0			125	0			350
Storage Lanes	0		1		0			2	0			1
Taper Length (ft)	25		25		25			25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor				0.99								
Frt				0.858				0.871				
Flt Protected		0.965	0.950				0.950	0.993				0.950
Satd. Flow (prot)	0	1798	1743	1554	0	0	1664	1515	0	0	0	1770
Flt Permitted		0.751	0.950				0.950	0.993				0.476
Satd. Flow (perm)	0	1399	1743	1554	0	0	1664	1515	0	0	0	887
Right Turn on Red						No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30		35				25				
Link Distance (ft)		305		620				359				
Travel Time (s)		6.9		12.1				9.8				
Confl. Peds. (#/hr)						1						
Peak Hour Factor	0.39	0.39	0.86	0.86	0.86	0.86	0.59	0.59	0.59	0.59	0.92	0.92
Adj. Flow (vph)	21	8	88	3	3	49	78	8	97	2	7	21
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	29	88	55	0	0	70	115	0	0	0	28
Turn Type	Perm		Split				Split			custom		Prot
Protected Phases		7	3	3			4	4				5
Permitted Phases	7										5	
Detector Phase	7	7	3	3			4	4			5	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	7.0	7.0			5.0	5.0			7.0	7.0
Minimum Split (s)	13.0	13.0	36.0	36.0			13.0	13.0			14.0	14.0
Total Split (s)	18.0	18.0	37.0	37.0	0.0	0.0	18.0	18.0	0.0	0.0	15.0	15.0
Total Split (%)	10.0%	10.0%	20.6%	20.6%	0.0%	0.0%	10.0%	10.0%	0.0%	0.0%	8.3%	8.3%
Maximum Green (s)	10.8	10.8	30.4	30.4			10.6	10.6			8.0	8.0
Yellow Time (s)	3.0	3.0	3.6	3.6			3.0	3.0			3.0	3.0
All-Red Time (s)	4.2	4.2	3.0	3.0			4.4	4.4			4.0	4.0
Lost Time Adjust (s)	0.0	-2.2	-1.6	-1.6	-1.6	-1.6	-2.0	-2.4	-2.4	0.0	0.0	-2.0
Total Lost Time (s)	7.2	5.0	5.0	5.0	2.4	2.4	5.4	5.0	1.6	4.0	7.0	5.0
Lead/Lag			Lead	Lead			Lag	Lag			Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0			2.0	2.0			2.0	2.0
Recall Mode	None	None	None	None			None	None			None	None
Walk Time (s)			4.0	4.0								
Flash Dont Walk (s)			25.0	25.0								
Pedestrian Calls (#/hr)			0	0								
Act Effct Green (s)		10.2	15.1	15.1			23.8	24.2				9.8
Actuated g/C Ratio		0.06	0.08	0.08			0.13	0.13				0.05
v/c Ratio		0.36	0.60	0.42			0.32	0.56				0.58
Control Delay		93.6	95.9	86.9			75.0	84.4				113.8

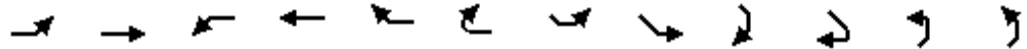
Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013

						
Lane Group	NET	NER	SWL	SWT	SWR	SWR2
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Volume (vph)	2068	107	36	1992	12	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%		
Storage Length (ft)		325	150		100	
Storage Lanes		1	1		1	
Taper Length (ft)		25	25		25	
Lane Util. Factor	*1.00	1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850			0.850	
Flt Protected			0.950			
Satd. Flow (prot)	3725	1583	1770	3725	1583	0
Flt Permitted			0.950			
Satd. Flow (perm)	*3787	1583	1770	*3771	1583	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45		
Link Distance (ft)	1485			2107		
Travel Time (s)	22.5			31.9		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2248	116	40	2213	13	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2248	116	40	2213	20	0
Turn Type		pm+ov	Prot		Perm	
Protected Phases	2	3	1	6		
Permitted Phases		2			6	
Detector Phase	2	3	1	6	6	
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	33.0	36.0	15.0	25.0	25.0	
Total Split (s)	92.0	37.0	15.0	92.0	92.0	0.0
Total Split (%)	51.1%	20.6%	8.3%	51.1%	51.1%	0.0%
Maximum Green (s)	85.8	30.4	9.1	85.9	85.9	
Yellow Time (s)	4.6	3.6	3.0	4.4	4.4	
All-Red Time (s)	1.6	3.0	2.9	1.7	1.7	
Lost Time Adjust (s)	-1.2	-1.6	-0.9	-1.1	-1.1	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lead	Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Recall Mode	C-Max	None	None	C-Max	C-Max	
Walk Time (s)	7.0	4.0		7.0	7.0	
Flash Dont Walk (s)	16.0	25.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	100.9	117.0	9.6	100.9	100.9	
Actuated g/C Ratio	0.56	0.65	0.05	0.56	0.56	
v/c Ratio	1.08	0.11	0.43	1.06	0.02	
Control Delay	74.2	10.7	96.4	75.7	22.7	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2	NEL
Queue Delay		0.0	0.0	0.0			0.0	0.0				0.0
Total Delay		93.6	95.9	86.9			75.0	84.4				113.8
LOS		F	F	F			E	F				F
Approach Delay		93.6		92.4				80.9				
Approach LOS		F		F				F				
Queue Length 50th (ft)		34	102	63			80	135				34
Queue Length 95th (ft)		31	156	108			89	134				m47
Internal Link Dist (ft)		225		540				279				
Turn Bay Length (ft)			50				125	125				350
Base Capacity (vph)		101	310	276			220	204				49
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		0.29	0.28	0.20			0.32	0.56				0.57

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 24 (13%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 74.5

Intersection LOS: E

Intersection Capacity Utilization 81.0%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

ø2	ø1	ø3	ø4	ø7
92 s	15 s	37 s	18 s	18 s
ø6	ø5			
92 s	15 s			

Lanes, Volumes, Timings
 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
 10/18/2013

						
Lane Group	NET	NER	SWL	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	74.2	10.7	96.4	75.7	22.7	
LOS	E	B	F	E	C	
Approach Delay	71.6			75.6		
Approach LOS	E			E		
Queue Length 50th (ft)	~1555	52	47	~1500	11	
Queue Length 95th (ft)	#1773	m73	93	#1715	30	
Internal Link Dist (ft)	1405			2027		
Turn Bay Length (ft)		325	150		100	
Base Capacity (vph)	2088	1178	98	2088	887	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	1.08	0.10	0.41	1.06	0.02	
Intersection Summary						

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2013 Existing PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	606	6	147	13	3	18	99	1576	4	11	1875	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	400		0	200		0
Storage Lanes	0		1	0		1	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.99		0.99			1.00		1.00		
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.962		0.950			0.950		
Satd. Flow (prot)	3502	1900	1615	0	1613	1583	3485	3592	0	1770	3539	1583
Flt Permitted	0.950				0.962		0.950			0.950		
Satd. Flow (perm)	*3819	1900	1593	0	1599	1583	3485	*3811	0	1768	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			1485	
Travel Time (s)		7.4			14.0			8.8			22.5	
Confl. Peds. (#/hr)			5	5					1	1		
Peak Hour Factor	0.85	0.85	0.85	0.84	0.84	0.84	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	713	7	173	15	4	21	103	1642	4	11	1953	249
Shared Lane Traffic (%)												
Lane Group Flow (vph)	713	7	173	0	19	21	103	1646	0	11	1953	249
Turn Type	Split		Free	Split		pm+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	1	5	2		1	6	4
Permitted Phases			Free			3						6
Detector Phase	4	4		3	3	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	32.0	32.0		14.0	14.0	14.0	14.0	19.0		14.0	19.0	32.0
Total Split (s)	40.0	40.0	0.0	15.0	15.0	15.0	15.0	110.0	0.0	15.0	110.0	40.0
Total Split (%)	22.2%	22.2%	0.0%	8.3%	8.3%	8.3%	8.3%	61.1%	0.0%	8.3%	61.1%	22.2%
Maximum Green (s)	33.8	33.8		8.8	8.8	8.8	8.8	103.9		8.8	103.7	33.8
Yellow Time (s)	3.8	3.8		3.8	3.8	3.0	3.0	4.7		3.0	4.5	3.8
All-Red Time (s)	2.4	2.4		2.4	2.4	3.2	3.2	1.4		3.2	1.8	2.4
Lost Time Adjust (s)	-1.2	-1.2	0.0	-2.5	-1.2	-1.2	-1.2	-1.1	0.0	-1.2	-1.3	-1.2
Total Lost Time (s)	5.0	5.0	4.0	3.7	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0	1.0	1.0	6.0		1.0	6.0	1.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)	7.0	7.0										7.0
Flash Dont Walk (s)	18.0	18.0										18.0
Pedestrian Calls (#/hr)	0	0										0
Act Effect Green (s)	41.8	41.8	180.0		8.5	17.5	9.4	111.0		9.3	105.6	149.4
Actuated g/C Ratio	0.23	0.23	1.00		0.05	0.10	0.05	0.62		0.05	0.59	0.83

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2013 Existing PM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.88	0.02	0.11		0.25	0.14	0.57	0.74		0.12	0.94	0.19
Control Delay	78.7	57.8	0.1		90.8	72.3	95.5	28.1		68.0	28.5	2.2
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	78.7	57.8	0.1		90.8	72.3	95.5	28.1		68.0	28.5	2.2
LOS	E	E	A		F	E	F	C		E	C	A
Approach Delay		63.3			81.1			32.1			25.8	
Approach LOS		E			F			C			C	
Queue Length 50th (ft)	439	7	0		22	22	62	766		12	453	51
Queue Length 95th (ft)	#540	21	0		50	49	98	861		m13	m466	m62
Internal Link Dist (ft)		302			435			504			1405	
Turn Bay Length (ft)			225			75	400			200		
Base Capacity (vph)	813	441	1593		90	160	194	2215		98	2076	1314
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.88	0.02	0.11		0.21	0.13	0.53	0.74		0.11	0.94	0.19

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

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

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 35.3

Intersection LOS: D

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

							
ø2	ø1	ø3	ø4	ø5	ø6		
110 s	15 s	15 s	40 s	15 s	110 s		

Lanes, Volumes, Timings
11: South Road & Country Club Road

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	462	35	189	296	471	20	144	242	484	134	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.96	1.00		0.99		0.93		1.00	0.99		0.99	
Frt		0.989				0.850			0.850		0.988	
Flt Protected	0.950			0.950				0.994		0.950	0.975	
Satd. Flow (prot)	1662	3385	0	1770	1863	1689	0	2037	1583	1625	1920	0
Flt Permitted	0.568			0.264				0.994		0.950	0.975	
Satd. Flow (perm)	952	3385	0	488	1863	1575	0	2027	1560	1625	1920	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	22		12	12		22	49					49
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	40	537	41	203	318	506	23	166	278	520	144	28
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	40	578	0	203	318	506	0	189	278	343	349	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	17.0	17.0	14.0	37.0	37.0	
Total Split (s)	32.0	32.0	0.0	36.0	68.0	37.0	25.0	25.0	36.0	37.0	37.0	0.0
Total Split (%)	24.6%	24.6%	0.0%	27.7%	52.3%	28.5%	19.2%	19.2%	27.7%	28.5%	28.5%	0.0%
Maximum Green (s)	24.7	24.7		29.2	60.7	30.3	18.3	18.3	29.2	30.3	30.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	41.4	41.4		63.0	63.0	94.1		20.9	37.5	31.1	31.1	
Actuated g/C Ratio	0.32	0.32		0.48	0.48	0.72		0.16	0.29	0.24	0.24	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.13	0.54		0.51	0.35	0.43		0.58	0.61	0.88	0.76	
Control Delay	35.2	39.5		24.3	22.2	6.8		58.8	42.5	71.7	57.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	35.2	39.5		24.3	22.2	6.8		58.8	42.5	71.7	57.5	
LOS	D	D		C	C	A		E	D	E	E	
Approach Delay		39.2			15.0			49.1			64.5	
Approach LOS		D			B			D			E	
Queue Length 50th (ft)	24	208		97	162	121		151	195	292	287	
Queue Length 95th (ft)	55	273		149	234	168		223	253	#466	406	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	303	1077		542	903	1179		327	627	400	473	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.13	0.54		0.37	0.35	0.43		0.58	0.44	0.86	0.74	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 38.2

Intersection LOS: D

Intersection Capacity Utilization 80.3%

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: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
36 s	32 s	37 s	25 s
 ø6			
68 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	0	1314	58	0	871	897	0	0	232	0	0	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	1428	63	0	947	975	0	0	252	0	0	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1428	63	0	947	975	0	0	252	0	0	90
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 58.9% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2013 Existing PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	1531	1749	387	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.973			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	4948	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	4948	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1701	2034	450	0	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1701	2484	0	0	21
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 52.4%

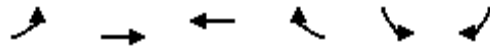
ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
14: NC 54 (Raleigh Road) & Glen Lennox Dr #1

2013 Existing PM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	29	2164	2191	38	0	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.997			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1770	5085	5070	0	0	1611
Flt Permitted	0.950					
Satd. Flow (perm)	1770	5085	5070	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		164	247		247	
Travel Time (s)		2.5	3.7		5.6	
Confl. Peds. (#/hr)	10			10		
Peak Hour Factor	0.97	0.97	0.92	0.92	1.00	0.85
Adj. Flow (vph)	30	2231	2382	41	0	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	2231	2423	0	0	81
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 54.1% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2013 Existing PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	2165	2195	22	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5080	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5080	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		247	359		229	
Travel Time (s)		3.7	5.4		6.2	
Peak Hour Factor	1.00	0.94	0.91	0.91	1.00	0.67
Adj. Flow (vph)	0	2303	2412	24	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2303	2436	0	0	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 52.9% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	1991	64	93	1883	52	154	25	101	51	19	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	250		0	150		150	50		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99		0.96	0.97	0.98	
Frt		0.995			0.996				0.850		0.897	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5050	0	1770	5059	0	1770	1863	1583	1770	1644	0
Flt Permitted	0.051			0.051			0.713			0.732		
Satd. Flow (perm)	95	5050	0	95	5059	0	1315	1863	1513	1321	1644	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		359			576			537			463	
Travel Time (s)		5.4			8.7			14.6			12.6	
Confl. Peds. (#/hr)	7		11	11		7	8		25	25		8
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.65	0.65	0.65	0.89	0.89	0.89
Adj. Flow (vph)	51	2118	68	104	2116	58	237	38	155	57	21	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	2186	0	104	2174	0	237	38	155	57	67	0
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	27.0		13.0	26.0		41.0	41.0	13.0	39.0	39.0	
Total Split (s)	20.0	87.0	0.0	22.0	89.0	0.0	41.0	41.0	22.0	41.0	41.0	0.0
Total Split (%)	13.3%	58.0%	0.0%	14.7%	59.3%	0.0%	27.3%	27.3%	14.7%	27.3%	27.3%	0.0%
Maximum Green (s)	14.4	81.4		16.6	83.1		34.6	34.6	16.6	34.5	34.5	
Yellow Time (s)	3.0	3.8		3.0	4.1		3.1	3.1	3.0	3.2	3.2	
All-Red Time (s)	2.6	1.8		2.4	1.8		3.3	3.3	2.4	3.3	3.3	
Lost Time Adjust (s)	-0.6	-0.6	0.0	-0.4	-0.9	0.0	-1.4	-1.4	-0.4	-1.5	-1.5	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	2.0		2.0	2.0		3.0	3.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			13.0		27.0	27.0		25.0	25.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effect Green (s)	86.2	86.2		97.4	97.4		31.8	31.8	48.8	31.8	31.8	
Actuated g/C Ratio	0.57	0.57		0.65	0.65		0.21	0.21	0.33	0.21	0.21	
v/c Ratio	0.34	0.75		0.41	0.66		0.85	0.10	0.31	0.20	0.19	
Control Delay	21.8	26.7		36.4	7.9		82.9	46.0	35.3	48.9	48.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.8	26.7		36.4	7.9		82.9	46.0	35.3	48.9	48.4	
LOS	C	C		D	A		F	D	D	D	D	
Approach Delay		26.6			9.2			62.5			48.7	
Approach LOS		C			A			E			D	
Queue Length 50th (ft)	22	587		62	736		221	30	105	46	53	
Queue Length 95th (ft)	46	669		m106	175		215	44	111	86	95	
Internal Link Dist (ft)		279			496			457			383	
Turn Bay Length (ft)	275			250			150		150	50		
Base Capacity (vph)	222	2904		252	3284		316	447	500	317	395	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.23	0.75		0.41	0.66		0.75	0.09	0.31	0.18	0.17	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 138 (92%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 22.4

Intersection LOS: C

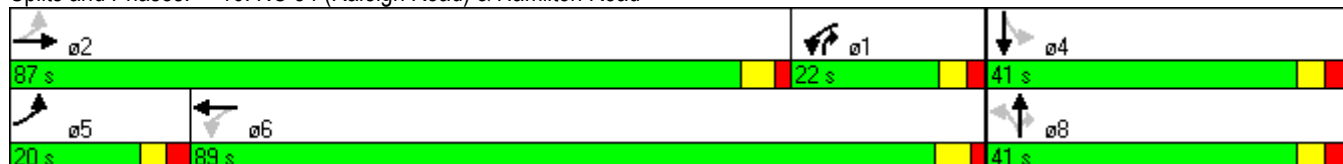
Intersection Capacity Utilization 80.9%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road



Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	2089	27	149	2003	48	27	12	170	26	31	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.998			0.996				0.850		0.945	
Flt Protected	0.950			0.950				0.967			0.987	
Satd. Flow (prot)	1770	5070	0	1770	5058	0	0	1801	1583	0	1722	0
Flt Permitted	0.042			0.042				0.735			0.908	
Satd. Flow (perm)	78	5070	0	78	5058	0	0	1361	1583	0	1584	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	14		18	18		14	9					9
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.86	0.86	0.86	0.83	0.83	0.83
Adj. Flow (vph)	63	2199	28	167	2251	54	31	14	198	31	37	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	2227	0	167	2305	0	0	45	198	0	115	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	23.0	82.0	0.0	20.0	79.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	15.3%	54.7%	0.0%	13.3%	52.7%	0.0%	32.0%	32.0%	32.0%	32.0%	32.0%	0.0%
Maximum Green (s)	17.1	75.8		14.1	72.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	111.5	95.1		110.5	97.1			24.5	24.5		24.5	
Actuated g/C Ratio	0.74	0.63		0.74	0.65			0.16	0.16		0.16	
v/c Ratio	0.26	0.69		0.72	0.70			0.20	0.76		0.44	
Control Delay	15.8	9.2		74.7	7.8			53.9	78.3		60.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	15.8	9.2		74.7	7.9			53.9	78.3		60.7	
LOS	B	A		E	A			D	E		E	
Approach Delay		9.4			12.4			73.8			60.7	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	16	164		109	144			39	188		103	
Queue Length 95th (ft)	m24	194		m157	m158			70	248		144	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	261	3213		251	3274			390	454		454	
Starvation Cap Reductn	0	0		0	37			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.24	0.69		0.67	0.71			0.12	0.44		0.25	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 133 (89%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 15.0

Intersection LOS: B

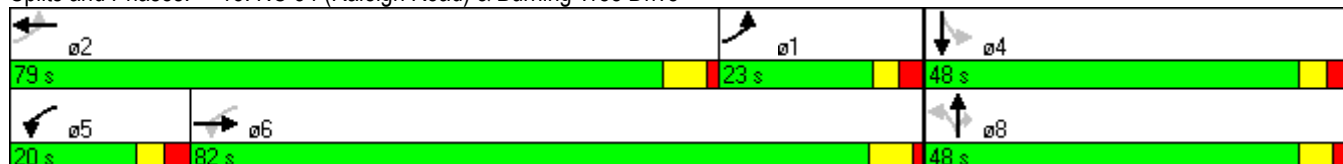
Intersection Capacity Utilization 79.4%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	166	2061	36	11	1926	23	104	11	102	14	0	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.90			0.96						
Frt			0.850			0.850		0.865			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1741	5085	1583	1770	5085	1583	1770	1611	0	1770	1583	0
Flt Permitted	0.059			0.060			0.351			0.514		
Satd. Flow (perm)	108	5085	1430	112	5085	1524	654	1611	0	957	1583	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	15		22	22		15						
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.80	0.80	0.80	0.93	0.93	0.93
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	171	2125	37	12	2027	24	130	14	128	15	0	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	2125	37	12	2027	24	130	142	0	15	205	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	44.0	44.0	16.0	44.0	44.0	18.0	18.0		18.0	18.0	
Total Split (s)	26.0	100.0	100.0	20.0	67.0	67.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	17.3%	66.7%	66.7%	13.3%	44.7%	44.7%	20.0%	20.0%	0.0%	20.0%	20.0%	0.0%
Maximum Green (s)	19.7	93.7	93.7	13.7	60.7	60.7	23.2	23.2		22.7	22.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	110.0	109.7	109.7	113.0	95.0	95.0	25.0	25.0		25.0	25.0	
Actuated g/C Ratio	0.73	0.73	0.73	0.75	0.63	0.63	0.17	0.17		0.17	0.17	
v/c Ratio	0.71	0.57	0.04	0.07	0.63	0.02	1.19	0.53		0.09	0.78	
Control Delay	40.0	15.4	11.7	2.0	11.5	4.1	198.3	65.1		54.9	80.0	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	27.0
Total Split (%)	18%
Maximum Green (s)	23.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2013 Existing PM Peak
10/18/2013

												
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	
Total Delay	40.0	15.4	11.7	2.0	11.5	4.1	198.3	65.1		54.9	80.0	
LOS	D	B	B	A	B	A	F	E		D	F	
Approach Delay		17.2			11.3			128.8			78.3	
Approach LOS		B			B			F			E	
Queue Length 50th (ft)	119	379	13	1	630	3	~153	129		13	195	
Queue Length 95th (ft)	m203	462	m25	m1	686	m6	#251	178		35	#317	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	310	3719	1046	252	3221	965	109	269		160	264	
Starvation Cap Reductn	0	218	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	39	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.55	0.61	0.04	0.05	0.64	0.02	1.19	0.53		0.09	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 121 (81%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 23.7

Intersection LOS: C

Intersection Capacity Utilization 80.7%

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
20 s	100 s	30 s
 ø5	 ø10	 ø6
26 s	27 s	67 s
		 ø8
		30 s

Lane Group	ø10
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	2000	72	55	1691	91	113	17	426	154	9	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.95	1.00		0.98	0.99	1.00				
Frt			0.850			0.850		0.868	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.998		0.950		
Satd. Flow (prot)	3467	5136	1599	3416	5060	1575	1648	1440	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.998		0.950		
Satd. Flow (perm)	3465	5136	1517	3404	5060	1548	1636	1439	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	4		25	25		4	4					4
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	120	2105	76	60	1858	100	133	20	501	179	10	180
Shared Lane Traffic (%)							10%		47%			
Lane Group Flow (vph)	120	2105	76	60	1858	100	120	268	266	179	10	180
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	25.0	66.0	30.0	30.0	71.0	24.0	30.0	30.0	60.0	24.0	24.0	49.0
Total Split (%)	16.7%	44.0%	20.0%	20.0%	47.3%	16.0%	20.0%	20.0%	40.0%	16.0%	16.0%	32.7%
Maximum Green (s)	17.8	59.4	22.9	22.9	64.5	16.7	22.9	22.9		16.7	16.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effect Green (s)	11.1	61.0	89.0	25.0	74.9	90.9	28.0	28.0	53.0	16.0	16.0	27.1
Actuated g/C Ratio	0.07	0.41	0.59	0.17	0.50	0.61	0.19	0.19	0.35	0.11	0.11	0.18
v/c Ratio	0.47	1.01	0.08	0.11	0.74	0.11	0.39	1.00	0.51	0.48	0.05	0.62

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	69.5	74.8	15.7	36.5	16.6	3.6	58.9	113.6	27.4	67.0	58.9	42.0
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	69.5	74.8	15.7	36.5	16.6	3.6	58.9	113.6	27.4	67.0	58.9	42.0
LOS	E	E	B	D	B	A	E	F	C	E	E	D
Approach Delay	72.5			16.6			68.5			54.6		
Approach LOS	E			B			E			D		
Queue Length 50th (ft)	57	~809	37	26	551	14	110	~297	154	86	9	112
Queue Length 95th (ft)	87	#902	69	m37	183	24	172	#490	207	119	26	155
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300			200	300			200			450	250
Base Capacity (vph)	462	2089	916	569	2527	973	308	269	521	441	240	418
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	0.26	1.01	0.08	0.11	0.74	0.10	0.39	1.00	0.51	0.41	0.04	0.43

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 49.7

Intersection LOS: D

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

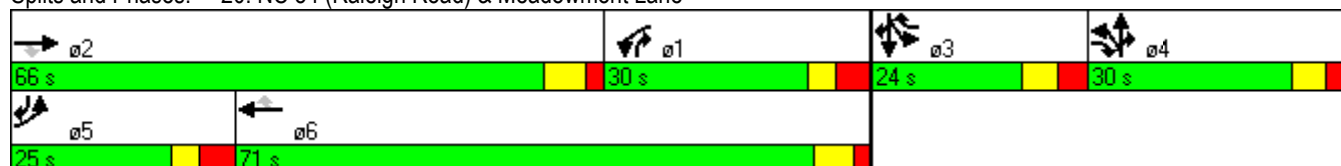
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane



Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2013 Existing PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	6	1858	727	143	1604	172	239	59	38	111	78	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96			0.98						
Frt			0.850			0.850		0.966			0.986	
Flt Protected	0.950			0.950			0.950	0.980		0.950	0.994	
Satd. Flow (prot)	1761	4448	1575	1778	5111	1591	1673	1667	0	1664	1717	0
Flt Permitted	0.078			0.065			0.950	0.980		0.950	0.994	
Satd. Flow (perm)	145	4448	1507	122	5111	1554	1673	1667	0	1664	1717	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)	1		6	6		1						
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	6	1935	757	152	1706	183	266	66	42	126	89	11
Shared Lane Traffic (%)							29%			11%		
Lane Group Flow (vph)	6	1935	757	152	1706	183	189	185	0	112	114	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	19.0	72.0	36.0	21.0	74.0	21.0	36.0	36.0	0.0	21.0	21.0	0.0
Total Split (%)	12.7%	48.0%	24.0%	14.0%	49.3%	14.0%	24.0%	24.0%	0.0%	14.0%	14.0%	0.0%
Maximum Green (s)	12.2	64.5	28.8	14.0	66.5	13.8	28.8	28.8		13.8	13.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	87.6	67.9	99.7	83.6	85.8	100.4	31.8	31.8		14.6	14.6	
Actuated g/C Ratio	0.58	0.45	0.66	0.56	0.57	0.67	0.21	0.21		0.10	0.10	
v/c Ratio	0.03	0.96	0.75	0.63	0.58	0.18	0.53	0.52		0.69	0.68	
Control Delay	5.3	22.9	9.0	60.5	22.3	8.6	59.1	58.8		87.2	85.7	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2013 Existing PM Peak
10/18/2013

												
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	
Total Delay	5.3	22.9	9.0	60.5	22.3	8.6	59.1	58.8		87.2	85.7	
LOS	A	C	A	E	C	A	E	E		F	F	
Approach Delay		18.9			24.0			58.9			86.5	
Approach LOS		B			C			E			F	
Queue Length 50th (ft)	1	423	140	86	364	50	175	171		112	114	
Queue Length 95th (ft)	m1	m433	m142	165	508	107	266	261		181	183	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	237	2012	1016	245	2923	1058	355	354		177	183	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.96	0.75	0.62	0.58	0.17	0.53	0.52		0.63	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 59 (39%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 26.5

Intersection LOS: C

Intersection Capacity Utilization 72.3%

ICU Level of Service C

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 Ø2	 Ø1	 Ø3	 Ø4
72 s	21 s	21 s	36 s
 Ø5	 Ø6		
19 s	74 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	340	315	55	197	368	214	71	772	174	110	625	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99		0.98	0.99	0.99		1.00	0.97	
Frt		0.978				0.850		0.972			0.943	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1815	0	1770	1863	1583	1770	3421	0	1770	3230	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1760	1815	0	1755	1863	1550	1744	3421	0	1761	3230	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	5		9	9		5	14		13	13		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	351	325	57	203	379	221	76	830	187	117	665	410
Shared Lane Traffic (%)												
Lane Group Flow (vph)	351	382	0	203	379	221	76	1017	0	117	1075	0
Turn Type	Prot			Prot		pm+ov	Prot			Prot		
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	
Total Split (s)	40.0	48.0	0.0	30.0	38.0	25.0	15.0	47.0	0.0	25.0	57.0	0.0
Total Split (%)	26.7%	32.0%	0.0%	20.0%	25.3%	16.7%	10.0%	31.3%	0.0%	16.7%	38.0%	0.0%
Maximum Green (s)	34.1	42.1		24.4	32.4	19.1	8.8	41.3		19.1	51.6	
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.6	36.1		28.9	32.4	47.4	9.5	49.9		15.0	55.4	
Actuated g/C Ratio	0.22	0.24		0.19	0.22	0.32	0.06	0.33		0.10	0.37	
v/c Ratio	0.91	0.87		0.60	0.94	0.45	0.67	0.89		0.66	0.90	
Control Delay	85.0	75.1		63.9	87.1	35.9	96.5	58.9		82.1	56.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	85.0	75.1		63.9	87.1	35.9	96.5	58.9		82.1	56.5	
LOS	F	E		E	F	D	F	E		F	E	
Approach Delay		79.8			67.2			61.5			59.0	
Approach LOS		E			E			E			E	
Queue Length 50th (ft)	331	360		173	354	158	74	514		112	541	
Queue Length 95th (ft)	#498	466		293	#572	214	#146	#713		177	#688	
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	200											
Base Capacity (vph)	413	520		341	413	546	118	1139		236	1193	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.85	0.73		0.60	0.92	0.40	0.64	0.89		0.50	0.90	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 104 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 65.4

Intersection LOS: E

Intersection Capacity Utilization 91.1%

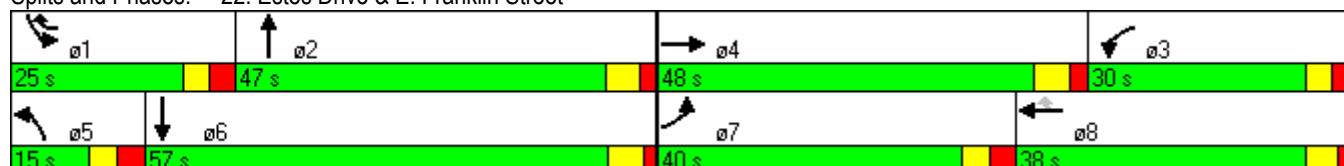
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	224	366	8	5	409	50	12	8	12	83	10	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.984			0.950				0.850
Flt Protected	0.950			0.950				0.982			0.957	
Satd. Flow (prot)	1770	3526	0	1770	3469	0	0	1723	0	0	1765	1568
Flt Permitted	0.388			0.520				0.843			0.717	
Satd. Flow (perm)	718	3526	0	955	3469	0	0	1479	0	0	1311	1548
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		11	11		8	1		11	11		1
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.69	0.69	0.69	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	236	385	8	6	470	57	17	12	17	87	11	345
Shared Lane Traffic (%)												
Lane Group Flow (vph)	236	393	0	6	527	0	0	46	0	0	98	345
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	20.0	46.0	0.0	26.0	26.0	0.0	29.0	29.0	0.0	29.0	29.0	20.0
Total Split (%)	26.7%	61.3%	0.0%	34.7%	34.7%	0.0%	38.7%	38.7%	0.0%	38.7%	38.7%	26.7%
Maximum Green (s)	14.9	40.9		20.8	20.8		23.3	23.3		23.2	23.2	14.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	57.2	58.2		40.1	40.1			10.3			10.4	20.9
Actuated g/C Ratio	0.76	0.78		0.53	0.53			0.14			0.14	0.28
v/c Ratio	0.33	0.14		0.01	0.28			0.23			0.54	0.79
Control Delay	2.3	1.4		12.2	11.7			30.2			40.7	35.4
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	2.3	1.4		12.2	11.7			30.2			40.7	35.4
LOS	A	A		B	B			C			D	D

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		1.7			11.8			30.2			36.6	
Approach LOS		A			B			C			D	
Queue Length 50th (ft)	23	20		1	67			20			44	133
Queue Length 95th (ft)	m39	m30		8	120			34			84	177
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	758	2736		511	1856			473			420	495
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.31	0.14		0.01	0.28			0.10			0.23	0.70

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 61 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 15.1

Intersection LOS: B

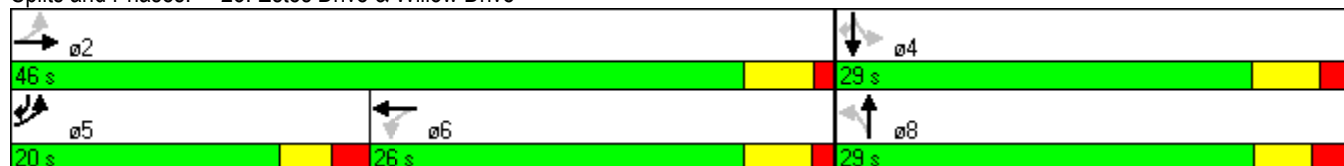
Intersection Capacity Utilization 57.0%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2013 Existing PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	244	16	1	125	10	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.950	
Flt Protected					0.969	
Satd. Flow (prot)	1848	0	0	1863	1715	0
Flt Permitted					0.969	
Satd. Flow (perm)	1848	0	0	1863	1715	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Confl. Peds. (#/hr)						11
Peak Hour Factor	0.62	0.62	0.62	0.62	0.85	0.85
Adj. Flow (vph)	394	26	2	202	12	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	420	0	0	204	19	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.9%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2013 Existing PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	52	9	0	38	3	10	2	0	4	2	8
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		0.981			0.991						0.922	
Flt Protected		0.996						0.960			0.987	
Satd. Flow (prot)	0	1820	0	0	1846	0	0	1788	0	0	1616	0
Flt Permitted		0.996						0.960			0.987	
Satd. Flow (perm)	0	1820	0	0	1846	0	0	1788	0	0	1616	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.65	0.65	0.65	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%
Adj. Flow (vph)	5	55	10	0	41	3	15	3	0	5	3	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	70	0	0	44	0	0	18	0	0	19	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	17.5%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2013 Existing PM Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations				←←	←←	←
Volume (vph)	0	0	0	2148	1288	904
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	667		536		2107	
Travel Time (s)	15.2		8.1		31.9	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2148	1431	1004
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2148	1431	1004
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 78.5% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
61: NC 54 EB Off Ramp &

2013 Existing PM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	904	0	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			667	476	
Travel Time (s)	4.7			15.2	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1004	0	232
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1004	0	232
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.9%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2013 Existing PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑		↗
Volume (vph)	1322	209	0	2135	0	904
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	5085	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			164	476	
Travel Time (s)	1.4			2.5	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1574	249	0	2372	0	932
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1574	249	0	2372	0	932
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	99.2%			ICU Level of Service F		
Analysis Period (min)	15					

2018 Without Site Phase 1

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	59	24	308	124	58	74	1074	226	71	1194	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	175		0	375		325	225		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.957			0.964				0.850		0.998	
Flt Protected	0.950			0.950	0.987		0.950			0.950		
Satd. Flow (prot)	1702	1715	0	1571	1622	0	1744	3487	1508	1702	3515	0
Flt Permitted	0.950			0.950	0.987		0.950			0.950		
Satd. Flow (perm)	1700	1715	0	1571	1622	0	1744	3487	1508	1702	3515	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	31	69	28	328	132	62	79	1143	240	81	1357	15
Shared Lane Traffic (%)				20%								
Lane Group Flow (vph)	31	97	0	262	260	0	79	1143	240	81	1372	0
Turn Type	Split			Split			Prot		Free	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases									Free			
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	20.0	20.0		33.0	33.0		20.0	80.0		18.0	68.0	
Total Split (s)	21.0	21.0	0.0	44.0	44.0	0.0	20.0	85.0	0.0	20.0	85.0	0.0
Total Split (%)	12.4%	12.4%	0.0%	25.9%	25.9%	0.0%	11.8%	50.0%	0.0%	11.8%	50.0%	0.0%
Maximum Green (s)	14.7	14.7		38.2	38.2		13.8	79.2		13.7	79.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	14.0	14.0		32.6	32.6		15.0	91.0	170.0	12.4	88.4	
Actuated g/C Ratio	0.08	0.08		0.19	0.19		0.09	0.54	1.00	0.07	0.52	
v/c Ratio	0.22	0.69		0.87	0.84		0.51	0.61	0.16	0.65	0.75	
Control Delay	75.8	100.0		93.3	88.1		75.9	24.4	0.2	100.1	36.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	75.8	100.0		93.3	88.1		75.9	24.4	0.2	100.1	36.8	
LOS	E	F		F	F		E	C	A	F	D	
Approach Delay		94.2			90.7			23.2			40.3	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	33	106		300	295		83	249	0	89	641	
Queue Length 95th (ft)	66	164		407	398		141	446	0	147	761	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			175			375		325	225		
Base Capacity (vph)	160	161		360	372		154	1867	1508	150	1828	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.19	0.60		0.73	0.70		0.51	0.61	0.16	0.54	0.75	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 148 (87%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 42.6

Intersection LOS: D

Intersection Capacity Utilization 73.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

			
ø1	ø2	ø3	ø4
20 s	85 s	21 s	44 s
			
ø6	ø5		
85 s	20 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	48	108	128	1359	15	1472	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12
Storage Length (ft)	175	0	250		125		125
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25	25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Ped Bike Factor			1.00				0.98
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1719	1487	1752	3505	1811	3505	1568
Flt Permitted	0.950		0.104		0.133		
Satd. Flow (perm)	1719	1487	192	3505	254	3505	1536
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			45		45	
Link Distance (ft)	423			800		1344	
Travel Time (s)	8.2			12.1		20.4	
Confl. Peds. (#/hr)			1				1
Peak Hour Factor	0.84	0.84	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	57	129	144	1527	17	1654	98
Shared Lane Traffic (%)							
Lane Group Flow (vph)	57	129	144	1527	17	1654	98
Turn Type		pm+ov	pm+pt		pm+pt		pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases		4	2		6		6
Detector Phase	4	5	5	2	1	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	20.0	30.0	30.0	135.0	15.0	115.0	20.0
Total Split (s)	20.0	30.0	30.0	135.0	15.0	120.0	20.0
Total Split (%)	11.8%	17.6%	17.6%	79.4%	8.8%	70.6%	11.8%
Maximum Green (s)	14.4	24.1	24.1	129.1	9.7	114.1	14.4
Yellow Time (s)	3.0	3.0	3.0	4.5	3.0	4.5	3.0
All-Red Time (s)	2.6	2.9	2.9	1.4	2.3	1.4	2.6
Lost Time Adjust (s)	-0.6	-0.9	-0.9	-0.9	-0.3	-0.9	-0.6
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	1.0	1.0	1.0	2.0	1.0	2.0	1.0
Recall Mode	None	None	None	C-Max	None	C-Max	None
Act Effect Green (s)	9.9	39.9	142.7	142.7	120.1	120.1	130.0
Actuated g/C Ratio	0.06	0.23	0.84	0.84	0.71	0.71	0.76
v/c Ratio	0.57	0.37	0.37	0.52	0.07	0.67	0.08
Control Delay	98.9	57.5	15.6	2.8	2.4	5.4	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.9	57.5	15.6	2.9	2.4	5.4	0.7

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	F	E	B	A	A	A	A
Approach Delay	70.2			4.0		5.1	
Approach LOS	E			A		A	
Queue Length 50th (ft)	63	122	18	92	2	213	3
Queue Length 95th (ft)	106	172	76	103	m3	196	m3
Internal Link Dist (ft)	343			720		1264	
Turn Bay Length (ft)	175		250		125		125
Base Capacity (vph)	152	349	391	2942	271	2476	1214
Starvation Cap Reductn	0	0	0	159	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.37	0.37	0.55	0.06	0.67	0.08

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 143 (84%), Referenced to phase 2:NBT and 6:SBTU, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 7.9

Intersection LOS: A

Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

	ø1		ø2		ø4
15 s		135 s		20 s	
	ø6				ø5
120 s				30 s	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	24	14	40	55	16	49	1177	5	6	1239	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.946			0.966			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1771	0	1761	1790	0	1778	3553	0	1778	3557	1591
Flt Permitted	0.410			0.726			0.145			0.166		
Satd. Flow (perm)	768	1771	0	1346	1790	0	271	3553	0	311	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Peak Hour Factor	0.81	0.81	0.81	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88
Adj. Flow (vph)	84	30	17	49	67	20	53	1266	5	7	1408	162
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	47	0	49	87	0	53	1271	0	7	1408	162
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		33.0	33.0		15.0	90.0		15.0	80.0	80.0
Total Split (s)	15.0	50.0	0.0	35.0	35.0	0.0	15.0	105.0	0.0	15.0	105.0	105.0
Total Split (%)	8.8%	29.4%	0.0%	20.6%	20.6%	0.0%	8.8%	61.8%	0.0%	8.8%	61.8%	61.8%
Maximum Green (s)	8.7	43.6		28.6	28.6		8.9	98.9		9.4	98.9	98.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	26.1	26.1		14.2	14.2		128.6	128.6		119.1	119.1	119.1
Actuated g/C Ratio	0.15	0.15		0.08	0.08		0.76	0.76		0.70	0.70	0.70
v/c Ratio	0.48	0.17		0.44	0.58		0.18	0.47		0.02	0.57	0.15
Control Delay	70.5	60.5		84.9	89.8		4.7	4.3		2.2	2.8	2.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	0.0
Total Delay	70.5	60.5		84.9	89.8		4.7	4.3		2.2	3.0	2.2

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	E		F	F		A	A		A	A	A
Approach Delay		66.9			88.0			4.3			2.9	
Approach LOS		E			F			A			A	
Queue Length 50th (ft)	83	45		53	95		5	69		1	63	14
Queue Length 95th (ft)	120	75		90	141		m9	93		m1	67	19
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	179	469		238	316		294	2687		304	2492	1114
Starvation Cap Reductn	0	0		0	0		0	0		0	263	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.47	0.10		0.21	0.28		0.18	0.47		0.02	0.63	0.15

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 156 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 9.8

Intersection LOS: A

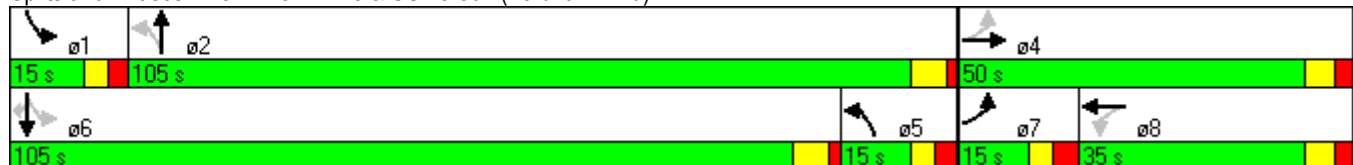
Intersection Capacity Utilization 59.5%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	3	270	7	7	13	281	1392	5	14	1377	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-1%	
Storage Length (ft)	0		400	0		0	400		0	100		150
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99			0.99							
Frt			0.850		0.936							0.850
Flt Protected		0.955			0.987		0.950			0.950		
Satd. Flow (prot)	0	1703	2668	0	1507	0	3383	3487	0	1744	3489	1561
Flt Permitted		0.955			0.987		0.950			0.950		
Satd. Flow (perm)	0	1680	2668	0	1507	0	3383	3487	0	1744	3489	1561
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		566			126			1593			286	
Travel Time (s)		35.6			10.9			24.1			4.3	
Confl. Peds. (#/hr)	10					10						
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.91	0.91	0.91	0.86	0.86	0.86
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	52	3	300	10	10	18	309	1530	5	16	1601	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	300	0	38	0	309	1535	0	16	1601	78
Turn Type	Split		pm+ov	Split			Prot			Prot		pm+ov
Protected Phases	3	3	5	4	4		5	2		1	6	3
Permitted Phases			3									6
Detector Phase	3	3	5	4	4		5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	10.9	7.0
Minimum Split (s)	20.0	20.0	45.0	41.0	41.0		45.0	59.0		15.0	17.0	20.0
Total Split (s)	20.0	20.0	45.0	41.0	41.0	0.0	45.0	94.0	0.0	15.0	64.0	20.0
Total Split (%)	11.8%	11.8%	26.5%	24.1%	24.1%	0.0%	26.5%	55.3%	0.0%	8.8%	37.6%	11.8%
Maximum Green (s)	13.4	13.4	38.3	34.3	34.3		38.3	87.9		8.5	57.9	13.4
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	4.4		3.0	4.6	3.8
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	1.7		3.5	1.5	2.8
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	-1.7	-1.1	0.0	-1.5	-1.1	-1.6
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	6.0		2.0	6.0	1.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	None
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		10.8	37.3		10.3		21.5	127.6		9.4	110.1	121.9
Actuated g/C Ratio		0.06	0.22		0.06		0.13	0.75		0.06	0.65	0.72
v/c Ratio		0.51	0.51		0.41		0.72	0.59		0.16	0.71	0.07
Control Delay		92.7	60.7		89.9		81.0	12.8		60.4	9.4	2.1
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		92.7	60.7		89.9		81.0	12.8		60.4	9.4	2.1
LOS		F	E		F		F	B		E	A	A
Approach Delay		65.7			89.9			24.2			9.6	
Approach LOS		E			F			C			A	
Queue Length 50th (ft)		61	169		42		173	438		17	137	6
Queue Length 95th (ft)		110	210		66		221	597		m32	445	17
Internal Link Dist (ft)		486			46			1513			206	
Turn Bay Length (ft)			400				400			100		150
Base Capacity (vph)		150	876		319		796	2617		103	2259	1157
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.37	0.34		0.12		0.39	0.59		0.16	0.71	0.07

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 26 (15%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 22.3

Intersection LOS: C

Intersection Capacity Utilization 72.5%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	0	1	4	0	103	0	1560	18	59	1557	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	200		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.988			0.870			0.998			0.999	
Flt Protected		0.957			0.998					0.950		
Satd. Flow (prot)	0	1761	0	0	1586	0	1845	3498	0	1752	3501	0
Flt Permitted		0.957			0.998					0.950		
Satd. Flow (perm)	0	1761	0	0	1586	0	1845	3498	0	1752	3501	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			2038			1593	
Travel Time (s)		7.9			3.4			30.9			24.1	
Peak Hour Factor	0.69	0.69	0.69	0.71	0.71	0.71	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	10	0	1	6	0	145	0	1677	19	69	1810	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	151	0	0	1696	0	69	1824	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

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	1	12	9	1	41	13	1579	24	39	1450	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	125		0	175		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.932			0.891			0.998			0.999	
Flt Protected		0.977			0.991		0.950			0.950		
Satd. Flow (prot)	0	1696	0	0	1645	0	1752	3498	0	1752	3501	0
Flt Permitted		0.977			0.991		0.950			0.950		
Satd. Flow (perm)	0	1696	0	0	1645	0	1752	3498	0	1752	3501	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		104			85			1461			2038	
Travel Time (s)		2.8			2.3			22.1			30.9	
Peak Hour Factor	0.69	0.69	0.69	0.80	0.80	0.80	0.91	0.91	0.91	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	16	1	17	11	1	51	14	1735	26	45	1686	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	63	0	14	1761	0	45	1692	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 54.4% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	915	0	0	272	0	1344	27	0	1301	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	1076	0	0	324	0	1493	30	0	1355	181
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1076	0	0	324	0	1493	30	0	1355	181
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	101.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.0	0.0
Total Split (%)	0.0%	0.0%	50.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	49.5%	0.0%
Maximum Green (s)			95.9								93.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			1.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			89.3			200.0		200.0	200.0		100.7	200.0
Actuated g/C Ratio			0.45			1.00		1.00	1.00		0.50	1.00
v/c Ratio			0.88			0.21		0.43	0.02		0.77	0.12
Control Delay			59.6			0.3		0.0	0.0		45.1	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			59.6			0.3		0.0	0.0		45.1	0.1
LOS			E			A		A	A		D	A
Approach Delay								0.0			39.8	
Approach LOS								A			D	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			686			0		0	0		807	0
Queue Length 95th (ft)			722			0		m0	m0		905	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1312			1580		3505	1583		1764	1568
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			0.82			0.21		0.43	0.02		0.77	0.12

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 75 (38%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 28.1

Intersection LOS: C

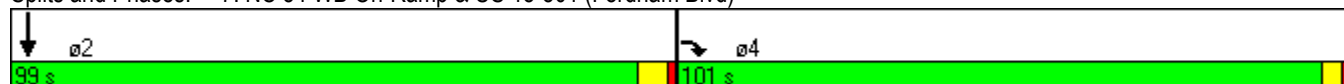
Intersection Capacity Utilization 76.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2018 Without Site AM Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	58	0	1313	0	0	1931	285	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	64	0	1459	0	0	2146	317	0	13
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	64	0	1459	0	0	2146	317	0	13
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 63.4% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2
Lane Configurations												
Volume (vph)	11	4	9	85	1	5	11	139	20	49	14	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%				2%			
Storage Length (ft)	0		0	50		0			125	0		
Storage Lanes	0		0	1		0			1	0		
Taper Length (ft)	25		25	25		25			25	25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95
Ped Bike Factor					0.99							
Frt		0.949			0.859				0.911			
Flt Protected		0.978		0.950				0.950	0.980			
Satd. Flow (prot)	0	1729	0	1743	1555	0	0	1664	1564	0	0	0
Flt Permitted		0.840		0.950				0.950	0.980			
Satd. Flow (perm)	0	1485	0	1743	1555	0	0	1664	1564	0	0	0
Right Turn on Red			No				No				No	
Satd. Flow (RTOR)												
Link Speed (mph)		30			35				25			
Link Distance (ft)		305			620				359			
Travel Time (s)		6.9			12.1				9.8			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.61	0.61	0.61	0.52	0.52	0.52	0.52	0.47	0.47	0.47	0.47	0.96
Adj. Flow (vph)	18	7	15	163	2	10	21	296	43	104	30	2
Shared Lane Traffic (%)								17%				
Lane Group Flow (vph)	0	40	0	163	33	0	0	246	227	0	0	0
Turn Type	Perm			Split				Split				custom
Protected Phases		7		3	3			4	4			
Permitted Phases	7											5
Detector Phase	7	7		3	3			4	4			5
Switch Phase												
Minimum Initial (s)	5.0	5.0		7.0	7.0			5.0	5.0			7.0
Minimum Split (s)	13.0	13.0		36.0	36.0			13.0	13.0			14.0
Total Split (s)	13.0	13.0	0.0	36.0	36.0	0.0	0.0	28.0	28.0	0.0	0.0	53.0
Total Split (%)	6.5%	6.5%	0.0%	18.0%	18.0%	0.0%	0.0%	14.0%	14.0%	0.0%	0.0%	26.5%
Maximum Green (s)	5.8	5.8		29.4	29.4			20.6	20.6			46.0
Yellow Time (s)	3.0	3.0		3.6	3.6			3.0	3.0			3.0
All-Red Time (s)	4.2	4.2		3.0	3.0			4.4	4.4			4.0
Lost Time Adjust (s)	0.0	-2.2	-2.2	-1.6	-1.6	-1.6	-1.6	-2.0	-2.4	-2.4	0.0	0.0
Total Lost Time (s)	7.2	5.0	1.8	5.0	5.0	2.4	2.4	5.4	5.0	1.6	4.0	7.0
Lead/Lag				Lag	Lag			Lead	Lead			Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Recall Mode	None	None		None	None			None	None			None
Walk Time (s)				4.0	4.0							
Flash Dont Walk (s)				25.0	25.0							
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)		10.1		24.3	24.3			22.6	23.0			
Actuated g/C Ratio		0.05		0.12	0.12			0.11	0.12			
v/c Ratio		0.53		0.77	0.17			1.31	1.26			
Control Delay		115.4		107.6	78.7			233.6	218.9			

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

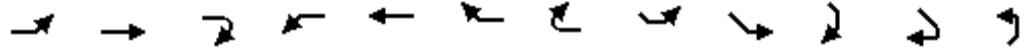
2018 Without Site AM Peak
10/18/2013

							
Lane Group	NEL	NET	NER	SWL	SWT	SWR	SWR2
Lane Configurations							
Volume (vph)	98	2373	192	21	1714	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%		
Storage Length (ft)	350		325	150		100	
Storage Lanes	1		1	1		1	
Taper Length (ft)	25		25	25		25	
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor							
Frt			0.850			0.850	
Flt Protected	0.950			0.950			
Satd. Flow (prot)	1770	3725	1583	1770	3725	1583	0
Flt Permitted	0.119			0.950			
Satd. Flow (perm)	222	*3787	1583	1770	*3771	1583	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45		
Link Distance (ft)		1485			2107		
Travel Time (s)		22.5			31.9		
Confl. Peds. (#/hr)							
Peak Hour Factor	0.96	0.96	0.96	0.87	0.87	0.87	0.87
Adj. Flow (vph)	102	2472	200	24	1970	3	1
Shared Lane Traffic (%)							
Lane Group Flow (vph)	104	2472	200	24	1970	4	0
Turn Type	Prot		pm+ov	Prot		Perm	
Protected Phases	5	2	3	1	6		
Permitted Phases			2			6	
Detector Phase	5	2	3	1	6	6	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	33.0	36.0	15.0	25.0	25.0	
Total Split (s)	53.0	108.0	36.0	15.0	70.0	70.0	0.0
Total Split (%)	26.5%	54.0%	18.0%	7.5%	35.0%	35.0%	0.0%
Maximum Green (s)	46.0	101.8	29.4	9.1	63.9	63.9	
Yellow Time (s)	3.0	4.6	3.6	3.0	4.4	4.4	
All-Red Time (s)	4.0	1.6	3.0	2.9	1.7	1.7	
Lost Time Adjust (s)	-2.0	-1.2	-1.6	-0.9	-1.1	-1.1	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	C-Max	
Walk Time (s)		7.0	4.0		7.0	7.0	
Flash Dont Walk (s)		16.0	25.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0		0	0	
Act Effct Green (s)	48.0	114.1	139.5	8.7	72.2	72.2	
Actuated g/C Ratio	0.24	0.57	0.70	0.04	0.36	0.36	
v/c Ratio	1.96	1.16	0.18	0.31	1.46	0.01	
Control Delay	484.8	100.2	3.7	108.3	251.4	42.0	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2
Queue Delay		0.0		0.0	0.0			0.0	0.0			
Total Delay		115.4		107.6	78.7			233.6	218.9			
LOS		F		F	E			F	F			
Approach Delay		115.4			102.8				226.5			
Approach LOS		F			F				F			
Queue Length 50th (ft)		52		212	40			~435	~392			
Queue Length 95th (ft)		68		160	44			232	216			
Internal Link Dist (ft)		225			540				279			
Turn Bay Length (ft)				50				125	125			
Base Capacity (vph)		75		270	241			188	180			
Starvation Cap Reductn		0		0	0			0	0			
Spillback Cap Reductn		0		0	0			0	0			
Storage Cap Reductn		0		0	0			0	0			
Reduced v/c Ratio		0.53		0.60	0.14			1.31	1.26			

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 147 (74%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.96

Intersection Signal Delay: 169.4

Intersection LOS: F

Intersection Capacity Utilization 103.9%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

ø1	ø2	ø4	ø3	
15 s	108 s	28 s	36 s	13 s
ø6	ø5			
70 s	53 s			



Lane Group	NEL	NET	NER	SWL	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	484.8	100.2	3.7	108.3	251.4	42.0	
LOS	F	F	A	F	F	D	
Approach Delay		107.6			249.3		
Approach LOS		F			F		
Queue Length 50th (ft)	~212	~2008	46	32	~1832	3	
Queue Length 95th (ft)	m#231	m#2053	m56	m40	#1880	m5	
Internal Link Dist (ft)		1405			2027		
Turn Bay Length (ft)	350		325	150		100	
Base Capacity (vph)	53	2125	1134	89	1345	571	
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	1.96	1.16	0.18	0.27	1.46	0.01	
Intersection Summary							

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	257	0	36	16	6	42	204	2294	2	6	1191	728
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	400		0	200		0
Storage Lanes	0		1	0		1	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.99		0.99							
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.965		0.950			0.950		
Satd. Flow (prot)	3434	1863	1584	0	1602	1568	3519	3628	0	1719	3438	1538
Flt Permitted	0.950				0.965		0.950			0.950		
Satd. Flow (perm)	*3819	1863	1564	0	1594	1568	3519	*3811	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			1485	
Travel Time (s)		7.4			14.0			8.8			22.5	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.88	0.88	0.88	0.68	0.68	0.68	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	292	0	41	24	9	62	217	2440	2	6	1254	766
Shared Lane Traffic (%)												
Lane Group Flow (vph)	292	0	41	0	33	62	217	2442	0	6	1254	766
Turn Type	Split		Free	Split		pm+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	1	5	2		1	6	4
Permitted Phases			Free			3						6
Detector Phase	4	4		3	3	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	32.0	32.0		14.0	14.0	14.0	14.0	19.0		14.0	19.0	32.0
Total Split (s)	33.0	33.0	0.0	14.0	14.0	14.0	24.0	139.0	0.0	14.0	129.0	33.0
Total Split (%)	16.5%	16.5%	0.0%	7.0%	7.0%	7.0%	12.0%	69.5%	0.0%	7.0%	64.5%	16.5%
Maximum Green (s)	26.8	26.8		7.8	7.8	7.8	17.8	132.9		7.8	122.7	26.8
Yellow Time (s)	3.8	3.8		3.8	3.8	3.0	3.0	4.7		3.0	4.5	3.8
All-Red Time (s)	2.4	2.4		2.4	2.4	3.2	3.2	1.4		3.2	1.8	2.4
Lost Time Adjust (s)	-1.2	-1.2	0.0	-2.5	-1.2	-1.2	-1.2	-1.1	0.0	-1.2	-1.3	-1.2
Total Lost Time (s)	5.0	5.0	4.0	3.7	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0	1.0	1.0	6.0		1.0	6.0	1.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)	7.0	7.0										7.0
Flash Dont Walk (s)	18.0	18.0										18.0
Pedestrian Calls (#/hr)	0	0										0
Act Effect Green (s)	31.0		200.0		8.6	20.0	16.5	134.0		9.0	126.5	158.5
Actuated g/C Ratio	0.16		1.00		0.04	0.10	0.08	0.67		0.04	0.63	0.79

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Without Site AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.55		0.03		0.48	0.39	0.75	1.00		0.08	0.58	0.63
Control Delay	83.4		0.0		115.8	90.6	105.5	51.6		55.8	3.2	11.6
Queue Delay	0.0		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	83.4		0.0		115.8	90.6	105.5	51.6		55.8	3.2	11.6
LOS	F		A		F	F	F	D		E	A	B
Approach Delay					99.3			56.0			6.5	
Approach LOS					F			E			A	
Queue Length 50th (ft)	189		0		43	77	146	~1662		8	85	219
Queue Length 95th (ft)	240		0		66	100	196	#1852		m7	m51	m40
Internal Link Dist (ft)		302			435			504			1405	
Turn Bay Length (ft)			225			75	400			200		
Base Capacity (vph)	532		1564		72	157	334	2431		77	2174	1219
Starvation Cap Reductn	0		0		0	0	0	0		0	0	0
Spillback Cap Reductn	0		0		0	0	0	0		0	0	0
Storage Cap Reductn	0		0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.55		0.03		0.46	0.39	0.65	1.00		0.08	0.58	0.63

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 118 (59%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 38.3

Intersection LOS: D

Intersection Capacity Utilization 96.5%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 Ø2	 Ø1	 Ø3	 Ø4
139 s	14 s	14 s	33 s
 Ø5	 Ø6		
24 s	129 s		

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	162	32	506	380	467	32	57	100	363	139	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00		0.96		1.00	0.98	1.00	1.00	
Frt		0.975				0.850			0.850		0.993	
Flt Protected	0.950			0.950				0.982		0.950	0.979	
Satd. Flow (prot)	1517	3041	0	1752	1845	1672	0	1883	1482	1625	1948	0
Flt Permitted	0.518			0.482				0.982		0.950	0.979	
Satd. Flow (perm)	818	3041	0	885	1845	1613	0	1879	1456	1620	1945	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	7		3	3		7	6		3	3		6
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.79	0.79	0.79	0.88	0.88	0.88
Heavy Vehicles (%)	15%	15%	15%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	12	184	36	556	418	513	41	72	127	412	158	14
Shared Lane Traffic (%)										30%		
Lane Group Flow (vph)	12	220	0	556	418	513	0	113	127	288	296	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	33.0	33.0	0.0	35.0	68.0	37.0	25.0	25.0	35.0	37.0	37.0	0.0
Total Split (%)	25.4%	25.4%	0.0%	26.9%	52.3%	28.5%	19.2%	19.2%	26.9%	28.5%	28.5%	0.0%
Maximum Green (s)	25.7	25.7		28.2	60.7	30.3	18.3	18.3	28.2	30.3	30.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effct Green (s)	28.1	28.1		63.0	63.0	92.1		22.9	52.7	29.1	29.1	
Actuated g/C Ratio	0.22	0.22		0.48	0.48	0.71		0.18	0.41	0.22	0.22	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.07	0.33		0.89	0.47	0.44		0.34	0.21	0.79	0.68	
Control Delay	42.1	44.8		43.6	24.5	7.3		51.8	24.2	63.4	54.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.1	44.8		43.6	24.5	7.3		51.8	24.2	63.4	54.1	
LOS	D	D		D	C	A		D	C	E	D	
Approach Delay		44.6			25.7			37.2			58.7	
Approach LOS		D			C			D			E	
Queue Length 50th (ft)	8	83		345	229	123		87	67	235	234	
Queue Length 95th (ft)	26	119		#550	320	173		128	97	336	329	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	177	658		629	894	1193		331	598	400	480	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.07	0.33		0.88	0.47	0.43		0.34	0.21	0.72	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 36.1

Intersection LOS: D

Intersection Capacity Utilization 92.8%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
35 s	33 s	37 s	25 s
 ø6			
68 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	0	668	12	0	1250	915	0	0	285	0	0	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	726	13	0	1359	995	0	0	310	0	0	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	726	13	0	1359	995	0	0	310	0	0	189
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 60.0% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2018 Without Site AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	953	2113	272	0	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.983			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	4999	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	4999	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1059	2457	316	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1059	2773	0	0	32
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 56.9%

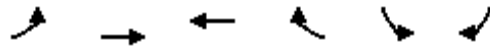
ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
14: NC 54 (Raleigh Road) & Glen Lennox Dr #1

2018 Without Site AM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	10	2070	2395	28	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.998			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1752	5036	4978	0	0	1596
Flt Permitted	0.950					
Satd. Flow (perm)	1752	5036	4978	0	0	1596
Link Speed (mph)		45	45		30	
Link Distance (ft)		164	247		247	
Travel Time (s)		2.5	3.7		5.6	
Confl. Peds. (#/hr)	1			1		2
Peak Hour Factor	0.90	0.90	0.87	0.87	1.00	0.78
Heavy Vehicles (%)	3%	3%	4%	4%	3%	3%
Adj. Flow (vph)	11	2300	2753	32	0	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	2300	2785	0	0	46
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 57.5% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2018 Without Site AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	2070	2414	9	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5080	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5080	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		247	359		229	
Travel Time (s)		3.7	5.4		6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2250	2624	10	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2250	2634	0	0	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 56.8%

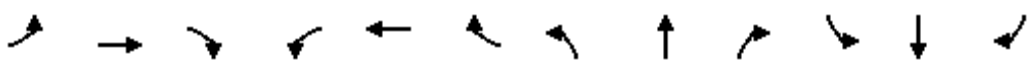
ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	1810	189	63	2176	21	184	31	101	39	25	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	250		0	150		150	50		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98		0.98	0.99	0.98	
Frt		0.986			0.999				0.850		0.916	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	4946	0	1736	4980	0	1736	1827	1553	1719	1631	0
Flt Permitted	0.058			0.058			0.714			0.726		
Satd. Flow (perm)	107	4946	0	106	4980	0	1284	1827	1523	1305	1631	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		359			576			537			463	
Travel Time (s)		5.4			8.7			14.6			12.6	
Confl. Peds. (#/hr)	9		6	6		9	13		6	6		13
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86	0.86
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%	5%
Adj. Flow (vph)	36	2057	215	71	2445	24	283	48	155	45	29	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	2272	0	71	2469	0	283	48	155	45	66	0
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	27.0		13.0	26.0		41.0	41.0	13.0	39.0	39.0	
Total Split (s)	13.0	78.0	0.0	19.0	84.0	0.0	43.0	43.0	19.0	43.0	43.0	0.0
Total Split (%)	9.3%	55.7%	0.0%	13.6%	60.0%	0.0%	30.7%	30.7%	13.6%	30.7%	30.7%	0.0%
Maximum Green (s)	7.4	72.4		13.6	78.1		36.6	36.6	13.6	36.5	36.5	
Yellow Time (s)	3.0	3.8		3.0	4.1		3.1	3.1	3.0	3.2	3.2	
All-Red Time (s)	2.6	1.8		2.4	1.8		3.3	3.3	2.4	3.3	3.3	
Lost Time Adjust (s)	-0.6	-0.6	0.0	-0.4	-0.9	0.0	-1.4	-1.4	-0.4	-1.5	-1.5	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	2.0		2.0	2.0		3.0	3.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			13.0		27.0	27.0		25.0	25.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	76.1	76.1		84.8	84.8		34.9	34.9	48.9	34.9	34.9	
Actuated g/C Ratio	0.54	0.54		0.61	0.61		0.25	0.25	0.35	0.25	0.25	
v/c Ratio	0.24	0.85		0.31	0.82		0.88	0.11	0.29	0.14	0.16	
Control Delay	20.1	31.5		19.2	8.7		78.0	39.5	30.4	40.4	40.9	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Without Site AM Peak
10/18/2013

												
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	
Total Delay	20.1	31.5		19.2	8.7		78.0	39.5	30.4	40.4	40.9	
LOS	C	C		B	A		E	D	C	D	D	
Approach Delay		31.3			9.0			59.1			40.7	
Approach LOS		C			A			E			D	
Queue Length 50th (ft)	16	652		8	89		242	33	92	31	46	
Queue Length 95th (ft)	34	694		m31	190		233	48	101	62	82	
Internal Link Dist (ft)		279			496			457			383	
Turn Bay Length (ft)	275			250			150		150	50		
Base Capacity (vph)	152	2688		227	3018		349	496	535	354	443	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.24	0.85		0.31	0.82		0.81	0.10	0.29	0.13	0.15	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 16 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 23.6

Intersection LOS: C

Intersection Capacity Utilization 79.6%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

 ø2	 ø1	 ø4
78 s	19 s	43 s
 ø5	 ø6	 ø8
13 s	84 s	43 s

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

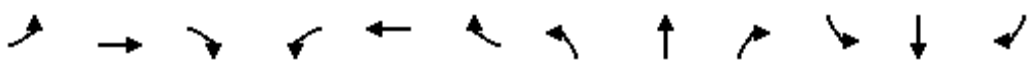
2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	1881	39	98	2179	15	16	4	180	32	7	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99	0.99		0.99	
Frt		0.997			0.999				0.850		0.944	
Flt Protected	0.950			0.950				0.962			0.976	
Satd. Flow (prot)	1770	5066	0	1736	4981	0	0	1775	1568	0	1701	0
Flt Permitted	0.043			0.058				0.787			0.851	
Satd. Flow (perm)	80	5066	0	106	4981	0	0	1442	1548	0	1482	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	6		8	8		6	9		1	1		9
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	23	2001	41	109	2421	17	20	5	222	42	9	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	2042	0	109	2438	0	0	25	222	0	87	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	75.0	0.0	17.0	79.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	9.3%	53.6%	0.0%	12.1%	56.4%	0.0%	34.3%	34.3%	34.3%	34.3%	34.3%	0.0%
Maximum Green (s)	7.1	68.8		11.1	72.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	0.0	-0.9	-1.2	0.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	101.1	88.5		99.1	96.3			25.9	25.9		25.9	
Actuated g/C Ratio	0.72	0.63		0.71	0.69			0.18	0.18		0.18	
v/c Ratio	0.15	0.64		0.55	0.71			0.09	0.78		0.32	
Control Delay	5.5	4.3		47.0	4.2			44.9	71.7		50.6	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2018 Without Site AM Peak
10/18/2013

												
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	
Total Delay	5.5	4.3		47.0	4.2			44.9	71.7		50.6	
LOS	A	A		D	A			D	E		D	
Approach Delay		4.3			6.0			69.0			50.6	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	2	65		42	106			19	195		69	
Queue Length 95th (ft)	m3	85		m82	m97			39	236		96	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	154	3204		224	3426			443	475		455	
Starvation Cap Reductn	0	0		0	36			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.15	0.64		0.49	0.72			0.06	0.47		0.19	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 33 (24%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 9.2

Intersection LOS: A

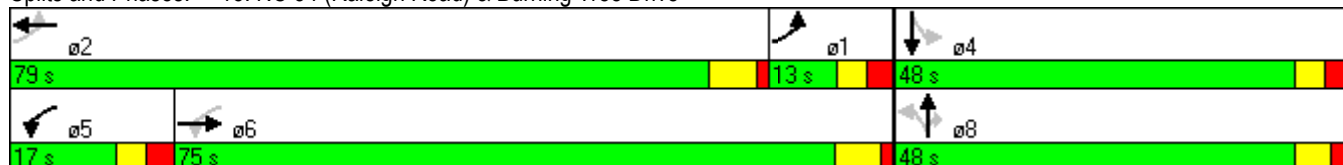
Intersection Capacity Utilization 77.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	204	1810	128	119	2221	26	26	0	5	10	13	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95	1.00		0.97						
Frt			0.850			0.850		0.850			0.865	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1724	5036	1568	1736	4988	1553	1770	1583	0	1736	1580	0
Flt Permitted	0.041			0.082			0.370			0.753		
Satd. Flow (perm)	74	5036	1485	150	4988	1510	689	1583	0	1376	1580	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	8		10	10		8						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.73	0.73	0.73	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	219	1946	138	128	2388	28	36	0	7	11	14	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	1946	138	128	2388	28	36	7	0	11	141	0
Turn Type	D,P+P		Perm	D,P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	28.0	28.0	14.0	19.0	19.0	14.0	14.0		15.0	15.0	
Total Split (s)	18.0	106.0	106.0	16.0	77.0	77.0	18.0	18.0	0.0	18.0	18.0	0.0
Total Split (%)	12.9%	75.7%	75.7%	11.4%	55.0%	55.0%	12.9%	12.9%	0.0%	12.9%	12.9%	0.0%
Maximum Green (s)	11.7	99.7	99.7	9.7	70.7	70.7	11.2	11.2		10.7	10.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	-1.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)	112.0	103.0	103.0	112.0	99.0	99.0	13.0	13.0		13.0	13.0	
Actuated g/C Ratio	0.80	0.74	0.74	0.80	0.71	0.71	0.09	0.09		0.09	0.09	
v/c Ratio	1.03	0.53	0.13	0.58	0.68	0.03	0.56	0.05		0.09	0.96	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	19%
Maximum Green (s)	23.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	102.4	7.5	6.1	32.2	11.6	2.3	93.2	58.8		59.9	126.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	102.4	7.5	6.1	32.2	11.6	2.3	93.2	58.8		59.9	126.5	
LOS	F	A	A	C	B	A	F	E		E	F	
Approach Delay	16.4			12.5			87.6			121.7		
Approach LOS	B			B			F			F		
Queue Length 50th (ft)	~165	182	28	33	634	4	32	6		9	130	
Queue Length 95th (ft)	#338	244	57	m60	498	m5	58	18		30	#270	
Internal Link Dist (ft)	767			1857			371			455		
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	212	3706	1093	247	3527	1068	64	147		128	147	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.03	0.53	0.13	0.52	0.68	0.03	0.56	0.05		0.09	0.96	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 24 (17%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 18.2

Intersection LOS: B

Intersection Capacity Utilization 84.9%

ICU Level of Service E

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
16 s	106 s	18 s
 ø5	 ø10	 ø6
18 s	27 s	77 s
		 ø8
		18 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	1550	170	673	2187	154	74	16	55	58	26	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor			0.98	1.00				1.00		1.00		
Frt			0.850			0.850		0.970	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.977		0.950		
Satd. Flow (prot)	3434	5086	1584	3383	5011	1560	1427	1359	1276	3451	1872	1591
Flt Permitted	0.950			0.950			0.950	0.977		0.950		
Satd. Flow (perm)	3434	5086	1548	3378	5011	1560	1427	1359	1276	3441	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)			7	7					1	1		
Peak Hour Factor	0.86	0.86	0.86	0.94	0.94	0.94	0.78	0.78	0.78	0.79	0.79	0.79
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	19%	19%	19%	3%	3%	3%
Adj. Flow (vph)	129	1802	198	716	2327	164	95	21	71	73	33	139
Shared Lane Traffic (%)							32%		19%			
Lane Group Flow (vph)	129	1802	198	716	2327	164	65	64	58	73	33	139
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	64.0	18.0	40.0	88.0	18.0	18.0	18.0	58.0	18.0	18.0	34.0
Total Split (%)	11.4%	45.7%	12.9%	28.6%	62.9%	12.9%	12.9%	12.9%	41.4%	12.9%	12.9%	24.3%
Maximum Green (s)	8.8	57.4	10.9	32.9	81.5	10.7	10.9	10.9		10.7	10.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	0.0	-2.3	-2.3	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.1	5.0	5.0	7.3
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	10.4	60.3	72.6	35.0	85.0	102.3	12.3	12.3	43.1	12.4	12.4	18.1
Actuated g/C Ratio	0.07	0.43	0.52	0.25	0.61	0.73	0.09	0.09	0.31	0.09	0.09	0.13
v/c Ratio	0.51	0.82	0.25	0.85	0.77	0.14	0.52	0.54	0.15	0.24	0.20	0.67

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	72.0	30.1	10.6	38.6	7.6	3.0	75.7	77.7	22.5	61.2	61.9	57.8
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	72.0	30.1	10.6	38.6	7.6	3.0	75.7	77.7	22.5	61.2	61.9	57.8
LOS	E	C	B	D	A	A	E	E	C	E	E	E
Approach Delay	30.8			14.3			59.9			59.3		
Approach LOS	C			B			E			E		
Queue Length 50th (ft)	55	542	63	331	206	26	60	61	28	32	28	95
Queue Length 95th (ft)	84	599	92	m312	m237	m28	97	102	48	51	56	131
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	270	2191	814	846	3041	1147	133	126	399	320	174	220
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	0.48	0.82	0.24	0.85	0.77	0.14	0.49	0.51	0.15	0.23	0.19	0.63

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 93 (66%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 23.8

Intersection LOS: C

Intersection Capacity Utilization 71.5%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø3	 ø4
64 s	40 s	18 s	18 s
 ø5	 ø6		
16 s	88 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	9	1504	134	32	2315	188	648	100	66	147	28	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.976			0.977	
Flt Protected	0.950			0.950			0.950	0.971		0.950	0.973	
Satd. Flow (prot)	1761	4448	1575	1761	5061	1576	1656	1652	0	1664	1665	0
Flt Permitted	0.059			0.065			0.950	0.971		0.950	0.973	
Satd. Flow (perm)	109	4448	1527	121	5061	1576	1656	1652	0	1664	1665	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	10	1617	144	34	2437	198	682	105	69	177	34	17
Shared Lane Traffic (%)							37%			35%		
Lane Group Flow (vph)	10	1617	144	34	2437	198	430	426	0	115	113	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	66.0	38.0	16.0	66.0	20.0	38.0	38.0	0.0	20.0	20.0	0.0
Total Split (%)	11.4%	47.1%	27.1%	11.4%	47.1%	14.3%	27.1%	27.1%	0.0%	14.3%	14.3%	0.0%
Maximum Green (s)	9.2	58.5	30.8	9.0	58.5	12.8	30.8	30.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effect Green (s)	76.0	67.4	101.5	74.0	74.2	93.1	34.1	34.1		13.9	13.9	
Actuated g/C Ratio	0.54	0.48	0.72	0.53	0.53	0.66	0.24	0.24		0.10	0.10	
v/c Ratio	0.06	0.76	0.13	0.19	0.91	0.19	1.07	1.06		0.70	0.68	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.2	4.6	0.8	28.7	36.0	10.1	113.2	111.3		82.9	81.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	2.2	4.6	0.8	28.7	36.0	10.1	113.2	111.3		82.9	81.9	
LOS	A	A	A	C	D	B	F	F		F	F	
Approach Delay		4.3			34.0			112.2			82.4	
Approach LOS		A			C			F			F	
Queue Length 50th (ft)	0	47	3	14	682	58	~467	~460		107	105	
Queue Length 95th (ft)	m1	56	m5	31	#983	122	#691	#683		163	162	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	190	2141	1119	193	2684	1061	403	402		178	178	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	0.76	0.13	0.18	0.91	0.19	1.07	1.06		0.65	0.63	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 104 (74%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 38.6
Intersection Capacity Utilization 85.6%
Analysis Period (min) 15
Description: NC 54 & Barbee Chapel Road
* User Entered Value
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2	 ø1	 ø3	 ø4
66 s	16 s	20 s	38 s
 ø5	 ø6		
16 s	66 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	381	362	61	143	235	87	51	427	94	77	611	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00		0.98	0.99	1.00		1.00	0.99	
Frt		0.978				0.850		0.973			0.956	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1577	1800	0	1719	1810	1538	1703	3304	0	1703	3210	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1572	1800	0	1714	1810	1513	1690	3304	0	1699	3210	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	3		4	4		3	7		4	4		7
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Parking (#/hr)	0											
Adj. Flow (vph)	414	393	66	154	253	94	54	454	100	83	657	273
Shared Lane Traffic (%)												
Lane Group Flow (vph)	414	459	0	154	253	94	54	554	0	83	930	0
Turn Type	Prot			Prot		pm+ov	Prot			Prot		
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	
Total Split (s)	40.0	51.0	0.0	20.0	31.0	18.0	15.0	41.0	0.0	18.0	44.0	0.0
Total Split (%)	30.8%	39.2%	0.0%	15.4%	23.8%	13.8%	11.5%	31.5%	0.0%	13.8%	33.8%	0.0%
Maximum Green (s)	34.1	45.1		14.4	25.4	12.1	8.8	35.3		12.1	38.6	
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	36.8	44.8		14.1	22.1	33.1	9.0	40.0		11.0	44.7	
Actuated g/C Ratio	0.28	0.34		0.11	0.17	0.25	0.07	0.31		0.08	0.34	
v/c Ratio	0.93	0.74		0.82	0.82	0.24	0.46	0.54		0.58	0.84	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	73.2	45.6		86.1	66.7	16.5	70.7	40.9		72.6	49.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	73.2	45.6		86.1	66.7	16.5	70.7	40.9		72.6	49.2	
LOS	E	D		F	E	B	E	D		E	D	
Approach Delay	58.7			63.2			43.5			51.1		
Approach LOS	E			E			D			D		
Queue Length 50th (ft)	335	334		120	217	29	45	210		68	400	
Queue Length 95th (ft)	#558	464		m#225	m262	m51	89	276		123	#546	
Internal Link Dist (ft)	718			652			519			599		
Turn Bay Length (ft)	200											
Base Capacity (vph)	447	637		198	362	410	131	1018		170	1104	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.93	0.72		0.78	0.70	0.23	0.41	0.54		0.49	0.84	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 88 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 53.8

Intersection LOS: D

Intersection Capacity Utilization 82.6%

ICU Level of Service E

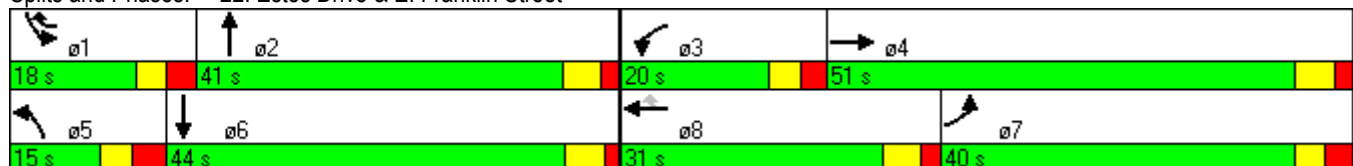
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	173	256	6	5	286	42	14	3	7	26	3	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			1.00	0.99
Frt		0.996			0.981			0.960				0.850
Flt Protected	0.950			0.950				0.972			0.958	
Satd. Flow (prot)	1719	3422	0	1752	3426	0	0	1729	0	0	1734	1538
Flt Permitted	0.466			0.570				0.851				
Satd. Flow (perm)	840	3422	0	1046	3426	0	0	1513	0	0	1802	1519
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	4		4	4		4	1		6	6		1
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.60	0.60	0.60	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	197	291	7	6	318	47	23	5	12	31	4	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	298	0	6	365	0	0	40	0	0	35	264
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	13.0	36.0	0.0	23.0	23.0	0.0	29.0	29.0	0.0	29.0	29.0	13.0
Total Split (%)	20.0%	55.4%	0.0%	35.4%	35.4%	0.0%	44.6%	44.6%	0.0%	44.6%	44.6%	20.0%
Maximum Green (s)	7.9	30.9		17.8	17.8		23.3	23.3		23.2	23.2	7.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	54.8	57.8		37.7	37.7			7.8			7.9	15.3
Actuated g/C Ratio	0.84	0.89		0.58	0.58			0.12			0.12	0.24
v/c Ratio	0.23	0.10		0.01	0.18			0.22			0.16	0.73
Control Delay	1.4	0.8		9.8	8.5			29.0			27.5	32.8
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	1.4	0.8		9.8	8.5			29.0			27.5	32.8
LOS	A	A		A	A			C			C	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		1.0			8.5			29.0			32.2	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	1	0		1	28			15			13	97
Queue Length 95th (ft)	m28	20		7	74			26			34	114
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	871	3042		607	1987			559			665	361
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.23	0.10		0.01	0.18			0.07			0.05	0.73

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 12.0

Intersection LOS: B

Intersection Capacity Utilization 48.9%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2018 Without Site AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	70	4	2	100	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1814	0	0	1825	1770	0
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1814	0	0	1825	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.82	0.82	0.77	0.77	0.45	0.45
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	85	5	3	130	20	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	133	20	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	16.9%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2018 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	61	5	1	42	1	13	1	0	0	2	0
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			0.998							
Flt Protected		0.999			0.999			0.957				
Satd. Flow (prot)	0	1773	0	0	1857	0	0	1783	0	0	1863	0
Flt Permitted		0.999			0.999			0.957				
Satd. Flow (perm)	0	1773	0	0	1857	0	0	1783	0	0	1863	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.83	0.83	0.83	0.79	0.79	0.79	0.65	0.65	0.65	0.50	0.50	0.50
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	73	6	1	53	1	20	2	0	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	55	0	0	22	0	0	4	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.1%											
Analysis Period (min)	15											
ICU Level of Service A												

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2018 Without Site AM Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	1943	1313	1186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	667		536		2107	
Travel Time (s)	15.2		8.1		31.9	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	1943	1459	1318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1943	1459	1318
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 76.8% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
61: NC 54 EB Off Ramp &

2018 Without Site AM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1186	0	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			667	476	
Travel Time (s)	4.7			15.2	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1318	0	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1318	0	64
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	65.8%			ICU Level of Service C		
Analysis Period (min)	15					

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

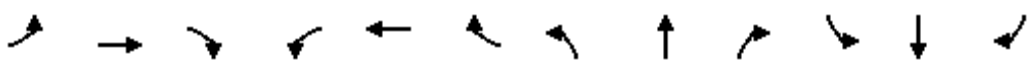
2018 Without Site AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑		↗
Volume (vph)	899	58	0	2385	0	1186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	5085	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			164	476	
Travel Time (s)	1.4			2.5	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1070	69	0	2650	0	1223
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1070	69	0	2650	0	1223
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	105.0%			ICU Level of Service G		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	110	71	307	116	48	161	1019	228	52	920	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	175		0	375		325	225		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.99				1.00							
Frt		0.941			0.969				0.850		0.997	
Flt Protected	0.950			0.950	0.985		0.950			0.950		
Satd. Flow (prot)	1702	1686	0	1601	1658	0	1744	3487	1508	1686	3478	0
Flt Permitted	0.950			0.950	0.985		0.950			0.950		
Satd. Flow (perm)	1693	1686	0	1601	1658	0	1744	3487	1508	1686	3478	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	102	126	82	341	129	53	175	1108	248	55	979	23
Shared Lane Traffic (%)				23%								
Lane Group Flow (vph)	102	208	0	263	260	0	175	1108	248	55	1002	0
Turn Type	Split			Split			Prot		Free	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases									Free			
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		18.0	68.0	
Total Split (s)	35.0	35.0	0.0	44.0	44.0	0.0	30.0	83.0	0.0	18.0	71.0	0.0
Total Split (%)	19.4%	19.4%	0.0%	24.4%	24.4%	0.0%	16.7%	46.1%	0.0%	10.0%	39.4%	0.0%
Maximum Green (s)	28.7	28.7		38.2	38.2		23.8	77.2		11.7	65.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.0	3.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	27.2	27.2		34.2	34.2		25.0	89.7	180.0	11.5	73.6	
Actuated g/C Ratio	0.15	0.15		0.19	0.19		0.14	0.50	1.00	0.06	0.41	
v/c Ratio	0.40	0.82		0.87	0.83		0.72	0.64	0.16	0.51	0.70	
Control Delay	73.1	98.1		96.4	90.9		74.6	23.2	0.2	97.5	48.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	73.1	98.1		96.4	90.9		74.6	23.2	0.2	97.5	48.9	
LOS	E	F		F	F		E	C	A	F	D	
Approach Delay		89.9			93.7			25.4			51.4	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	109	239		317	311		208	453	0	64	535	
Queue Length 95th (ft)	168	326		432	424		m#287	401	m0	118	645	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			175			375		325	225		
Base Capacity (vph)	284	281		347	359		242	1738	1508	122	1422	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.36	0.74		0.76	0.72		0.72	0.64	0.16	0.45	0.70	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 68 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 160

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 49.7

Intersection LOS: D

Intersection Capacity Utilization 76.1%

ICU Level of Service D

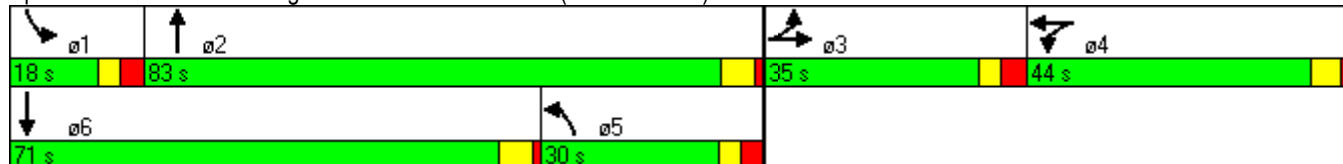
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak
10/18/2013

							
Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	148	288	255	1265	11	1199	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12
Storage Length (ft)	175	0	250		125		125
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25	25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1770	1531	1752	3505	1811	3505	1568
Flt Permitted	0.950		0.171		0.157		
Satd. Flow (perm)	1770	1531	315	3505	299	3505	1568
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			45		45	
Link Distance (ft)	423			800		1344	
Travel Time (s)	8.2			12.1		20.4	
Peak Hour Factor	0.81	0.81	0.95	0.95	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	3%
Adj. Flow (vph)	183	356	268	1332	11	1249	212
Shared Lane Traffic (%)							
Lane Group Flow (vph)	183	356	268	1332	11	1249	212
Turn Type		pm+ov	pm+pt		pm+pt		pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases		4	2		6		6
Detector Phase	4	5	5	2	1	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	20.0	30.0	30.0	134.0	15.0	119.0	20.0
Total Split (s)	29.0	32.0	32.0	136.0	15.0	119.0	29.0
Total Split (%)	16.1%	17.8%	17.8%	75.6%	8.3%	66.1%	16.1%
Maximum Green (s)	23.4	26.1	26.1	130.1	9.7	113.1	23.4
Yellow Time (s)	3.0	3.0	3.0	4.5	3.0	4.5	3.0
All-Red Time (s)	2.6	2.9	2.9	1.4	2.3	1.4	2.6
Lost Time Adjust (s)	-0.6	-0.9	-0.9	-0.9	-0.3	-0.9	-0.6
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	4.0	1.0	1.0	2.0	1.0	2.0	4.0
Recall Mode	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	22.5	54.5	142.6	142.6	115.5	115.5	143.0
Actuated g/C Ratio	0.12	0.30	0.79	0.79	0.64	0.64	0.79
v/c Ratio	0.83	0.77	0.58	0.48	0.04	0.56	0.17
Control Delay	105.0	69.2	28.1	3.3	5.3	10.6	1.5
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	105.0	69.2	28.1	3.5	5.3	10.6	1.5
LOS	F	E	C	A	A	B	A
Approach Delay	81.3			7.6		9.2	

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Approach LOS	F			A		A	
Queue Length 50th (ft)	213	380	80	44	3	253	17
Queue Length 95th (ft)	274	445	m177	120	m4	276	m20
Internal Link Dist (ft)	343			720		1264	
Turn Bay Length (ft)	175		250		125		125
Base Capacity (vph)	236	463	465	2777	276	2250	1240
Starvation Cap Reductn	0	0	0	637	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.77	0.58	0.62	0.04	0.56	0.17

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 65 (36%), Referenced to phase 2:NBTL and 6:SBTU, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

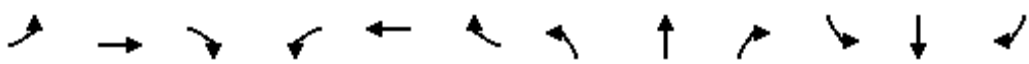
2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	254	56	36	28	52	15	58	1275	26	31	1235	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.97
Frt		0.941			0.966			0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1746	0	1761	1790	0	1744	3477	0	1744	3489	1561
Flt Permitted	0.403			0.686			0.164			0.107		
Satd. Flow (perm)	754	1746	0	1260	1790	0	301	3477	0	196	3489	1520
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			5	5			1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.93	0.93	0.93	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	302	67	43	35	66	19	62	1371	28	32	1273	310
Shared Lane Traffic (%)												
Lane Group Flow (vph)	302	110	0	35	85	0	62	1399	0	32	1273	310
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	20.0	32.4		30.0	30.0		15.0	104.0		15.0	104.0	104.0
Total Split (s)	30.0	60.0	0.0	30.0	30.0	0.0	15.0	105.0	0.0	15.0	105.0	105.0
Total Split (%)	16.7%	33.3%	0.0%	16.7%	16.7%	0.0%	8.3%	58.3%	0.0%	8.3%	58.3%	58.3%
Maximum Green (s)	23.7	53.6		23.6	23.6		9.0	98.9		9.4	98.9	98.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.0	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.0	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	44.4	44.4		14.4	14.4		115.4	115.4		110.6	110.6	110.6
Actuated g/C Ratio	0.25	0.25		0.08	0.08		0.64	0.64		0.61	0.61	0.61
v/c Ratio	0.92	0.26		0.35	0.59		0.23	0.63		0.17	0.59	0.33

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	94.5	55.3		86.2	96.1		12.8	14.2		6.1	6.9	5.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.2	0.0
Total Delay	94.5	55.3		86.2	96.1		12.8	14.2		6.1	7.0	5.9
LOS	F	E		F	F		B	B		A	A	A
Approach Delay		84.1			93.2			14.2			6.8	
Approach LOS		F			F			B			A	
Queue Length 50th (ft)	328	106		40	99		19	240		6	194	73
Queue Length 95th (ft)	#407	149		70	139		m33	261		m10	195	93
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	328	534		175	249		273	2230		206	2144	934
Starvation Cap Reductn	0	0		0	0		0	0		0	203	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.92	0.21		0.20	0.34		0.23	0.63		0.16	0.66	0.33

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 55 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 21.5

Intersection LOS: C

Intersection Capacity Utilization 75.3%

ICU Level of Service D

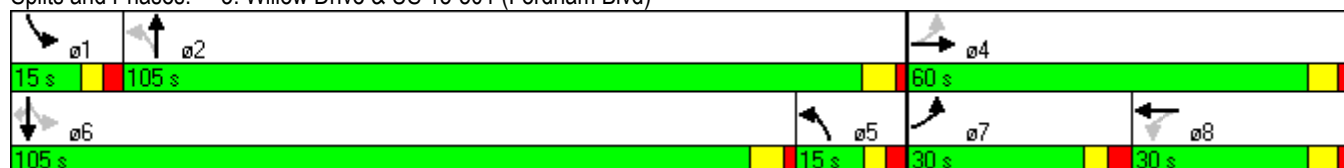
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	6	373	4	5	6	438	1194	7	15	1148	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-1%	
Storage Length (ft)	0		400	0		0	400		0	100		150
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99			0.99			1.00		1.00		
Frt			0.850		0.946			0.999				0.850
Flt Protected		0.954			0.988		0.950			0.950		
Satd. Flow (prot)	0	1751	2746	0	1644	0	3383	3483	0	1761	3522	1576
Flt Permitted		0.954			0.988		0.950			0.950		
Satd. Flow (perm)	0	1733	2746	0	1644	0	3383	3483	0	1758	3522	1576
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		566			126			1593			286	
Travel Time (s)		35.6			10.9			24.1			4.3	
Confl. Peds. (#/hr)	7					7			1	1		
Peak Hour Factor	0.85	0.85	0.85	0.75	0.75	0.75	0.96	0.96	0.96	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	145	7	439	5	7	8	456	1244	7	16	1262	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	152	439	0	20	0	456	1251	0	16	1262	134
Turn Type	Split		pm+ov	Split			Prot			Prot		pm+ov
Protected Phases	3	3	5	4	4		5	2		1	6	3
Permitted Phases			3									6
Detector Phase	3	3	5	4	4		5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	41.0	41.0		14.0	19.0		15.0	19.0	14.0
Total Split (s)	26.0	26.0	34.0	41.0	41.0	0.0	34.0	98.0	0.0	15.0	79.0	26.0
Total Split (%)	14.4%	14.4%	18.9%	22.8%	22.8%	0.0%	18.9%	54.4%	0.0%	8.3%	43.9%	14.4%
Maximum Green (s)	19.4	19.4	27.3	34.3	34.3		27.3	91.9		8.5	72.9	19.4
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	4.4		3.0	4.6	3.8
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	1.7		3.5	1.5	2.8
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	-1.7	-1.1	0.0	-1.5	-1.1	-1.6
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	3.0	1.0	1.0		3.0	6.0		3.0	6.0	1.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	None
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		18.9	53.9		9.0		33.0	133.6		9.4	104.6	128.4
Actuated g/C Ratio		0.10	0.30		0.05		0.18	0.74		0.05	0.58	0.71
v/c Ratio		0.83	0.53		0.24		0.73	0.48		0.17	0.62	0.12
Control Delay		111.5	46.3		89.4		76.4	12.3		58.5	7.8	3.7
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		111.5	46.3		89.4		76.4	12.3		58.5	7.8	3.7
LOS		F	D		F		E	B		E	A	A
Approach Delay		63.0			89.4			29.4			8.0	
Approach LOS		E			F			C			A	
Queue Length 50th (ft)		177	209		23		265	382		19	255	33
Queue Length 95th (ft)		#253	227		47		317	451		m31	423	62
Internal Link Dist (ft)		486			46			1513			206	
Turn Bay Length (ft)			400				400			100		150
Base Capacity (vph)		204	831		329		631	2585		98	2046	1144
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.75	0.53		0.06		0.72	0.48		0.16	0.62	0.12

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 96 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 27.0

Intersection LOS: C

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.

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

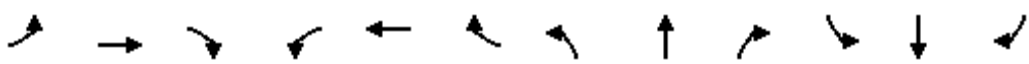
Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø3	ø4
98 s	15 s	26 s	41 s
			
ø5	ø6		
34 s	79 s		

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	0	4	2	0	71	4	1545	9	70	1421	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	200		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.938			0.869			0.999			0.998	
Flt Protected		0.974			0.998		0.950			0.950		
Satd. Flow (prot)	0	1702	0	0	1600	0	1752	3501	0	1752	3498	0
Flt Permitted		0.974			0.998		0.950			0.950		
Satd. Flow (perm)	0	1702	0	0	1600	0	1752	3501	0	1752	3498	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			2038			1593	
Travel Time (s)		7.9			3.4			30.9			24.1	
Peak Hour Factor	0.69	0.69	0.69	0.77	0.77	0.77	0.98	0.98	0.98	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	7	0	6	3	0	92	4	1577	9	81	1652	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	95	0	4	1586	0	81	1672	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	1	4	7	0	55	10	1496	16	41	1381	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	125		0	175		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.969			0.880			0.998				
Flt Protected		0.966			0.995		0.950			0.950		
Satd. Flow (prot)	0	1744	0	0	1615	0	1752	3498	0	1752	3505	0
Flt Permitted		0.966			0.995		0.950			0.950		
Satd. Flow (perm)	0	1744	0	0	1615	0	1752	3498	0	1752	3505	0
Link Speed (mph)		25			25			45				45
Link Distance (ft)		104			85			1461				2038
Travel Time (s)		2.8			2.3			22.1				30.9
Peak Hour Factor	0.53	0.53	0.53	0.61	0.61	0.61	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	25	2	8	11	0	90	11	1575	17	45	1501	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	0	101	0	11	1592	0	45	1505	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 52.8% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	638	0	0	372	0	1110	24	0	1251	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	751	0	0	443	0	1233	27	0	1303	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	751	0	0	443	0	1233	27	0	1303	154
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.0	0.0
Total Split (%)	0.0%	0.0%	44.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.9%	0.0%
Maximum Green (s)			69.9								89.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								Max	
Act Effct Green (s)			45.1			145.5		145.5	145.5		90.3	145.5
Actuated g/C Ratio			0.31			1.00		1.00	1.00		0.62	1.00
v/c Ratio			0.89			0.28		0.35	0.02		0.60	0.10
Control Delay			60.6			0.4		0.3	0.0		19.2	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			60.6			0.4		0.3	0.0		19.2	0.1
LOS			E			A		A	A		B	A
Approach Delay								0.3			17.2	
Approach LOS								A			B	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			384			0		0	0		374	0
Queue Length 95th (ft)			435			0		0	0		545	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1320			1580		3505	1583		2176	1568
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			0.57			0.28		0.35	0.02		0.60	0.10

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 145.5

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 18.2

Intersection LOS: B

Intersection Capacity Utilization 65.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

	ø2		ø4
95 s		75 s	

Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2018 Without Site Noon Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	97	0	1036	0	0	1611	277	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	108	0	1151	0	0	1790	308	0	32
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	108	0	1151	0	0	1790	308	0	32
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 54.5% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	4	13	5	11	153	4	6	37	51	12	29	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%			3%				2%		
Storage Length (ft)		0		0	50		0			125	0	
Storage Lanes		0		0	1		0			1	0	
Taper Length (ft)		25		25	25		25			25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						0.99						
Frt			0.955			0.862				0.903		
Flt Protected			0.975		0.950				0.950	0.983		
Satd. Flow (prot)	0	0	1734	0	1743	1562	0	0	1664	1555	0	0
Flt Permitted			0.804		0.950				0.950	0.983		
Satd. Flow (perm)	0	0	1430	0	1743	1562	0	0	1664	1555	0	0
Right Turn on Red				No				No				No
Satd. Flow (RTOR)												
Link Speed (mph)			30			35				25		
Link Distance (ft)			305			620				359		
Travel Time (s)			6.9			12.1				9.8		
Confl. Peds. (#/hr)								1				
Peak Hour Factor	0.70	0.70	0.70	0.70	0.77	0.77	0.77	0.77	0.72	0.72	0.72	0.72
Adj. Flow (vph)	6	19	7	16	199	5	8	48	71	17	40	4
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	0	0	48	0	199	61	0	0	64	68	0	0
Turn Type	Perm	Perm			Split				Split			
Protected Phases			7		3	3			4	4		
Permitted Phases	7	7										
Detector Phase	7	7	7		3	3			4	4		
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		7.0	7.0			5.0	5.0		
Minimum Split (s)	13.0	13.0	13.0		36.0	36.0			13.0	13.0		
Total Split (s)	13.0	13.0	13.0	0.0	36.0	36.0	0.0	0.0	14.0	14.0	0.0	0.0
Total Split (%)	7.6%	7.6%	7.6%	0.0%	21.2%	21.2%	0.0%	0.0%	8.2%	8.2%	0.0%	0.0%
Maximum Green (s)	5.8	5.8	5.8		29.4	29.4			6.6	6.6		
Yellow Time (s)	3.0	3.0	3.0		3.6	3.6			3.0	3.0		
All-Red Time (s)	4.2	4.2	4.2		3.0	3.0			4.4	4.4		
Lost Time Adjust (s)	0.0	0.0	-2.2	-2.2	-1.6	-1.6	-1.6	-1.6	-2.0	-2.4	-2.4	0.0
Total Lost Time (s)	7.2	7.2	5.0	1.8	5.0	5.0	2.4	2.4	5.4	5.0	1.6	4.0
Lead/Lag					Lag	Lag			Lead	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0			2.0	2.0		
Recall Mode	None	None	None		None	None			None	None		
Walk Time (s)					4.0	4.0						
Flash Dont Walk (s)					25.0	25.0						
Pedestrian Calls (#/hr)					0	0						
Act Effect Green (s)			10.2		24.9	24.9			8.6	9.0		
Actuated g/C Ratio			0.06		0.15	0.15			0.05	0.05		
v/c Ratio			0.56		0.78	0.27			0.76	0.83		
Control Delay			100.5		90.2	65.8			125.8	137.3		

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak
10/18/2013

								
Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2
Lane Configurations								
Volume (vph)	5	20	1762	128	39	1548	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%			0%		
Storage Length (ft)		350		300	150		100	
Storage Lanes		1		1	1		1	
Taper Length (ft)		25		25	25		25	
Lane Util. Factor	0.95	1.00	*1.00	1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor								
Frt				0.850			0.850	
Flt Protected		0.950			0.950			
Satd. Flow (prot)	0	1770	3725	1583	1770	3725	1583	0
Flt Permitted		0.950			0.950			
Satd. Flow (perm)	0	1770	*3787	1583	1770	*3771	1583	0
Right Turn on Red				No				No
Satd. Flow (RTOR)								
Link Speed (mph)			45			45		
Link Distance (ft)			1485			2107		
Travel Time (s)			22.5			31.9		
Confl. Peds. (#/hr)								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	22	1958	142	41	1629	11	11
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	28	1958	142	41	1629	22	0
Turn Type	Prot	Prot		pm+ov	Prot		Perm	
Protected Phases	5	5	2	3	1	6		
Permitted Phases				2			6	
Detector Phase	5	5	2	3	1	6	6	
Switch Phase								
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	14.0	33.0	36.0	15.0	25.0	25.0	
Total Split (s)	14.0	14.0	92.0	36.0	15.0	93.0	93.0	0.0
Total Split (%)	8.2%	8.2%	54.1%	21.2%	8.8%	54.7%	54.7%	0.0%
Maximum Green (s)	7.0	7.0	85.8	29.4	9.1	86.9	86.9	
Yellow Time (s)	3.0	3.0	4.6	3.6	3.0	4.4	4.4	
All-Red Time (s)	4.0	4.0	1.6	3.0	2.9	1.7	1.7	
Lost Time Adjust (s)	0.0	-2.0	-1.2	-1.6	-0.9	-1.1	-1.1	0.0
Total Lost Time (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	None	C-Max	None	None	C-Max	C-Max	
Walk Time (s)			7.0	4.0		7.0	7.0	
Flash Dont Walk (s)			16.0	25.0		11.0	11.0	
Pedestrian Calls (#/hr)			0	0		0	0	
Act Effct Green (s)		9.0	97.2	123.0	9.0	100.2	100.2	
Actuated g/C Ratio		0.05	0.57	0.72	0.05	0.59	0.59	
v/c Ratio		0.30	0.92	0.12	0.44	0.74	0.02	
Control Delay		68.0	28.8	4.2	92.3	31.1	19.4	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2
Queue Delay			0.0		0.0	0.0			0.0	0.0		
Total Delay			100.5		90.2	65.8			125.8	137.3		
LOS			F		F	E			F	F		
Approach Delay			100.5			84.4				131.7		
Approach LOS			F			F				F		
Queue Length 50th (ft)			52		216	61			75	81		
Queue Length 95th (ft)			#84		252	90			#116	#128		
Internal Link Dist (ft)			225			540				279		
Turn Bay Length (ft)					50				125	125		
Base Capacity (vph)			85		318	285			84	82		
Starvation Cap Reductn			0		0	0			0	0		
Spillback Cap Reductn			0		0	0			0	0		
Storage Cap Reductn			0		0	0			0	0		
Reduced v/c Ratio			0.56		0.63	0.21			0.76	0.83		

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 2 (1%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 37.1

Intersection LOS: D

Intersection Capacity Utilization 80.3%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø4	 ø3	 ø7
15 s	92 s	14 s	36 s	13 s
 ø6	 ø5			
93 s	14 s			

Lanes, Volumes, Timings
 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak
 10/18/2013

								
Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		68.0	28.8	4.2	92.3	31.1	19.4	
LOS		E	C	A	F	C	B	
Approach Delay			27.6			32.5		
Approach LOS			C			C		
Queue Length 50th (ft)		29	~928	31	45	758	12	
Queue Length 95th (ft)		m40	#1271	m36	90	864	28	
Internal Link Dist (ft)			1405			2027		
Turn Bay Length (ft)		350		300	150		100	
Base Capacity (vph)		94	2129	1177	104	2196	933	
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		0.30	0.92	0.12	0.39	0.74	0.02	
Intersection Summary								

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	585	2	97	14	3	17	95	1314	4	11	1308	423
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	400		0	200		0
Storage Lanes	0		1	0		1	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.99		0.99			1.00		1.00		
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.961		0.950			0.950		
Satd. Flow (prot)	3502	1900	1615	0	1595	1568	3418	3524	0	1736	3471	1553
Flt Permitted	0.950				0.961		0.950			0.950		
Satd. Flow (perm)	*3819	1900	1592	0	1577	1568	3418	*3811	0	1728	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			1485	
Travel Time (s)		7.4			14.0			8.8			22.5	
Confl. Peds. (#/hr)			7	7					4	4		
Peak Hour Factor	0.86	0.86	0.86	0.77	0.77	0.77	0.86	0.86	0.86	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	680	2	113	18	4	22	110	1528	5	12	1437	465
Shared Lane Traffic (%)												
Lane Group Flow (vph)	680	2	113	0	22	22	110	1533	0	12	1437	465
Turn Type	Split		Free	Split		pm+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	1	5	2		1	6	4
Permitted Phases			Free			3						6
Detector Phase	4	4		3	3	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	32.0	32.0		14.0	14.0	14.0	14.0	19.0		14.0	19.0	32.0
Total Split (s)	48.0	48.0	0.0	14.0	14.0	14.0	15.0	94.0	0.0	14.0	93.0	48.0
Total Split (%)	28.2%	28.2%	0.0%	8.2%	8.2%	8.2%	8.8%	55.3%	0.0%	8.2%	54.7%	28.2%
Maximum Green (s)	41.8	41.8		7.8	7.8	7.8	8.8	87.9		7.8	86.7	41.8
Yellow Time (s)	3.8	3.8		3.8	3.8	3.0	3.0	4.7		3.0	4.5	3.8
All-Red Time (s)	2.4	2.4		2.4	2.4	3.2	3.2	1.4		3.2	1.8	2.4
Lost Time Adjust (s)	-1.2	-1.2	0.0	-2.5	-1.2	-1.2	-1.2	-1.1	0.0	-1.2	-1.3	-1.2
Total Lost Time (s)	5.0	5.0	4.0	3.7	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag	Lead		Lag	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0	1.0	1.0	6.0		1.0	6.0	1.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)	7.0	7.0										7.0
Flash Dont Walk (s)	18.0	18.0										18.0
Pedestrian Calls (#/hr)	0	0										0
Act Effect Green (s)	49.5	49.5	170.0		8.4	16.8	9.4	94.0		8.7	88.0	142.5
Actuated g/C Ratio	0.29	0.29	1.00		0.05	0.10	0.06	0.55		0.05	0.52	0.84

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.67	0.00	0.07		0.28	0.14	0.58	0.79		0.13	0.80	0.36
Control Delay	58.1	47.5	0.1		87.2	68.6	90.7	34.7		61.5	17.5	1.6
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.1	47.5	0.1		87.2	68.6	90.7	34.7		61.5	17.5	1.6
LOS	E	D	A		F	E	F	C		E	B	A
Approach Delay		49.8			77.9			38.4			14.0	
Approach LOS		D			E			D			B	
Queue Length 50th (ft)	363	2	0		24	22	62	743		13	190	25
Queue Length 95th (ft)	416	9	0		50	45	94	779		m19	203	m32
Internal Link Dist (ft)		302			435			504			1405	
Turn Bay Length (ft)			225			75	400			200		
Base Capacity (vph)	1019	553	1592		84	158	201	1949		92	1797	1302
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.67	0.00	0.07		0.26	0.14	0.55	0.79		0.13	0.80	0.36

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 4 (2%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 30.2

Intersection LOS: C

Intersection Capacity Utilization 72.3%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø3	 ø4
94 s	14 s	14 s	48 s
 ø6	 ø5		
93 s	15 s		

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	212	33	199	281	319	35	104	112	309	92	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.95	0.99		0.99		0.93		1.00	0.98	1.00	1.00	
Frt		0.980				0.850			0.850		0.989	
Flt Protected	0.950			0.950				0.988		0.950	0.976	
Satd. Flow (prot)	1646	3318	0	1752	1845	1672	0	1967	1538	1625	1932	0
Flt Permitted	0.579			0.408				0.988		0.950	0.976	
Satd. Flow (perm)	954	3318	0	747	1845	1549	0	1962	1513	1623	1932	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	25		5	5		25	10		1	1		10
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.82	0.82	0.82	0.93	0.93	0.93
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	30	265	41	209	296	336	43	127	137	332	99	16
Shared Lane Traffic (%)										33%		
Lane Group Flow (vph)	30	306	0	209	296	336	0	170	137	222	225	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	23.0	57.0	41.0	32.0	32.0	23.0	41.0	41.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	17.7%	43.8%	31.5%	24.6%	24.6%	17.7%	31.5%	31.5%	0.0%
Maximum Green (s)	26.7	26.7		16.2	49.7	34.3	25.3	25.3	16.2	34.3	34.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-1.8	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.5	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	30.6	30.6		52.0	51.5	78.2		36.8	53.2	26.2	26.2	
Actuated g/C Ratio	0.24	0.24		0.40	0.40	0.60		0.28	0.41	0.20	0.20	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.13	0.39		0.49	0.40	0.35		0.31	0.22	0.68	0.58	
Control Delay	42.4	44.1		31.0	30.3	11.4		40.5	24.4	57.7	51.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.4	44.1		31.0	30.3	11.4		40.5	24.4	57.7	51.9	
LOS	D	D		C	C	B		D	C	E	D	
Approach Delay		43.9			22.9			33.3			54.8	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	20	116		119	178	118		113	68	183	181	
Queue Length 95th (ft)	44	143		182	258	133		177	114	253	248	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	225	781		438	731	1083		557	642	450	535	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.13	0.39		0.48	0.40	0.31		0.31	0.21	0.49	0.42	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 35.6

Intersection LOS: D

Intersection Capacity Utilization 64.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
23 s	34 s	41 s	32 s
 ø6			
57 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	0	686	29	0	677	638	0	0	277	0	0	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	746	32	0	736	693	0	0	301	0	0	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	746	32	0	736	693	0	0	301	0	0	161
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

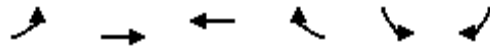
Intersection Capacity Utilization 42.8% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2018 Without Site Noon Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	963	1297	372	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.967			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	4917	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	4917	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	0.90	0.90	0.86	0.86	0.90	0.85
Adj. Flow (vph)	0	1070	1508	433	0	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1070	1941	0	0	28
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 43.4%

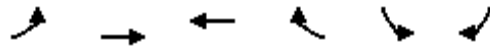
ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
14: NC 54 (Raleigh Road) & Glen Lennox Dr #1

2018 Without Site Noon Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	31	1546	1509	22	0	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.998			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1736	4988	4978	0	0	1565
Flt Permitted	0.950					
Satd. Flow (perm)	1736	4988	4978	0	0	1565
Link Speed (mph)		45	45		30	
Link Distance (ft)		164	247		247	
Travel Time (s)		2.5	3.7		5.6	
Confl. Peds. (#/hr)	1			1		2
Peak Hour Factor	0.97	0.97	0.94	0.94	1.00	0.55
Heavy Vehicles (%)	4%	4%	4%	4%	5%	5%
Adj. Flow (vph)	32	1594	1605	23	0	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	1594	1628	0	0	76
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

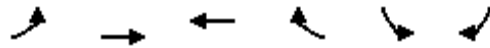
Intersection Capacity Utilization 40.5% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2018 Without Site Noon Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	1546	1580	20	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.998			0.865
Flt Protected						
Satd. Flow (prot)	0	4940	4978	0	0	1315
Flt Permitted						
Satd. Flow (perm)	0	4940	4978	0	0	1315
Link Speed (mph)		45	45		25	
Link Distance (ft)		247	359		229	
Travel Time (s)		3.7	5.4		6.2	
Peak Hour Factor	1.00	0.97	0.95	0.95	1.00	0.44
Heavy Vehicles (%)	5%	5%	4%	4%	25%	25%
Adj. Flow (vph)	0	1594	1663	21	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1594	1684	0	0	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 41.0% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

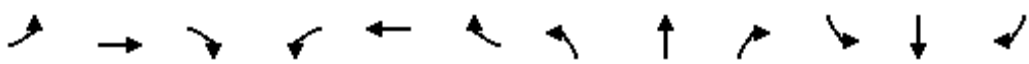
2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	35	1432	39	98	1437	26	151	14	85	49	14	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	250		0	150		150	50		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99		0.98	0.99	0.99	
Frt		0.996			0.997				0.850		0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	4964	0	1752	5019	0	1752	1845	1568	1736	1617	0
Flt Permitted	0.091			0.096			0.720			0.747		
Satd. Flow (perm)	166	4964	0	177	5019	0	1321	1845	1539	1356	1617	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		359			576			537			463	
Travel Time (s)		5.4			8.7			14.6			12.6	
Confl. Peds. (#/hr)	1		3	3		1	5		6	6		5
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	40	1627	44	107	1562	28	174	16	98	60	17	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	1671	0	107	1590	0	174	16	98	60	56	0
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	28.0		29.0	26.0		41.0	41.0	29.0	39.0	39.0	
Total Split (s)	13.0	50.0	0.0	29.0	66.0	0.0	41.0	41.0	29.0	41.0	41.0	0.0
Total Split (%)	10.8%	41.7%	0.0%	24.2%	55.0%	0.0%	34.2%	34.2%	24.2%	34.2%	34.2%	0.0%
Maximum Green (s)	7.4	44.4		23.6	60.1		34.6	34.6	23.6	34.5	34.5	
Yellow Time (s)	3.0	3.8		3.0	4.1		3.1	3.1	3.0	3.2	3.2	
All-Red Time (s)	2.6	1.8		2.4	1.8		3.3	3.3	2.4	3.3	3.3	
Lost Time Adjust (s)	-0.6	-0.6	0.0	-0.4	-0.9	0.0	-1.4	-1.4	-0.4	-1.5	-1.5	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	1.0	3.0		1.0	3.0		1.0	1.0	1.0	1.0	1.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			13.0		27.0	27.0		25.0	25.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	60.1	60.1		79.0	79.0		20.9	20.9	44.9	20.9	20.9	
Actuated g/C Ratio	0.50	0.50		0.66	0.66		0.17	0.17	0.37	0.17	0.17	
v/c Ratio	0.22	0.67		0.25	0.48		0.76	0.05	0.17	0.25	0.20	
Control Delay	20.5	25.2		12.9	1.9		66.5	37.9	21.2	43.1	41.4	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Without Site Noon Peak
10/18/2013

												
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	
Total Delay	20.5	25.2		12.9	1.9		66.5	37.9	21.2	43.1	41.4	
LOS	C	C		B	A		E	D	C	D	D	
Approach Delay		25.1			2.6			49.5			42.3	
Approach LOS		C			A			D			D	
Queue Length 50th (ft)	15	345		26	24		130	10	47	41	38	
Queue Length 95th (ft)	39	446		78	33		186	27	70	68	63	
Internal Link Dist (ft)		279			496			457			383	
Turn Bay Length (ft)	275			250			150		150	50		
Base Capacity (vph)	188	2487		432	3306		396	554	582	407	485	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.21	0.67		0.25	0.48		0.44	0.03	0.17	0.15	0.12	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 62 (52%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 17.5

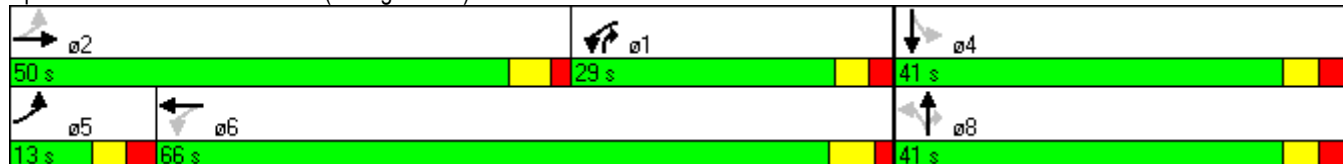
Intersection LOS: B

Intersection Capacity Utilization 64.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road



Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

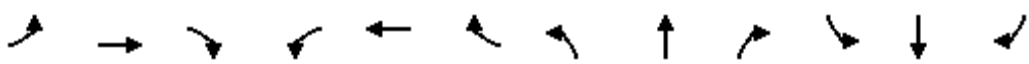
2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	1541	43	76	1523	15	30	5	135	25	9	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.996			0.999				0.850		0.936	
Flt Protected	0.950			0.950				0.959			0.981	
Satd. Flow (prot)	1736	4964	0	1752	5029	0	0	1752	1553	0	1534	0
Flt Permitted	0.119			0.082				0.739			0.868	
Satd. Flow (perm)	217	4964	0	151	5029	0	0	1348	1553	0	1357	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	5		3	3		5	2					2
Peak Hour Factor	0.85	0.85	0.85	0.96	0.96	0.96	0.83	0.83	0.83	0.74	0.74	0.74
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Adj. Flow (vph)	40	1813	51	79	1586	16	36	6	163	34	12	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	1864	0	79	1602	0	0	42	163	0	87	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	59.0	0.0	13.0	59.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	10.8%	49.2%	0.0%	10.8%	49.2%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	7.1	52.8		7.1	52.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effect Green (s)	87.6	80.7		87.6	81.2			18.4	18.4		18.4	
Actuated g/C Ratio	0.73	0.67		0.73	0.68			0.15	0.15		0.15	
v/c Ratio	0.15	0.56		0.35	0.47			0.20	0.68		0.42	
Control Delay	3.4	4.0		19.9	5.9			44.3	62.0		50.6	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2018 Without Site Noon Peak
10/18/2013

												
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	
Total Delay	3.4	4.0		19.9	5.9			44.3	62.0		50.6	
LOS	A	A		B	A			D	E		D	
Approach Delay		4.0			6.5			58.3			50.6	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	3	60		17	128			29	121		62	
Queue Length 95th (ft)	m5	80		m0	140			54	167		86	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	260	3338		225	3403			483	556		486	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.15	0.56		0.35	0.47			0.09	0.29		0.18	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 63 (53%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 9.0

Intersection LOS: A

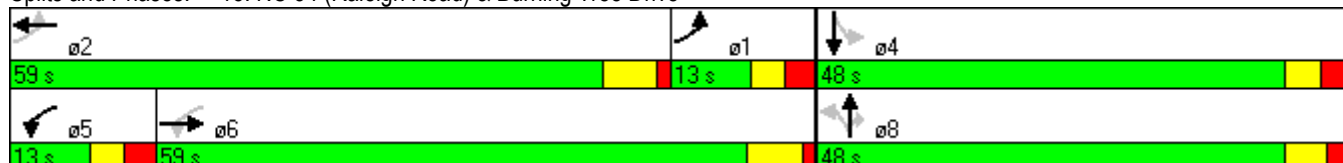
Intersection Capacity Utilization 61.0%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	157	1350	30	15	1364	16	43	6	31	15	5	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97		0.99		1.00		
Frt			0.850			0.850		0.874			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	4988	1553	1736	4988	1553	1770	1605	0	1736	1562	0
Flt Permitted	0.141			0.157			0.420			0.716		
Satd. Flow (perm)	253	4988	1553	287	4988	1514	782	1605	0	1302	1562	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	4					4			3	3		
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.59	0.59	0.59	0.86	0.86	0.86
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	164	1406	31	16	1436	17	73	10	53	17	6	173
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	1406	31	16	1436	17	73	63	0	17	179	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	44.0	44.0	14.0	44.0	44.0	14.0	14.0		15.0	15.0	
Total Split (s)	18.0	80.0	80.0	14.0	49.0	49.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	15.0%	66.7%	66.7%	11.7%	40.8%	40.8%	21.7%	21.7%	0.0%	21.7%	21.7%	0.0%
Maximum Green (s)	11.7	73.7	73.7	7.7	42.7	42.7	19.2	19.2		18.7	18.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lag	Lead	Lead	Lag								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)	87.0	86.4	86.4	90.0	74.4	74.4	18.0	18.0		18.0	18.0	
Actuated g/C Ratio	0.72	0.72	0.72	0.75	0.62	0.62	0.15	0.15		0.15	0.15	
v/c Ratio	0.49	0.39	0.03	0.05	0.46	0.02	0.62	0.26		0.09	0.76	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	23%
Maximum Green (s)	23.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	11.6	6.9	3.7	3.2	7.4	6.8	69.9	46.7		43.2	69.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	11.6	6.9	3.7	3.2	7.4	6.8	69.9	46.7		43.2	69.3	
LOS	B	A	A	A	A	A	E	D		D	E	
Approach Delay		7.4			7.4			59.2			67.0	
Approach LOS		A			A			E			E	
Queue Length 50th (ft)	30	171	4	2	115	3	53	43		11	133	
Queue Length 95th (ft)	42	171	m7	m3	121	m7	65	54		31	200	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	361	3590	1118	324	3093	938	137	281		228	273	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.45	0.39	0.03	0.05	0.46	0.02	0.53	0.22		0.07	0.66	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 14 (12%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 12.9 Intersection LOS: B
Intersection Capacity Utilization 67.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø2	 ø1	 ø4
80 s	14 s	26 s
 ø10	 ø5	 ø6
27 s	18 s	49 s
		 ø8
		26 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	1242	63	70	1153	71	62	33	113	133	25	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00		0.99	1.00	1.00				
Frt			0.850			0.850		0.925	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.996		0.950		
Satd. Flow (prot)	3401	5037	1568	3350	4963	1545	1648	1531	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.996		0.950		
Satd. Flow (perm)	3399	5037	1526	3337	4963	1525	1646	1531	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	1		12	12		1	1					1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.65	0.65	0.65	0.83	0.83	0.83
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	127	1335	68	73	1201	74	95	51	174	160	30	190
Shared Lane Traffic (%)							10%		35%			
Lane Group Flow (vph)	127	1335	68	73	1201	74	85	122	113	160	30	190
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	42.0	15.0	15.0	42.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	17.0	56.0	27.0	16.0	55.0	21.0	27.0	27.0	43.0	21.0	21.0	38.0
Total Split (%)	14.2%	46.7%	22.5%	13.3%	45.8%	17.5%	22.5%	22.5%	35.8%	17.5%	17.5%	31.7%
Maximum Green (s)	9.8	49.4	19.9	8.9	48.5	13.7	19.9	19.9		13.7	13.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	11.7	62.4	77.5	10.7	61.4	73.2	15.1	15.1	30.8	11.8	11.8	23.5
Actuated g/C Ratio	0.10	0.52	0.65	0.09	0.51	0.61	0.13	0.13	0.26	0.10	0.10	0.20
v/c Ratio	0.38	0.51	0.07	0.24	0.47	0.08	0.41	0.63	0.30	0.47	0.16	0.60

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	47.1	6.6	1.8	47.9	10.5	4.7	53.0	63.7	36.8	55.3	50.4	35.3
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	47.1	6.6	1.8	47.9	10.5	4.7	53.0	63.7	36.8	55.3	50.4	35.3
LOS	D	A	A	D	B	A	D	E	D	E	D	D
Approach Delay	9.8			12.2			51.4			44.9		
Approach LOS	A			B			D			D		
Queue Length 50th (ft)	52	89	3	27	102	16	65	100	73	61	22	98
Queue Length 95th (ft)	84	57	7	57	75	19	78	113	84	85	47	119
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	340	2619	1081	307	2539	979	302	281	455	465	252	375
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	0.37	0.51	0.06	0.24	0.47	0.08	0.28	0.43	0.25	0.34	0.12	0.51

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 119 (99%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 18.1

Intersection LOS: B

Intersection Capacity Utilization 55.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø4	 ø3
56 s	16 s	27 s	21 s
 ø6	 ø5		
55 s	17 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	1288	216	39	1137	106	156	51	57	94	42	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97				1.00	1.00			1.00	
Frt			0.850			0.850		0.934			0.971	
Flt Protected	0.950			0.950			0.950	0.992		0.950	0.988	
Satd. Flow (prot)	1727	4363	1545	1761	5061	1576	1656	1616	0	1648	1660	0
Flt Permitted	0.180			0.099			0.950	0.992		0.950	0.988	
Satd. Flow (perm)	327	4363	1495	184	5061	1576	1654	1615	0	1648	1660	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	12	1370	230	41	1197	112	170	55	62	104	47	16
Shared Lane Traffic (%)							14%			20%		
Lane Group Flow (vph)	12	1370	230	41	1197	112	146	141	0	83	84	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	27.0	15.0	14.0	29.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	14.0	60.0	26.0	14.0	60.0	20.0	26.0	26.0	0.0	20.0	20.0	0.0
Total Split (%)	11.7%	50.0%	21.7%	11.7%	50.0%	16.7%	21.7%	21.7%	0.0%	16.7%	16.7%	0.0%
Maximum Green (s)	7.2	52.5	18.8	7.0	52.5	12.8	18.8	18.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	1.8	5.0	5.0	1.8
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	73.1	63.9	81.4	71.1	69.5	86.9	17.5	17.5		12.4	12.4	
Actuated g/C Ratio	0.61	0.53	0.68	0.59	0.58	0.72	0.15	0.15		0.10	0.10	
v/c Ratio	0.04	0.59	0.23	0.18	0.41	0.10	0.60	0.60		0.49	0.49	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 Without Site Noon Peak

10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	3.9	7.5	2.4	12.2	16.4	7.0	58.2	58.2		60.1	60.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	3.9	7.5	2.4	12.2	16.4	7.0	58.2	58.2		60.1	60.1	
LOS	A	A	A	B	B	A	E	E		E	E	
Approach Delay	6.8			15.5			58.2			60.1		
Approach LOS	A			B			E			E		
Queue Length 50th (ft)	1	115	21	12	158	18	112	108		65	65	
Queue Length 95th (ft)	m3	119	26	29	278	57	181	175		118	118	
Internal Link Dist (ft)	929			334			420			673		
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	304	2323	1066	227	2930	1121	290	283		206	208	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.59	0.22	0.18	0.41	0.10	0.50	0.50		0.40	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 119 (99%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 17.1

Intersection LOS: B

Intersection Capacity Utilization 54.8%

ICU Level of Service A

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

ø1	ø2	ø4	ø3
14 s	60 s	26 s	20 s
ø6	ø5		
60 s	14 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	308	266	31	196	287	238	49	587	169	135	475	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		1.00		0.98	0.99	0.99		1.00	0.99	
Frt		0.984				0.850		0.966			0.948	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1577	1812	0	1719	1810	1538	1736	3335	0	1752	3277	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1565	1812	0	1715	1810	1501	1724	3335	0	1745	3277	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	8		3	3		8	5		10	10		5
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Parking (#/hr)	0											
Adj. Flow (vph)	350	302	35	218	319	264	51	611	176	145	511	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	350	337	0	218	319	264	51	787	0	145	780	0
Turn Type	Prot			Prot		pm+ov	Prot			Prot		
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	
Total Split (s)	38.0	44.0	0.0	26.0	32.0	19.0	15.0	41.0	0.0	19.0	45.0	0.0
Total Split (%)	29.2%	33.8%	0.0%	20.0%	24.6%	14.6%	11.5%	31.5%	0.0%	14.6%	34.6%	0.0%
Maximum Green (s)	32.1	38.1		20.4	26.4	13.1	8.8	35.3		13.1	39.6	
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	31.3	37.4		19.3	25.4	38.8	8.9	39.9		13.4	47.0	
Actuated g/C Ratio	0.24	0.29		0.15	0.20	0.30	0.07	0.31		0.10	0.36	
v/c Ratio	0.92	0.65		0.85	0.90	0.59	0.42	0.77		0.81	0.66	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	78.1	46.7		77.2	74.0	21.0	69.1	48.0		87.5	40.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	78.1	46.7		77.2	74.0	21.0	69.1	48.0		87.5	40.1	
LOS	E	D		E	E	C	E	D		F	D	
Approach Delay		62.7			57.4			49.3			47.6	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	284	244		163	273	76	42	331		121	308	
Queue Length 95th (ft)	#439	339		m#270	m#394	m143	86	#415		#227	393	
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	200											
Base Capacity (vph)	400	544		278	376	459	134	1023		189	1184	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.88	0.62		0.78	0.85	0.58	0.38	0.77		0.77	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 28 (22%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 53.6

Intersection LOS: D

Intersection Capacity Utilization 83.5%

ICU Level of Service E

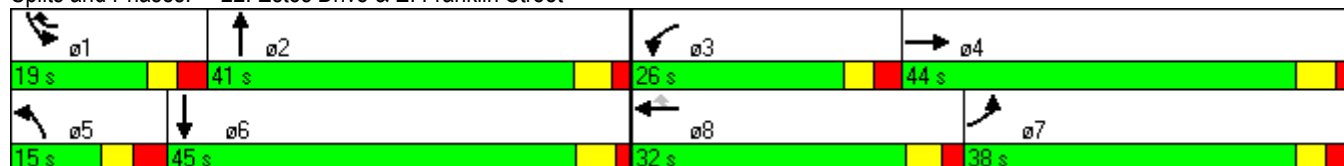
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	212	330	5	4	340	43	7	4	6	74	10	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.998			0.983			0.950				0.850
Flt Protected	0.950			0.950				0.979			0.958	
Satd. Flow (prot)	1719	3430	0	1736	3399	0	0	1655	0	0	1734	1538
Flt Permitted	0.437			0.521				0.837			0.737	
Satd. Flow (perm)	785	3430	0	945	3399	0	0	1414	0	0	1324	1518
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		6	6		8	2		10	10		2
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	5%	5%	5%
Adj. Flow (vph)	247	384	6	4	374	47	8	4	7	77	10	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	390	0	4	421	0	0	19	0	0	87	336
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	13.0	36.0	0.0	23.0	23.0	0.0	29.0	29.0	0.0	29.0	29.0	13.0
Total Split (%)	20.0%	55.4%	0.0%	35.4%	35.4%	0.0%	44.6%	44.6%	0.0%	44.6%	44.6%	20.0%
Maximum Green (s)	7.9	30.9		17.8	17.8		23.3	23.3		23.2	23.2	7.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	48.2	49.2		32.7	32.7			9.3			9.3	18.3
Actuated g/C Ratio	0.74	0.76		0.50	0.50			0.14			0.14	0.28
v/c Ratio	0.34	0.15		0.01	0.25			0.09			0.46	0.78
Control Delay	2.9	1.9		12.0	11.5			24.0			33.1	30.8
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	2.9	1.9		12.0	11.5			24.0			33.1	30.8
LOS	A	A		B	B			C			C	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		2.3			11.5			24.0			31.3	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	11	9		1	47			7			33	107
Queue Length 95th (ft)	m40	26		6	94			22			68	144
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	737	2598		475	1708			522			489	435
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.34	0.15		0.01	0.25			0.04			0.18	0.77

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 56.5%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2018 Without Site Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	71	7	2	52	13	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988				0.991	
Flt Protected				0.998	0.955	
Satd. Flow (prot)	1805	0	0	1823	1763	0
Flt Permitted				0.998	0.955	
Satd. Flow (perm)	1805	0	0	1823	1763	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.79	0.79	0.71	0.71	0.46	0.46
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	90	9	3	73	28	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	76	30	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.4%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2018 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	47	9	1	37	2	9	0	2	3	2	3
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		0.980			0.992			0.979			0.951	
Flt Protected		0.997			0.999			0.959			0.982	
Satd. Flow (prot)	0	1703	0	0	1828	0	0	1749	0	0	1740	0
Flt Permitted		0.997			0.999			0.959			0.982	
Satd. Flow (perm)	0	1703	0	0	1828	0	0	1749	0	0	1740	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.83	0.83	0.83	0.67	0.67	0.67
Heavy Vehicles (%)	9%	9%	9%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	6	67	13	1	49	3	11	0	2	4	3	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	53	0	0	13	0	0	11	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 15.0%	ICU Level of Service A											
Analysis Period (min) 15												



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	1640	1036	791
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	666		536		2107	
Travel Time (s)	15.1		8.1		31.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1822	1151	879
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1822	1151	879
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 60.7% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
61: NC 54 EB Off Ramp &

2018 Without Site Noon Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	791	0	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			666	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	879	0	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	879	0	108
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	45.0%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2018 Without Site Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑		↗
Volume (vph)	855	97	0	1669	0	791
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	5085	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			164	476	
Travel Time (s)	1.4			2.5	9.3	
Peak Hour Factor	0.84	0.84	0.90	0.90	0.90	0.97
Adj. Flow (vph)	1018	115	0	1854	0	815
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1018	115	0	1854	0	815
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	79.3%			ICU Level of Service D		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	123	72	383	144	45	151	1268	387	116	1146	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	175		0	375		325	225		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.98				0.99							
Frt		0.944			0.976				0.850		0.998	
Flt Protected	0.950			0.950	0.983		0.950			0.950		
Satd. Flow (prot)	1702	1691	0	1617	1678	0	1761	3522	1523	1719	3550	0
Flt Permitted	0.950			0.950	0.983		0.950			0.950		
Satd. Flow (perm)	1666	1691	0	1617	1678	0	1761	3522	1523	1719	3550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	17					17						
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	96	131	77	403	152	47	159	1335	407	123	1219	17
Shared Lane Traffic (%)				25%								
Lane Group Flow (vph)	96	208	0	302	300	0	159	1335	407	123	1236	0
Turn Type	Split			Split			Prot		Free	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases									Free			
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		15.0	68.0	
Total Split (s)	29.0	29.0	0.0	40.0	40.0	0.0	25.0	82.0	0.0	19.0	76.0	0.0
Total Split (%)	17.1%	17.1%	0.0%	23.5%	23.5%	0.0%	14.7%	48.2%	0.0%	11.2%	44.7%	0.0%
Maximum Green (s)	22.7	22.7		34.2	34.2		18.8	76.2		12.7	70.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	23.2	23.2		33.8	33.8		20.0	79.4	170.0	13.7	73.0	
Actuated g/C Ratio	0.14	0.14		0.20	0.20		0.12	0.47	1.00	0.08	0.43	
v/c Ratio	0.41	0.90		0.94	0.90		0.77	0.81	0.27	0.89	0.81	
Control Delay	72.8	109.5		102.8	95.3		81.3	32.9	0.3	127.0	48.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	72.8	109.5		102.8	95.3		81.3	32.9	0.3	127.0	48.2	
LOS	E	F		F	F		F	C	A	F	D	
Approach Delay		97.9			99.1			30.0			55.3	
Approach LOS		F			F			C			E	
Queue Length 50th (ft)	99	231		350	344		166	485	0	138	644	
Queue Length 95th (ft)	163	#382		#545	#522		#291	686	0	#266	742	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			175			375		325	225		
Base Capacity (vph)	240	239		333	345		207	1644	1523	142	1525	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.40	0.87		0.91	0.87		0.77	0.81	0.27	0.87	0.81	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 91 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 53.2

Intersection LOS: D

Intersection Capacity Utilization 87.8%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
19 s	82 s	29 s	40 s
 ø6	 ø5		
76 s	25 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	151	268	211	1667	13	1519	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12
Storage Length (ft)	175	0	250		125		125
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25	25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Ped Bike Factor			1.00				0.98
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1770	1531	1770	3539	1829	3539	1583
Flt Permitted	0.950		0.076		0.088		
Satd. Flow (perm)	1770	1531	142	3539	169	3539	1549
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			45		45	
Link Distance (ft)	423			800		1344	
Travel Time (s)	8.2			12.1		20.4	
Confl. Peds. (#/hr)			3				3
Peak Hour Factor	0.95	0.95	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	159	282	224	1773	14	1651	220
Shared Lane Traffic (%)							
Lane Group Flow (vph)	159	282	224	1773	14	1651	220
Turn Type		pm+ov	pm+pt		pm+pt		pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases		4	2		6		6
Detector Phase	4	5	5	2	1	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	13.0	13.0	13.0	18.0	13.0	18.0	13.0
Total Split (s)	30.0	33.0	33.0	127.0	13.0	107.0	30.0
Total Split (%)	17.6%	19.4%	19.4%	74.7%	7.6%	62.9%	17.6%
Maximum Green (s)	24.4	27.1	27.1	121.1	7.7	101.1	24.4
Yellow Time (s)	3.0	3.0	3.0	4.5	3.0	4.5	3.0
All-Red Time (s)	2.6	2.9	2.9	1.4	2.3	1.4	2.6
Lost Time Adjust (s)	-0.6	-0.9	-0.9	-0.9	-0.3	-0.9	-0.6
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lead	Lag	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	1.0	1.0	1.0	2.0	1.0	2.0	1.0
Recall Mode	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	18.8	50.7	141.2	136.0	116.9	109.3	128.1
Actuated g/C Ratio	0.11	0.30	0.83	0.80	0.69	0.64	0.75
v/c Ratio	0.81	0.62	0.60	0.63	0.07	0.73	0.19
Control Delay	102.8	56.9	37.6	3.6	2.4	6.1	1.0
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	102.8	56.9	37.6	3.8	2.4	6.1	1.0
LOS	F	E	D	A	A	A	A

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Approach Delay	73.5			7.6		5.4	
Approach LOS	E			A		A	
Queue Length 50th (ft)	176	269	127	97	1	244	10
Queue Length 95th (ft)	254	357	m234	161	m2	334	m11
Internal Link Dist (ft)	343			720		1264	
Turn Bay Length (ft)	175		250		125		125
Base Capacity (vph)	260	448	387	2832	195	2276	1205
Starvation Cap Reductn	0	0	0	282	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.63	0.58	0.70	0.07	0.73	0.18

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 68 (40%), Referenced to phase 2:NBT and 6:SBTU, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 13.4

Intersection LOS: B

Intersection Capacity Utilization 74.5%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø4
127 s	13 s	30 s
 ø6	 ø5	
107 s	33 s	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	182	63	27	45	59	25	39	1501	43	45	1476	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.96
Frt		0.955			0.956			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1777	0	1744	1755	0	1778	3541	0	1778	3557	1591
Flt Permitted	0.394			0.690			0.094			0.074		
Satd. Flow (perm)	738	1777	0	1258	1755	0	176	3541	0	139	3557	1531
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			4	4			3		1	1		3
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	212	73	31	51	67	28	43	1649	47	48	1570	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	212	104	0	51	95	0	43	1696	0	48	1570	263
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		14.0	14.0		15.0	19.0		15.0	19.0	19.0
Total Split (s)	23.0	48.0	0.0	25.0	25.0	0.0	15.0	107.0	0.0	15.0	107.0	107.0
Total Split (%)	13.5%	28.2%	0.0%	14.7%	14.7%	0.0%	8.8%	62.9%	0.0%	8.8%	62.9%	62.9%
Maximum Green (s)	16.7	41.6		18.6	18.6		8.9	100.9		9.4	100.9	100.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		2									2	2
Act Effct Green (s)	37.9	37.9		15.0	15.0		118.4	111.9		117.7	111.6	111.6
Actuated g/C Ratio	0.22	0.22		0.09	0.09		0.70	0.66		0.69	0.66	0.66
v/c Ratio	0.77	0.26		0.46	0.62		0.22	0.73		0.28	0.67	0.26

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	77.2	55.4		85.9	91.0		5.6	8.5		6.5	7.7	5.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.2	0.0
Total Delay	77.2	55.4		85.9	91.0		5.6	8.5		6.5	7.9	5.7
LOS	E	E		F	F		A	A		A	A	A
Approach Delay		70.0			89.2			8.4			7.6	
Approach LOS		E			F			A			A	
Queue Length 50th (ft)	210	97		55	104		4	172		7	156	45
Queue Length 95th (ft)	276	144		99	163		m7	182		m11	157	60
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	275	449		148	206		218	2331		194	2334	1005
Starvation Cap Reductn	0	0		0	0		0	0		0	201	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.77	0.23		0.34	0.46		0.20	0.73		0.25	0.74	0.26

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 76 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 15.7

Intersection LOS: B

Intersection Capacity Utilization 68.6%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)

											
ø1	ø2					ø4					
15 s	107 s					48 s					
											
ø5	ø6					ø7	ø8				
15 s	107 s					23 s	25 s				

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	14	402	7	10	18	494	1560	9	18	1467	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-1%	
Storage Length (ft)	0		400	0		0	400		0	100		150
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.98			0.98							
Frt			0.850		0.930			0.999				0.850
Flt Protected		0.957			0.990		0.950			0.950		
Satd. Flow (prot)	0	1774	2773	0	1625	0	3416	3518	0	1778	3557	1591
Flt Permitted		0.957			0.990		0.950			0.950		
Satd. Flow (perm)	0	1747	2773	0	1625	0	3416	3518	0	1778	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		566			126			1593			286	
Travel Time (s)		35.6			10.9			24.1			4.3	
Confl. Peds. (#/hr)	12					12						
Peak Hour Factor	0.92	0.92	0.92	0.75	0.75	0.75	0.98	0.98	0.98	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	137	15	437	9	13	24	504	1592	9	19	1512	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	152	437	0	46	0	504	1601	0	19	1512	108
Turn Type	Split		pm+ov	Split			Prot			Prot		pm+ov
Protected Phases	3	3	5	4	4		5	2		1	6	3
Permitted Phases			3									6
Detector Phase	3	3	5	4	4		5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	42.0	42.0		14.0	19.0		15.0	19.0	14.0
Total Split (s)	19.0	19.0	30.0	42.0	42.0	0.0	30.0	94.0	0.0	15.0	79.0	19.0
Total Split (%)	11.2%	11.2%	17.6%	24.7%	24.7%	0.0%	17.6%	55.3%	0.0%	8.8%	46.5%	11.2%
Maximum Green (s)	12.4	12.4	23.3	35.3	35.3		23.3	87.9		8.5	72.9	12.4
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	4.4		3.0	4.6	3.8
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	1.7		3.5	1.5	2.8
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	-1.7	-1.1	0.0	-1.5	-1.1	-1.6
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	6.0		2.0	6.0	1.0
Minimum Gap (s)	1.0	1.0	2.0	1.0	1.0		2.0	6.0		2.0	6.0	1.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	None
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		23.3	62.6		10.7		34.3	114.7		9.4	84.5	108.8
Actuated g/C Ratio		0.14	0.37		0.06		0.20	0.67		0.06	0.50	0.64
v/c Ratio		0.63	0.43		0.45		0.73	0.67		0.19	0.86	0.11
Control Delay		81.1	41.4		90.0		70.4	20.8		61.3	25.4	3.1
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		81.1	41.4		90.0		70.4	20.8		61.3	25.4	3.1
LOS		F	D		F		E	C		E	C	A
Approach Delay		51.7			90.0			32.7			24.4	
Approach LOS		D			F			C			C	
Queue Length 50th (ft)		163	207		51		273	613		19	562	14
Queue Length 95th (ft)		242	255		80		339	785		m30	#1025	m33
Internal Link Dist (ft)		486			46			1513			206	
Turn Bay Length (ft)			400				400			100		150
Base Capacity (vph)		243	1021		354		689	2374		105	1767	1018
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.63	0.43		0.13		0.73	0.67		0.18	0.86	0.11

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 103 (61%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 32.7

Intersection LOS: C

Intersection Capacity Utilization 82.4%

ICU Level of Service E

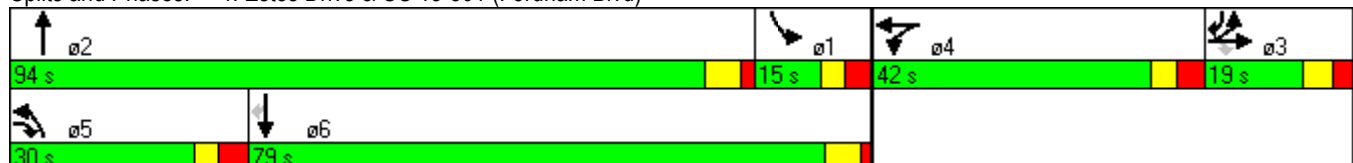
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	1	3	0	144	2	1926	96	184	1686	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	150		150
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.966			0.868				0.850			0.850
Flt Protected		0.964			0.999		0.950			0.950		
Satd. Flow (prot)	0	1735	0	0	1615	0	1770	3539	1583	1770	3539	1583
Flt Permitted		0.964			0.999		0.950			0.950		
Satd. Flow (perm)	0	1735	0	0	1615	0	1770	3539	1583	1770	3539	1583
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			2038			1593	
Travel Time (s)		7.9			3.4			30.9			24.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	0.50	0.50	0.50	0.70	0.70	0.70	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	6	0	2	4	0	206	2	2071	103	192	1756	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	210	0	2	2071	103	192	1756	21
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 82.4%	ICU Level of Service E											
Analysis Period (min) 15												

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	0	11	5	0	46	11	1956	30	85	1593	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	150		150
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.902			0.878				0.850			0.850
Flt Protected		0.987			0.995		0.950			0.950		
Satd. Flow (prot)	0	1581	0	0	1627	0	1770	3539	1583	1770	3539	1583
Flt Permitted		0.987			0.995		0.950			0.950		
Satd. Flow (perm)	0	1581	0	0	1627	0	1770	3539	1583	1770	3539	1583
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		104			85			1461			2038	
Travel Time (s)		2.8			2.3			22.1			30.9	
Peak Hour Factor	0.68	0.68	0.68	0.80	0.80	0.80	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	6	0	16	6	0	58	11	2038	31	89	1659	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	64	0	11	2038	31	89	1659	18
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 72.2% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	960	0	0	414	0	1583	19	0	1525	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	0	0	1129	0	0	493	0	1759	21	0	1589	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1129	0	0	493	0	1759	21	0	1589	93
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			4.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	96.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	104.0	0.0
Total Split (%)	0.0%	0.0%	48.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	52.0%	0.0%
Maximum Green (s)			90.9								98.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								Max	
Walk Time (s)			5.0									
Flash Dont Walk (s)			11.0									
Pedestrian Calls (#/hr)			0									
Act Effect Green (s)			83.7			193.0		193.0	193.0		99.2	193.0
Actuated g/C Ratio			0.43			1.00		1.00	1.00		0.51	1.00
v/c Ratio			0.95			0.31		0.50	0.01		0.87	0.06
Control Delay			69.2			0.5		0.5	0.0		48.9	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			69.2			0.5		0.5	0.0		48.9	0.1

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E			A			A			D		
Approach Delay							0.5			46.2		
Approach LOS							A			D		
Queue Length 50th (ft)	781			0			0			1001		
Queue Length 95th (ft)	818			0			0			1110		
Internal Link Dist (ft)	588			580			951			295		
Turn Bay Length (ft)	450						200					
Base Capacity (vph)	1292			1580			3539			1583		
Starvation Cap Reductn	0			0			0			0		
Spillback Cap Reductn	0			0			0			0		
Storage Cap Reductn	0			0			0			0		
Reduced v/c Ratio	0.87			0.31			0.50			0.01		

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 193

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 30.9

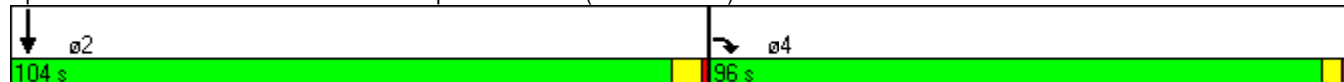
Intersection LOS: C

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2018 Without Site PM Peak
10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	224	0	1378	0	0	2236	248	0	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	249	0	1531	0	0	2484	276	0	67
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	249	0	1531	0	0	2484	276	0	67
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

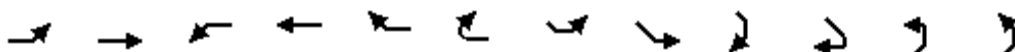
Intersection Capacity Utilization 72.3% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak

10/18/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2	NEL
Lane Configurations		↔	↔	↔			↔	↔				↔
Volume (vph)	9	3	81	3	3	45	49	5	61	1	6	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%		3%				2%				
Storage Length (ft)	0		50		0			125	0			350
Storage Lanes	0		1		0			1	0			1
Taper Length (ft)	25		25		25			25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor				0.99								
Frt				0.858				0.870				
Flt Protected		0.964	0.950				0.950	0.993				0.950
Satd. Flow (prot)	0	1796	1743	1553	0	0	1664	1513	0	0	0	1770
Flt Permitted		0.744	0.950				0.950	0.993				0.950
Satd. Flow (perm)	0	1386	1743	1553	0	0	1664	1513	0	0	0	1770
Right Turn on Red						No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30		35				25				
Link Distance (ft)		305		620				359				
Travel Time (s)		6.9		12.1				9.8				
Confl. Peds. (#/hr)						1						
Peak Hour Factor	0.39	0.39	0.86	0.86	0.86	0.86	0.59	0.59	0.59	0.59	0.92	0.92
Adj. Flow (vph)	23	8	94	3	3	52	83	8	103	2	7	22
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	31	94	58	0	0	75	121	0	0	0	29
Turn Type	Perm		Split				Split				Prot	Prot
Protected Phases		7	3	3			4	4			5	5
Permitted Phases	7											
Detector Phase	7	7	3	3			4	4			5	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	7.0	7.0			5.0	5.0			7.0	7.0
Minimum Split (s)	13.0	13.0	36.0	36.0			13.0	13.0			14.0	14.0
Total Split (s)	13.0	13.0	36.0	36.0	0.0	0.0	15.0	15.0	0.0	0.0	14.0	14.0
Total Split (%)	6.5%	6.5%	18.0%	18.0%	0.0%	0.0%	7.5%	7.5%	0.0%	0.0%	7.0%	7.0%
Maximum Green (s)	5.8	5.8	29.4	29.4			7.6	7.6			7.0	7.0
Yellow Time (s)	3.0	3.0	3.6	3.6			3.0	3.0			3.0	3.0
All-Red Time (s)	4.2	4.2	3.0	3.0			4.4	4.4			4.0	4.0
Lost Time Adjust (s)	0.0	-2.2	-1.6	-1.6	-1.6	-1.6	-2.0	-2.4	-2.4	0.0	0.0	-2.0
Total Lost Time (s)	7.2	5.0	5.0	5.0	2.4	2.4	5.4	5.0	1.6	4.0	7.0	5.0
Lead/Lag			Lag	Lag			Lead	Lead			Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0			2.0	2.0			2.0	2.0
Recall Mode	None	None	None	None			None	None			None	None
Walk Time (s)			4.0	4.0								
Flash Dont Walk (s)			25.0	25.0								
Pedestrian Calls (#/hr)			0	0								
Act Effct Green (s)		11.3	16.8	16.8			12.4	12.8				9.0
Actuated g/C Ratio		0.06	0.08	0.08			0.06	0.06				0.04
v/c Ratio		0.40	0.64	0.45			0.73	1.25				0.36
Control Delay		104.4	107.6	96.7			124.4	234.9				85.8

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

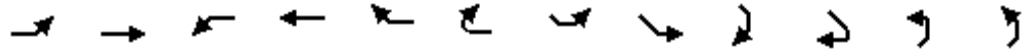
2018 Without Site PM Peak
10/18/2013

						
Lane Group	NET	NER	SWL	SWT	SWR	SWR2
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Volume (vph)	2213	114	39	2131	13	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%		
Storage Length (ft)		300	150		100	
Storage Lanes		1	1		1	
Taper Length (ft)		25	25		25	
Lane Util. Factor	*1.00	1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850			0.850	
Flt Protected			0.950			
Satd. Flow (prot)	3725	1583	1770	3725	1583	0
Flt Permitted			0.950			
Satd. Flow (perm)	*3787	1583	1770	*3771	1583	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45		
Link Distance (ft)	1485			2107		
Travel Time (s)	22.5			31.9		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2405	124	43	2368	14	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2405	124	43	2368	21	0
Turn Type		pm+ov	Prot		Perm	
Protected Phases	2	3	1	6		
Permitted Phases		2			6	
Detector Phase	2	3	1	6	6	
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	33.0	36.0	15.0	25.0	25.0	
Total Split (s)	121.0	36.0	15.0	122.0	122.0	0.0
Total Split (%)	60.5%	18.0%	7.5%	61.0%	61.0%	0.0%
Maximum Green (s)	114.8	29.4	9.1	115.9	115.9	
Yellow Time (s)	4.6	3.6	3.0	4.4	4.4	
All-Red Time (s)	1.6	3.0	2.9	1.7	1.7	
Lost Time Adjust (s)	-1.2	-1.6	-0.9	-1.1	-1.1	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Recall Mode	C-Max	None	None	C-Max	C-Max	
Walk Time (s)	7.0	4.0		7.0	7.0	
Flash Dont Walk (s)	16.0	25.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	129.6	147.3	9.6	130.4	130.4	
Actuated g/C Ratio	0.65	0.74	0.05	0.65	0.65	
v/c Ratio	1.00	0.11	0.51	0.98	0.02	
Control Delay	34.4	3.6	113.1	46.7	15.3	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak

10/18/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2	NEL
Queue Delay		0.0	0.0	0.0			0.0	0.0				0.0
Total Delay		104.4	107.6	96.7			124.4	234.9				85.8
LOS		F	F	F			F	F				F
Approach Delay		104.4		103.5				192.6				
Approach LOS		F		F				F				
Queue Length 50th (ft)		40	122	74			106	~238				38
Queue Length 95th (ft)		34	180	120			#113	#227				m48
Internal Link Dist (ft)		225		540				279				
Turn Bay Length (ft)			50				125	125				350
Base Capacity (vph)		79	270	241			103	97				80
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		0.39	0.35	0.24			0.73	1.25				0.36

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 49.2

Intersection LOS: D

Intersection Capacity Utilization 85.2%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

Ø2	Ø1	Ø4	Ø3	
121 s	15 s	15 s	36 s	13 s
Ø6	Ø5			
122 s	14 s			

Lanes, Volumes, Timings
 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
 10/18/2013

						
Lane Group	NET	NER	SWL	SWT	SWR	SWR2
Queue Delay	2.4	0.0	0.0	0.1	0.0	
Total Delay	36.9	3.6	113.1	46.8	15.3	
LOS	D	A	F	D	B	
Approach Delay	35.8			47.7		
Approach LOS	D			D		
Queue Length 50th (ft)	~1677	19	56	1493	10	
Queue Length 95th (ft)	#1881	m30	107	#1824	26	
Internal Link Dist (ft)	1405			2027		
Turn Bay Length (ft)		300	150		100	
Base Capacity (vph)	2413	1247	89	2428	1032	
Starvation Cap Reductn	24	0	0	0	0	
Spillback Cap Reductn	0	0	0	2	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	1.01	0.10	0.48	0.98	0.02	
Intersection Summary						

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	648	6	157	14	3	19	106	1686	4	12	2006	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	400		0	200		0
Storage Lanes	0		1	0		1	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.99		0.99			1.00		1.00		
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.961		0.950			0.950		
Satd. Flow (prot)	3502	1900	1615	0	1611	1583	3485	3592	0	1770	3539	1583
Flt Permitted	0.950				0.961		0.950			0.950		
Satd. Flow (perm)	*3819	1900	1593	0	1596	1583	3485	*3811	0	1768	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			1485	
Travel Time (s)		7.4			14.0			8.8			22.5	
Confl. Peds. (#/hr)			5	5					1	1		
Peak Hour Factor	0.85	0.85	0.85	0.84	0.84	0.84	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	762	7	185	17	4	23	110	1756	4	12	2090	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	762	7	185	0	21	23	110	1760	0	12	2090	269
Turn Type	Split		Free	Split		pm+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	1	5	2		1	6	4
Permitted Phases			Free			3						6
Detector Phase	4	4		3	3	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	32.0	32.0		14.0	14.0	14.0	14.0	19.0		14.0	19.0	32.0
Total Split (s)	48.0	48.0	0.0	14.0	14.0	14.0	14.0	124.0	0.0	14.0	124.0	48.0
Total Split (%)	24.0%	24.0%	0.0%	7.0%	7.0%	7.0%	7.0%	62.0%	0.0%	7.0%	62.0%	24.0%
Maximum Green (s)	41.8	41.8		7.8	7.8	7.8	7.8	117.9		7.8	117.7	41.8
Yellow Time (s)	3.8	3.8		3.8	3.8	3.0	3.0	4.7		3.0	4.5	3.8
All-Red Time (s)	2.4	2.4		2.4	2.4	3.2	3.2	1.4		3.2	1.8	2.4
Lost Time Adjust (s)	-1.2	-1.2	0.0	-2.5	-1.2	-1.2	-1.2	-1.1	0.0	-1.2	-1.3	-1.2
Total Lost Time (s)	5.0	5.0	4.0	3.7	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0	1.0	1.0	6.0		1.0	6.0	1.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)	7.0	7.0										7.0
Flash Dont Walk (s)	18.0	18.0										18.0
Pedestrian Calls (#/hr)	0	0										0
Act Effect Green (s)	48.8	48.8	200.0		8.4	17.0	8.8	121.8		8.8	119.2	170.0
Actuated g/C Ratio	0.24	0.24	1.00		0.04	0.08	0.04	0.61		0.04	0.60	0.85

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Without Site PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.89	0.02	0.12		0.31	0.17	0.71	0.80		0.15	0.99	0.20
Control Delay	85.4	61.7	0.1		104.9	84.4	118.3	34.3		63.3	24.5	0.6
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	2.3		0.0	1.2	0.0
Total Delay	85.4	61.7	0.1		104.9	84.4	118.3	36.7		63.3	25.6	0.6
LOS	F	E	A		F	F	F	D		E	C	A
Approach Delay		68.7			94.2			41.5			23.0	
Approach LOS		E			F			D			C	
Queue Length 50th (ft)	523	7	0		27	28	75	946		15	1036	9
Queue Length 95th (ft)	#611	22	0		60	58	#121	1043		m15	m#778	m1
Internal Link Dist (ft)		302			435			504			1405	
Turn Bay Length (ft)			225			75	400			200		
Base Capacity (vph)	855	464	1593		72	136	157	2187		80	2109	1346
Starvation Cap Reductn	0	0	0		0	0	0	0		0	12	0
Spillback Cap Reductn	0	0	0		0	0	0	291		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.89	0.02	0.12		0.29	0.17	0.70	0.93		0.15	1.00	0.20

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 20 (10%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 38.5

Intersection LOS: D

Intersection Capacity Utilization 88.9%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

							
ø2		ø1	ø3	ø4		ø5	ø6
124 s		14 s	14 s	48 s		14 s	124 s

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	494	37	202	317	504	21	154	259	518	143	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.96	1.00		0.99		0.93		1.00	0.98		0.99	
Frt		0.990				0.850			0.850		0.989	
Flt Protected	0.950			0.950				0.994		0.950	0.975	
Satd. Flow (prot)	1662	3389	0	1770	1863	1689	0	2037	1583	1625	1923	0
Flt Permitted	0.556			0.162				0.994		0.950	0.975	
Satd. Flow (perm)	933	3389	0	300	1863	1575	0	2027	1559	1625	1923	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	22		12	12		22	49					49
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	42	574	43	217	341	542	24	177	298	557	154	28
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	42	617	0	217	341	542	0	201	298	368	371	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	17.0	17.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	24.0	58.0	45.0	27.0	27.0	24.0	45.0	45.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	18.5%	44.6%	34.6%	20.8%	20.8%	18.5%	34.6%	34.6%	0.0%
Maximum Green (s)	26.7	26.7		17.2	50.7	38.3	20.3	20.3	17.2	38.3	38.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	31.1	31.1		53.0	53.0	89.6		25.4	42.3	36.6	36.6	
Actuated g/C Ratio	0.24	0.24		0.41	0.41	0.69		0.20	0.33	0.28	0.28	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.19	0.76		0.69	0.45	0.48		0.51	0.58	0.80	0.68	
Control Delay	43.5	53.5		38.7	30.3	8.8		53.2	39.0	57.2	48.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	43.5	53.5		38.7	30.3	8.8		53.2	39.0	57.2	48.2	
LOS	D	D		D	C	A		D	D	E	D	
Approach Delay		52.9			21.4			44.7			52.7	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	29	259		122	206	145		158	201	292	283	
Queue Length 95th (ft)	61	315		189	293	201		232	279	420	396	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	223	810		337	760	1162		398	536	500	592	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.19	0.76		0.64	0.45	0.47		0.51	0.56	0.74	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 39.9

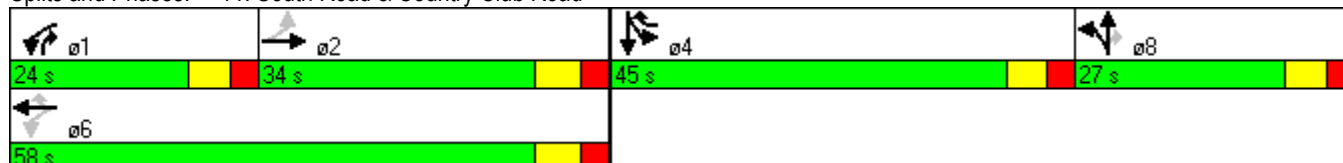
Intersection LOS: D

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

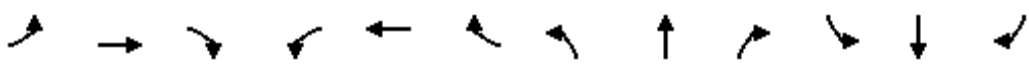
Splits and Phases: 11: South Road & Country Club Road



Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	1406	62	0	932	960	0	0	248	0	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	1528	67	0	1013	1043	0	0	270	0	0	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1528	67	0	1013	1043	0	0	270	0	0	97
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 62.8% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2018 Without Site PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	1639	1871	414	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.973			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	4948	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	4948	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1821	2176	481	0	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1821	2657	0	0	22
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 55.4%

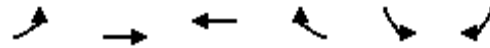
ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
14: NC 54 (Raleigh Road) & Glen Lennox Dr #1

2018 Without Site PM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	29	2315	2334	39	0	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.998			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1770	5085	5075	0	0	1611
Flt Permitted	0.950					
Satd. Flow (perm)	1770	5085	5075	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		164	247		247	
Travel Time (s)		2.5	3.7		5.6	
Confl. Peds. (#/hr)	10			10		
Peak Hour Factor	0.97	0.97	0.92	0.92	1.00	0.85
Adj. Flow (vph)	30	2387	2537	42	0	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	2387	2579	0	0	81
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 56.9% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2018 Without Site PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	2315	2349	22	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5080	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5080	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		247	359		229	
Travel Time (s)		3.7	5.4		6.2	
Peak Hour Factor	1.00	0.94	0.91	0.91	1.00	0.67
Adj. Flow (vph)	0	2463	2581	24	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2463	2605	0	0	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 55.9%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Volume (vph)	48	2130	68	100	2015	52	165	25	108	51	19	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	250		0	150		150	50		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99		0.96	0.97	0.98	
Frt		0.995			0.996				0.850		0.897	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5050	0	1770	5059	0	1770	1863	1583	1770	1644	0
Flt Permitted	0.050			0.050			0.713			0.732		
Satd. Flow (perm)	93	5050	0	93	5059	0	1315	1863	1513	1321	1644	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		359			576			537			463	
Travel Time (s)		5.4			8.7			14.6			12.6	
Confl. Peds. (#/hr)	7		11	11		7	8		25	25		8
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.65	0.65	0.65	0.89	0.89	0.89
Adj. Flow (vph)	51	2266	72	112	2264	58	254	38	166	57	21	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	2338	0	112	2322	0	254	38	166	57	67	0
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	27.0		13.0	26.0		41.0	41.0	13.0	39.0	39.0	
Total Split (s)	13.0	86.0	0.0	17.0	90.0	0.0	47.0	47.0	17.0	47.0	47.0	0.0
Total Split (%)	8.7%	57.3%	0.0%	11.3%	60.0%	0.0%	31.3%	31.3%	11.3%	31.3%	31.3%	0.0%
Maximum Green (s)	7.4	80.4		11.6	84.1		40.6	40.6	11.6	40.5	40.5	
Yellow Time (s)	3.0	3.8		3.0	4.1		3.1	3.1	3.0	3.2	3.2	
All-Red Time (s)	2.6	1.8		2.4	1.8		3.3	3.3	2.4	3.3	3.3	
Lost Time Adjust (s)	-0.6	-0.6	0.0	-0.4	-0.9	0.0	-1.4	-1.4	-0.4	-1.5	-1.5	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	2.0		2.0	2.0		3.0	3.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			13.0		27.0	27.0		25.0	25.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effect Green (s)	88.4	88.4		94.9	94.9		34.6	34.6	46.6	34.6	34.6	
Actuated g/C Ratio	0.59	0.59		0.63	0.63		0.23	0.23	0.31	0.23	0.23	
v/c Ratio	0.35	0.79		0.58	0.73		0.84	0.09	0.35	0.19	0.18	
Control Delay	22.2	27.1		34.9	6.4		77.5	42.8	37.5	45.6	45.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	22.2	27.1		34.9	6.4		77.5	42.8	37.5	45.6	45.2	
LOS	C	C		C	A		E	D	D	D	D	
Approach Delay		27.0			7.7			60.1			45.4	
Approach LOS		C			A			E			D	
Queue Length 50th (ft)	21	627		49	83		237	29	118	45	53	
Queue Length 95th (ft)	48	765		m103	152		217	42	117	81	90	
Internal Link Dist (ft)		279			496			457			383	
Turn Bay Length (ft)	275			250			150		150	50		
Base Capacity (vph)	146	2975		193	3201		368	522	476	370	460	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.35	0.79		0.58	0.73		0.69	0.07	0.35	0.15	0.15	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 110 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 21.5

Intersection LOS: C

Intersection Capacity Utilization 83.9%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

														
ø2	ø1	ø4	ø5	ø6	ø8									
86 s	17 s	47 s	13 s	90 s	47 s									

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	2235	29	158	2149	51	29	13	182	28	33	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.998			0.997				0.850		0.945	
Flt Protected	0.950			0.950				0.966			0.987	
Satd. Flow (prot)	1770	5070	0	1770	5063	0	0	1799	1583	0	1722	0
Flt Permitted	0.039			0.043				0.715			0.905	
Satd. Flow (perm)	73	5070	0	80	5063	0	0	1325	1583	0	1579	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	14		18	18		14	9					9
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.86	0.86	0.86	0.83	0.83	0.83
Adj. Flow (vph)	67	2353	31	178	2415	57	34	15	212	34	40	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	2384	0	178	2472	0	0	49	212	0	125	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	83.0	0.0	19.0	89.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	8.7%	55.3%	0.0%	12.7%	59.3%	0.0%	32.0%	32.0%	32.0%	32.0%	32.0%	0.0%
Maximum Green (s)	7.1	76.8		13.1	82.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effect Green (s)	110.2	92.3		109.2	103.8			25.8	25.8		25.8	
Actuated g/C Ratio	0.73	0.62		0.73	0.69			0.17	0.17		0.17	
v/c Ratio	0.47	0.76		0.72	0.71			0.21	0.78		0.46	
Control Delay	25.5	7.3		71.4	6.5			53.2	77.8		60.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	25.5	7.3		71.4	6.5			53.2	77.8		60.0	
LOS	C	A		E	A			D	E		E	
Approach Delay		7.8			10.9			73.2			60.0	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	20	106		125	149			42	201		111	
Queue Length 95th (ft)	m38	198		m191	261			73	262		152	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	144	3120		257	3502			380	454		453	
Starvation Cap Reductn	0	0		0	47			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.47	0.76		0.69	0.72			0.13	0.47		0.28	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 124 (83%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 13.6

Intersection LOS: B

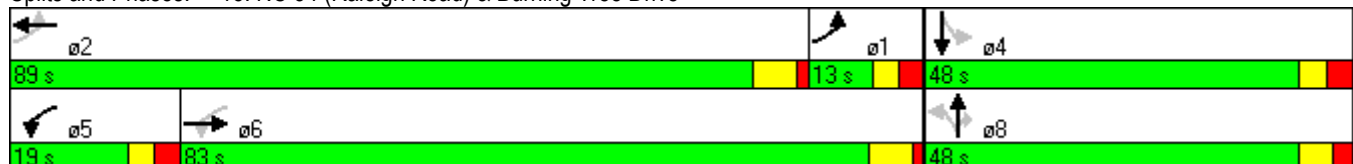
Intersection Capacity Utilization 83.1%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	178	2205	39	12	2061	25	111	12	109	15	0	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.90			0.96						
Frt			0.850			0.850		0.865			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1741	5085	1583	1770	5085	1583	1770	1611	0	1770	1583	0
Flt Permitted	0.044			0.044			0.381			0.529		
Satd. Flow (perm)	81	5085	1430	82	5085	1527	710	1611	0	985	1583	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	15		22	22		15						
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.80	0.80	0.80	0.93	0.93	0.93
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	184	2273	40	13	2169	26	139	15	136	16	0	219
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	2273	40	13	2169	26	139	151	0	16	219	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	44.0	44.0	16.0	44.0	44.0	18.0	18.0		18.0	18.0	
Total Split (s)	18.0	97.0	97.0	16.0	75.0	75.0	37.0	37.0	0.0	37.0	37.0	0.0
Total Split (%)	12.0%	64.7%	64.7%	10.7%	50.0%	50.0%	24.7%	24.7%	0.0%	24.7%	24.7%	0.0%
Maximum Green (s)	11.7	90.7	90.7	9.7	68.7	68.7	30.2	30.2		29.7	29.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	105.0	104.7	104.7	108.0	92.0	92.0	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.70	0.70	0.70	0.72	0.61	0.61	0.20	0.20		0.20	0.20	
v/c Ratio	0.92	0.64	0.04	0.08	0.70	0.03	0.98	0.47		0.08	0.69	
Control Delay	77.5	15.6	13.3	3.2	5.6	4.3	128.8	57.6		48.7	67.4	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	13%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	77.5	15.7	13.3	3.2	5.6	4.3	128.8	57.6		48.7	67.4	
LOS	E	B	B	A	A	A	F	E		D	E	
Approach Delay		20.2			5.6			91.7			66.2	
Approach LOS		C			A			F			E	
Queue Length 50th (ft)	148	317	11	1	101	3	135	130		13	198	
Queue Length 95th (ft)	m#244	507	m28	m2	97	m3	#226	178		35	293	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	202	3548	998	184	3119	936	151	344		210	338	
Starvation Cap Reductn	0	188	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.91	0.68	0.04	0.07	0.70	0.03	0.92	0.44		0.08	0.65	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 105 (70%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 20.1

Intersection LOS: C

Intersection Capacity Utilization 85.1%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
16 s	97 s	37 s
 ø5	 ø10	 ø6
18 s	20 s	75 s
		 ø8
		37 s

Lane Group	ø10
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	2140	77	59	1809	97	121	18	456	165	10	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.95	1.00		0.98	1.00	1.00				
Frt			0.850			0.850		0.868	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.998		0.950		
Satd. Flow (prot)	3467	5136	1599	3416	5060	1575	1648	1440	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.998		0.950		
Satd. Flow (perm)	3465	5136	1517	3406	5060	1548	1640	1439	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	4		25	25		4	4					4
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	128	2253	81	65	1988	107	142	21	536	192	12	193
Shared Lane Traffic (%)							10%		47%			
Lane Group Flow (vph)	128	2253	81	65	1988	107	128	287	284	192	12	193
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	75.0	41.0	16.0	75.0	18.0	41.0	41.0	57.0	18.0	18.0	34.0
Total Split (%)	10.7%	50.0%	27.3%	10.7%	50.0%	12.0%	27.3%	27.3%	38.0%	12.0%	12.0%	22.7%
Maximum Green (s)	8.8	68.4	33.9	8.9	68.5	10.7	33.9	33.9		10.7	10.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effect Green (s)	10.6	72.8	106.0	11.0	73.2	86.2	33.2	33.2	44.2	13.0	13.0	23.6
Actuated g/C Ratio	0.07	0.49	0.71	0.07	0.49	0.57	0.22	0.22	0.29	0.09	0.09	0.16
v/c Ratio	0.52	0.90	0.07	0.26	0.80	0.12	0.35	0.90	0.65	0.64	0.07	0.76

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	60.8	44.2	6.1	51.4	20.7	5.8	51.5	86.9	45.0	76.4	64.3	54.6
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	60.8	44.2	6.1	51.4	20.7	5.8	51.5	86.9	45.0	76.4	64.3	54.6
LOS	E	D	A	D	C	A	D	F	D	E	E	D
Approach Delay	43.8			20.9			63.4			65.4		
Approach LOS	D			C			E			E		
Queue Length 50th (ft)	65	550	5	32	645	21	109	295	190	95	11	113
Queue Length 95th (ft)	104	754	m48	m48	241	m33	165	#417	254	132	32	#167
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	254	2494	1110	251	2471	892	396	346	462	302	164	257
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	0.50	0.90	0.07	0.26	0.80	0.12	0.32	0.83	0.61	0.64	0.07	0.75

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 69 (46%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 39.0

Intersection LOS: D

Intersection Capacity Utilization 79.4%

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.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø3	 ø4
75 s	16 s	18 s	41 s
 ø5	 ø6		
16 s	75 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	1988	778	153	1716	184	256	63	41	119	83	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96			0.98						
Frt			0.850			0.850		0.965			0.985	
Flt Protected	0.950			0.950			0.950	0.980		0.950	0.993	
Satd. Flow (prot)	1761	4448	1575	1778	5111	1591	1673	1665	0	1664	1714	0
Flt Permitted	0.067			0.058			0.950	0.980		0.950	0.993	
Satd. Flow (perm)	124	4448	1507	109	5111	1554	1673	1665	0	1664	1714	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)	1		6	6		1						
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	6	2071	810	163	1826	196	284	70	46	135	94	12
Shared Lane Traffic (%)							29%			12%		
Lane Group Flow (vph)	6	2071	810	163	1826	196	202	198	0	119	122	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	80.0	33.0	17.0	81.0	20.0	33.0	33.0	0.0	20.0	20.0	0.0
Total Split (%)	10.7%	53.3%	22.0%	11.3%	54.0%	13.3%	22.0%	22.0%	0.0%	13.3%	13.3%	0.0%
Maximum Green (s)	9.2	72.5	25.8	10.0	73.5	12.8	25.8	25.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	91.0	75.0	103.7	87.0	89.2	103.6	28.7	28.7		14.3	14.3	
Actuated g/C Ratio	0.61	0.50	0.69	0.58	0.59	0.69	0.19	0.19		0.10	0.10	
v/c Ratio	0.04	0.93	0.77	0.83	0.60	0.18	0.63	0.62		0.75	0.74	
Control Delay	6.2	21.8	7.8	82.9	20.8	7.6	66.1	65.6		93.2	92.2	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 Without Site PM Peak
10/18/2013

												
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	
Total Delay	6.2	21.8	7.8	82.9	20.8	7.6	66.1	65.6		93.2	92.2	
LOS	A	C	A	F	C	A	E	E		F	F	
Approach Delay		17.8			24.3			65.9			92.7	
Approach LOS		B			C			E			F	
Queue Length 50th (ft)	1	472	145	102	375	50	194	190		121	124	
Queue Length 95th (ft)	m2	593	m164	#230	529	107	291	285		#210	#213	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	196	2224	1055	197	3041	1083	319	318		166	171	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.93	0.77	0.83	0.60	0.18	0.63	0.62		0.72	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 75 (50%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 26.8

Intersection LOS: C

Intersection Capacity Utilization 76.0%

ICU Level of Service D

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2	 ø1	 ø3	 ø4
80 s	17 s	20 s	33 s
 ø5	 ø6		
16 s	81 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	364	337	59	211	394	229	76	826	186	118	669	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		0.99		0.98	0.99	0.99		1.00	0.97	
Frt		0.978				0.850		0.972			0.943	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1815	0	1770	1863	1583	1770	3422	0	1770	3236	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1761	1815	0	1757	1863	1551	1748	3422	0	1763	3236	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	5		9	9		5	14		13	13		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	375	347	61	218	406	236	82	888	200	126	712	438
Shared Lane Traffic (%)												
Lane Group Flow (vph)	375	408	0	218	406	236	82	1088	0	126	1150	0
Turn Type	Prot			Prot		pm+ov	Prot			Prot		
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	
Total Split (s)	34.0	43.0	0.0	26.0	35.0	16.0	15.0	55.0	0.0	16.0	56.0	0.0
Total Split (%)	24.3%	30.7%	0.0%	18.6%	25.0%	11.4%	10.7%	39.3%	0.0%	11.4%	40.0%	0.0%
Maximum Green (s)	28.1	37.1		20.4	29.4	10.1	8.8	49.3		10.1	50.6	
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	29.0	39.3		19.7	30.0	41.0	9.5	50.0		11.0	51.5	
Actuated g/C Ratio	0.21	0.28		0.14	0.21	0.29	0.07	0.36		0.08	0.37	
v/c Ratio	1.02	0.80		0.87	1.02	0.52	0.68	0.89		0.91	0.97	
Control Delay	106.6	60.2		83.9	97.6	24.8	90.7	52.7		117.9	62.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	106.6	60.2		83.9	97.6	24.8	90.7	52.7		117.9	62.7	
LOS	F	E		F	F	C	F	D		F	E	
Approach Delay		82.4			74.1			55.4			68.2	
Approach LOS		F			E			E			E	
Queue Length 50th (ft)	~362	351		171	~395	104	74	490		116	541	
Queue Length 95th (ft)	#566	#513		m#306	#585	m155	#149	#591		#243	#696	
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	200											
Base Capacity (vph)	367	509		266	399	457	126	1222		139	1189	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	1.02	0.80		0.82	1.02	0.52	0.65	0.89		0.91	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 88 (63%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 68.5

Intersection LOS: E

Intersection Capacity Utilization 95.6%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

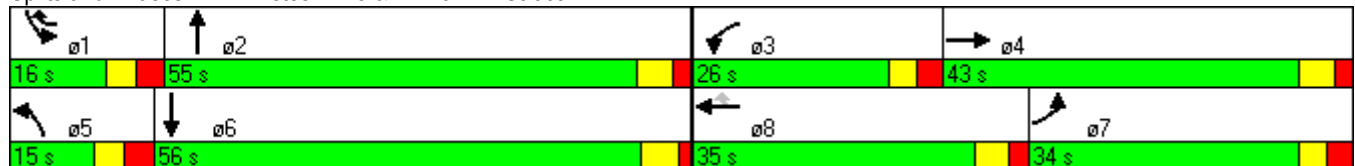
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



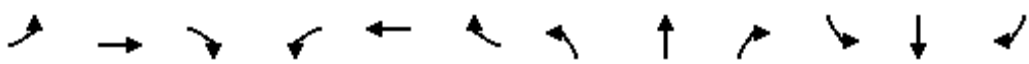
Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	240	392	9	5	438	54	13	9	13	89	11	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.984			0.950				0.850
Flt Protected	0.950			0.950				0.982			0.958	
Satd. Flow (prot)	1770	3526	0	1770	3469	0	0	1724	0	0	1767	1568
Flt Permitted	0.360			0.506				0.837			0.714	
Satd. Flow (perm)	667	3526	0	931	3469	0	0	1469	0	0	1306	1548
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		11	11		8	1		11	11		1
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.69	0.69	0.69	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	253	413	9	6	503	62	19	13	19	94	12	369
Shared Lane Traffic (%)												
Lane Group Flow (vph)	253	422	0	6	565	0	0	51	0	0	106	369
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	18.0	41.0	0.0	23.0	23.0	0.0	29.0	29.0	0.0	29.0	29.0	18.0
Total Split (%)	25.7%	58.6%	0.0%	32.9%	32.9%	0.0%	41.4%	41.4%	0.0%	41.4%	41.4%	25.7%
Maximum Green (s)	12.9	35.9		17.8	17.8		23.3	23.3		23.2	23.2	12.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	52.1	53.1		35.2	35.2			10.4			10.4	20.8
Actuated g/C Ratio	0.74	0.76		0.50	0.50			0.15			0.15	0.30
v/c Ratio	0.37	0.16		0.01	0.32			0.23			0.54	0.80
Control Delay	3.8	2.7		13.0	12.8			27.6			37.5	32.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	3.8	2.7		13.0	12.8			27.6			37.5	32.3
LOS	A	A		B	B			C			D	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		3.1			12.8			27.6			33.4	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	28	22		1	73			20			43	128
Queue Length 95th (ft)	m79	m69		8	130			34			82	169
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	705	2676		468	1744			504			448	493
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.36	0.16		0.01	0.32			0.10			0.24	0.75

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 15.1

Intersection LOS: B

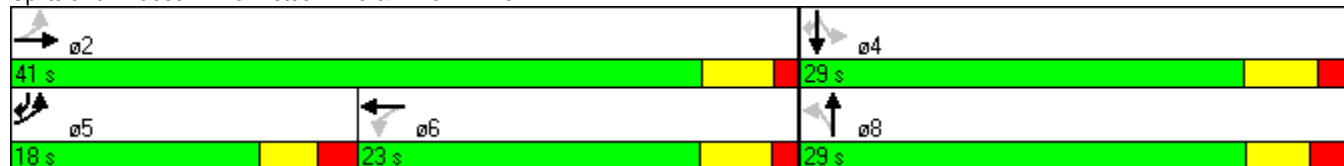
Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2018 Without Site PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	261	17	1	134	11	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.953	
Flt Protected					0.969	
Satd. Flow (prot)	1848	0	0	1863	1720	0
Flt Permitted					0.969	
Satd. Flow (perm)	1848	0	0	1863	1720	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Confl. Peds. (#/hr)						11
Peak Hour Factor	0.62	0.62	0.62	0.62	0.85	0.85
Adj. Flow (vph)	421	27	2	216	13	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	448	0	0	218	20	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.8%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2018 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	56	10	0	41	3	11	2	0	4	2	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		0.980			0.991						0.919	
Flt Protected		0.997						0.959			0.988	
Satd. Flow (prot)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Flt Permitted		0.997						0.959			0.988	
Satd. Flow (perm)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.65	0.65	0.65	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%
Adj. Flow (vph)	5	60	11	0	44	3	17	3	0	5	3	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	47	0	0	20	0	0	20	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	17.8%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2018 Without Site PM Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	2298	1378	967
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	667		536		2107	
Travel Time (s)	15.2		8.1		31.9	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2298	1531	1074
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2298	1531	1074
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 83.7% ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings
61: NC 54 EB Off Ramp &

2018 Without Site PM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	967	0	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			667	476	
Travel Time (s)	4.7			15.2	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1074	0	249
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1074	0	249
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 54.2%	ICU Level of Service A					
Analysis Period (min) 15						

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2018 Without Site PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑		↗
Volume (vph)	1415	224	0	2285	0	967
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	5085	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			164	476	
Travel Time (s)	1.4			2.5	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1685	267	0	2539	0	997
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1685	267	0	2539	0	997
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	105.7%			ICU Level of Service G		
Analysis Period (min)	15					

2018 With Site Phase 1

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 With Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	59	27	313	124	58	76	1101	230	71	1235	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	175		0	375		325	225		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.952			0.965				0.850		0.998	
Flt Protected	0.950			0.950	0.987		0.950			0.950		
Satd. Flow (prot)	1702	1706	0	1571	1624	0	1744	3487	1508	1702	3515	0
Flt Permitted	0.950			0.950	0.987		0.950			0.950		
Satd. Flow (perm)	1700	1706	0	1571	1624	0	1744	3487	1508	1702	3515	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	31	69	32	333	132	62	81	1171	245	81	1403	15
Shared Lane Traffic (%)				21%								
Lane Group Flow (vph)	31	101	0	263	264	0	81	1171	245	81	1418	0
Turn Type	Split			Split			Prot		Free	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases									Free			
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	20.0	20.0		33.0	33.0		20.0	80.0		18.0	68.0	
Total Split (s)	21.0	21.0	0.0	44.0	44.0	0.0	20.0	85.0	0.0	20.0	85.0	0.0
Total Split (%)	12.4%	12.4%	0.0%	25.9%	25.9%	0.0%	11.8%	50.0%	0.0%	11.8%	50.0%	0.0%
Maximum Green (s)	14.7	14.7		38.2	38.2		13.8	79.2		13.7	79.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	14.2	14.2		32.7	32.7		15.0	90.7	170.0	12.4	88.1	
Actuated g/C Ratio	0.08	0.08		0.19	0.19		0.09	0.53	1.00	0.07	0.52	
v/c Ratio	0.22	0.71		0.87	0.85		0.53	0.63	0.16	0.65	0.78	
Control Delay	75.5	101.6		93.5	89.2		77.0	25.3	0.2	100.1	38.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	75.5	101.6		93.5	89.2		77.0	25.3	0.2	100.1	38.2	
LOS	E	F		F	F		E	C	A	F	D	
Approach Delay		95.5			91.4			24.0			41.5	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	33	111		301	300		85	255	0	89	681	
Queue Length 95th (ft)	66	169		407	405		145	491	0	147	803	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			175			375		325	225		
Base Capacity (vph)	160	161		360	373		154	1861	1508	150	1822	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.19	0.63		0.73	0.71		0.53	0.63	0.16	0.54	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 148 (87%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 43.5

Intersection LOS: D

Intersection Capacity Utilization 74.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
20 s	85 s	21 s	44 s
 ø6	 ø5		
85 s	20 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	48	111	130	1391	15	1520	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12
Storage Length (ft)	175	0	250		125		125
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25	25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Ped Bike Factor			1.00				0.98
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1719	1487	1752	3505	1811	3505	1568
Flt Permitted	0.950		0.094		0.127		
Satd. Flow (perm)	1719	1487	173	3505	242	3505	1536
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			45		45	
Link Distance (ft)	423			800		1344	
Travel Time (s)	8.2			12.1		20.4	
Confl. Peds. (#/hr)			1				1
Peak Hour Factor	0.84	0.84	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	57	132	146	1563	17	1708	98
Shared Lane Traffic (%)							
Lane Group Flow (vph)	57	132	146	1563	17	1708	98
Turn Type		pm+ov	pm+pt		pm+pt		pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases		4	2		6		6
Detector Phase	4	5	5	2	1	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	20.0	30.0	30.0	135.0	15.0	115.0	20.0
Total Split (s)	20.0	30.0	30.0	135.0	15.0	120.0	20.0
Total Split (%)	11.8%	17.6%	17.6%	79.4%	8.8%	70.6%	11.8%
Maximum Green (s)	14.4	24.1	24.1	129.1	9.7	114.1	14.4
Yellow Time (s)	3.0	3.0	3.0	4.5	3.0	4.5	3.0
All-Red Time (s)	2.6	2.9	2.9	1.4	2.3	1.4	2.6
Lost Time Adjust (s)	-0.6	-0.9	-0.9	-0.9	-0.3	-0.9	-0.6
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	1.0	1.0	1.0	2.0	1.0	2.0	1.0
Recall Mode	None	None	None	C-Max	None	C-Max	None
Act Effect Green (s)	9.9	39.9	142.7	142.7	120.1	120.1	130.0
Actuated g/C Ratio	0.06	0.23	0.84	0.84	0.71	0.71	0.76
v/c Ratio	0.57	0.38	0.39	0.53	0.07	0.69	0.08
Control Delay	98.9	57.7	19.0	2.8	2.5	5.5	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.9	57.7	19.0	2.8	2.5	5.5	0.7

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
LOS	F	E	B	A	A	A	A
Approach Delay	70.2			4.2		5.2	
Approach LOS	E			A		A	
Queue Length 50th (ft)	63	125	27	92	2	218	3
Queue Length 95th (ft)	106	175	91	103	m3	203	m4
Internal Link Dist (ft)	343			720		1264	
Turn Bay Length (ft)	175		250		125		125
Base Capacity (vph)	152	349	377	2942	264	2476	1214
Starvation Cap Reductn	0	0	0	132	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.38	0.39	0.56	0.06	0.69	0.08

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 143 (84%), Referenced to phase 2:NBT and 6:SBTU, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 8.0

Intersection LOS: A

Intersection Capacity Utilization 67.6%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

ø1	ø2		ø4
15 s	135 s		20 s
ø6		ø5	
120 s		30 s	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	24	17	43	55	16	51	1211	7	6	1290	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.938			0.966			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1756	0	1761	1790	0	1778	3553	0	1778	3557	1591
Flt Permitted	0.410			0.724			0.132			0.157		
Satd. Flow (perm)	768	1756	0	1342	1790	0	247	3553	0	294	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Peak Hour Factor	0.81	0.81	0.81	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88
Adj. Flow (vph)	84	30	21	52	67	20	55	1302	8	7	1466	162
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	51	0	52	87	0	55	1310	0	7	1466	162
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		33.0	33.0		15.0	90.0		15.0	80.0	80.0
Total Split (s)	15.0	50.0	0.0	35.0	35.0	0.0	15.0	105.0	0.0	15.0	105.0	105.0
Total Split (%)	8.8%	29.4%	0.0%	20.6%	20.6%	0.0%	8.8%	61.8%	0.0%	8.8%	61.8%	61.8%
Maximum Green (s)	8.7	43.6		28.6	28.6		8.9	98.9		9.4	98.9	98.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	26.1	26.1		14.2	14.2		128.6	128.6		119.1	119.1	119.1
Actuated g/C Ratio	0.15	0.15		0.08	0.08		0.76	0.76		0.70	0.70	0.70
v/c Ratio	0.48	0.19		0.46	0.58		0.20	0.49		0.03	0.59	0.15
Control Delay	70.5	61.0		86.5	89.8		5.0	4.3		2.2	2.9	2.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	0.0
Total Delay	70.5	61.0		86.5	89.8		5.0	4.3		2.2	3.0	2.2

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 With Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	E		F	F		A	A		A	A	A
Approach Delay		66.9			88.6			4.3			2.9	
Approach LOS		E			F			A			A	
Queue Length 50th (ft)	83	49		56	95		5	71		1	65	14
Queue Length 95th (ft)	120	80		95	141		m10	95		m1	69	19
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	179	465		237	316		277	2687		293	2492	1114
Starvation Cap Reductn	0	0		0	0		0	0		0	255	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.47	0.11		0.22	0.28		0.20	0.49		0.02	0.66	0.15

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 156 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 9.8

Intersection LOS: A

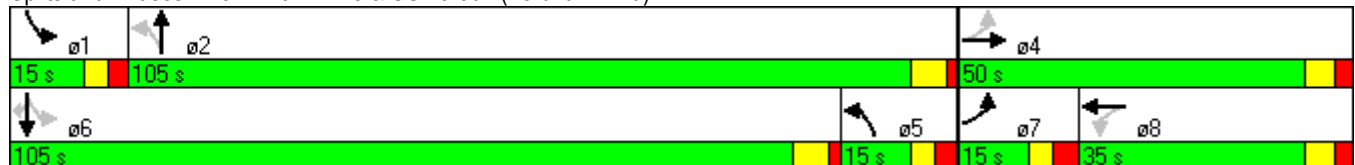
Intersection Capacity Utilization 61.1%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	3	289	7	7	13	294	1430	5	14	1433	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-1%	
Storage Length (ft)	0		400	0		0	400		0	100		150
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99			0.99							
Frt			0.850		0.936							0.850
Flt Protected		0.955			0.987		0.950			0.950		
Satd. Flow (prot)	0	1703	2668	0	1507	0	3383	3487	0	1744	3489	1561
Flt Permitted		0.955			0.987		0.950			0.950		
Satd. Flow (perm)	0	1680	2668	0	1507	0	3383	3487	0	1744	3489	1561
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		566			126			1593			286	
Travel Time (s)		35.6			10.9			24.1			4.3	
Confl. Peds. (#/hr)	10					10						
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.91	0.91	0.91	0.86	0.86	0.86
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	52	3	321	10	10	18	323	1571	5	16	1666	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	321	0	38	0	323	1576	0	16	1666	78
Turn Type	Split		pm+ov	Split			Prot			Prot		pm+ov
Protected Phases	3	3	5	4	4		5	2		1	6	3
Permitted Phases			3									6
Detector Phase	3	3	5	4	4		5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	10.9	7.0
Minimum Split (s)	20.0	20.0	45.0	41.0	41.0		45.0	59.0		15.0	17.0	20.0
Total Split (s)	20.0	20.0	45.0	41.0	41.0	0.0	45.0	94.0	0.0	15.0	64.0	20.0
Total Split (%)	11.8%	11.8%	26.5%	24.1%	24.1%	0.0%	26.5%	55.3%	0.0%	8.8%	37.6%	11.8%
Maximum Green (s)	13.4	13.4	38.3	34.3	34.3		38.3	87.9		8.5	57.9	13.4
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	4.4		3.0	4.6	3.8
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	1.7		3.5	1.5	2.8
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	-1.7	-1.1	0.0	-1.5	-1.1	-1.6
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	6.0		2.0	6.0	1.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	None
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		10.8	38.0		10.3		22.2	127.6		9.4	109.4	121.2
Actuated g/C Ratio		0.06	0.22		0.06		0.13	0.75		0.06	0.64	0.71
v/c Ratio		0.51	0.54		0.41		0.73	0.60		0.16	0.74	0.07
Control Delay		92.7	61.0		89.9		80.9	13.1		60.6	11.0	2.4
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		92.7	61.0		89.9		80.9	13.1		60.6	11.0	2.4
LOS		F	E		F		F	B		E	B	A
Approach Delay		65.6			89.9			24.7			11.1	
Approach LOS		E			F			C			B	
Queue Length 50th (ft)		61	182		42		181	459		17	152	6
Queue Length 95th (ft)		110	223		66		229	625		m31	556	19
Internal Link Dist (ft)		486			46			1513			206	
Turn Bay Length (ft)			400				400			100		150
Base Capacity (vph)		150	876		319		796	2617		103	2246	1152
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.37	0.37		0.12		0.41	0.60		0.16	0.74	0.07

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 26 (15%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 74.4%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø4	 ø3
94 s	15 s	41 s	20 s
 ø5	 ø6		
45 s	64 s		

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	0	1	4	0	103	0	1610	18	59	1632	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	200		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.988			0.870			0.998			0.999	
Flt Protected		0.957			0.998					0.950		
Satd. Flow (prot)	0	1761	0	0	1586	0	1845	3498	0	1752	3501	0
Flt Permitted		0.957			0.998					0.950		
Satd. Flow (perm)	0	1761	0	0	1586	0	1845	3498	0	1752	3501	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			2038			1593	
Travel Time (s)		7.9			3.4			30.9			24.1	
Peak Hour Factor	0.69	0.69	0.69	0.71	0.71	0.71	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	10	0	1	6	0	145	0	1731	19	69	1898	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	151	0	0	1750	0	69	1912	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

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	11	1	12	9	1	41	42	13	1736	24	39	1525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		125		0	175	
Storage Lanes	0		0	0		0		1		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95
Frt		0.932			0.891				0.998			0.999
Flt Protected		0.977			0.991			0.950			0.950	
Satd. Flow (prot)	0	1696	0	0	1645	0	0	1766	3498	0	1752	3501
Flt Permitted		0.977			0.991			0.950			0.950	
Satd. Flow (perm)	0	1696	0	0	1645	0	0	1766	3498	0	1752	3501
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				797			2038
Travel Time (s)		2.8			2.3				12.1			30.9
Peak Hour Factor	0.69	0.69	0.69	0.80	0.80	0.80	0.92	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%
Adj. Flow (vph)	16	1	17	11	1	51	46	14	1908	26	45	1773
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	63	0	0	60	1934	0	45	1779
Sign Control		Stop			Stop				Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 58.8% ICU Level of Service B

Analysis Period (min) 15

Lane Group	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	0.95
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	3%
Adj. Flow (vph)	6
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	936	0	0	342	0	1395	27	0	1346	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	1101	0	0	407	0	1550	30	0	1402	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1101	0	0	407	0	1550	30	0	1402	188
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	101.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.0	0.0
Total Split (%)	0.0%	0.0%	50.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	49.5%	0.0%
Maximum Green (s)			95.9								93.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			1.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			92.2			200.0		200.0	200.0		97.8	200.0
Actuated g/C Ratio			0.46			1.00		1.00	1.00		0.49	1.00
v/c Ratio			0.87			0.26		0.44	0.02		0.82	0.12
Control Delay			57.2			0.4		0.0	0.0		48.6	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.3	0.0
Total Delay			57.2			0.4		0.0	0.0		49.0	0.1
LOS			E			A		A	A		D	A
Approach Delay								0.0			43.2	
Approach LOS								A			D	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			713			0		0	0		852	0
Queue Length 95th (ft)			748			0		m0	m0		954	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1312			1580		3505	1583		1713	1568
Starvation Cap Reductn			0			0		0	0		55	0
Spillback Cap Reductn			0			0		0	0		0	0
Storage Cap Reductn			0			0		0	0		0	0
Reduced v/c Ratio			0.84			0.26		0.44	0.02		0.85	0.12

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 75 (38%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 28.2

Intersection LOS: C

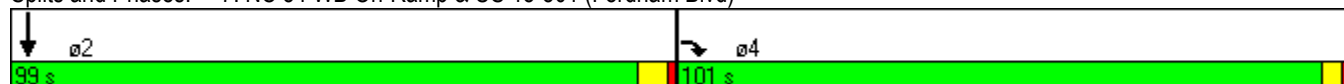
Intersection Capacity Utilization 78.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	72	0	1351	0	0	1963	310	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	80	0	1501	0	0	2181	344	0	13
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	80	0	1501	0	0	2181	344	0	13
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 64.3% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 With Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2
Lane Configurations												
Volume (vph)	11	4	9	85	1	5	11	139	20	49	14	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%				2%			
Storage Length (ft)	0		0	50		0			125	0		
Storage Lanes	0		0	1		0			1	0		
Taper Length (ft)	25		25	25		25			25	25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95
Ped Bike Factor					0.99							
Frt		0.949			0.859				0.911			
Flt Protected		0.978		0.950				0.950	0.980			
Satd. Flow (prot)	0	1729	0	1743	1555	0	0	1664	1564	0	0	0
Flt Permitted		0.840		0.950				0.950	0.980			
Satd. Flow (perm)	0	1485	0	1743	1555	0	0	1664	1564	0	0	0
Right Turn on Red			No				No				No	
Satd. Flow (RTOR)												
Link Speed (mph)		30			35				25			
Link Distance (ft)		305			620				359			
Travel Time (s)		6.9			12.1				9.8			
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.61	0.61	0.61	0.52	0.52	0.52	0.52	0.47	0.47	0.47	0.47	0.96
Adj. Flow (vph)	18	7	15	163	2	10	21	296	43	104	30	2
Shared Lane Traffic (%)								17%				
Lane Group Flow (vph)	0	40	0	163	33	0	0	246	227	0	0	0
Turn Type	Perm			Split				Split				custom
Protected Phases		7		3	3			4	4			
Permitted Phases	7											5
Detector Phase	7	7		3	3			4	4			5
Switch Phase												
Minimum Initial (s)	5.0	5.0		7.0	7.0			5.0	5.0			7.0
Minimum Split (s)	13.0	13.0		36.0	36.0			13.0	13.0			14.0
Total Split (s)	13.0	13.0	0.0	36.0	36.0	0.0	0.0	28.0	28.0	0.0	0.0	53.0
Total Split (%)	6.5%	6.5%	0.0%	18.0%	18.0%	0.0%	0.0%	14.0%	14.0%	0.0%	0.0%	26.5%
Maximum Green (s)	5.8	5.8		29.4	29.4			20.6	20.6			46.0
Yellow Time (s)	3.0	3.0		3.6	3.6			3.0	3.0			3.0
All-Red Time (s)	4.2	4.2		3.0	3.0			4.4	4.4			4.0
Lost Time Adjust (s)	0.0	-2.2	-2.2	-1.6	-1.6	-1.6	-1.6	-2.0	-2.4	-2.4	0.0	0.0
Total Lost Time (s)	7.2	5.0	1.8	5.0	5.0	2.4	2.4	5.4	5.0	1.6	4.0	7.0
Lead/Lag				Lag	Lag			Lead	Lead			Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Recall Mode	None	None		None	None			None	None			None
Walk Time (s)				4.0	4.0							
Flash Dont Walk (s)				25.0	25.0							
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)		10.1		24.3	24.3			22.6	23.0			
Actuated g/C Ratio		0.05		0.12	0.12			0.11	0.12			
v/c Ratio		0.53		0.77	0.17			1.31	1.26			
Control Delay		115.4		107.6	78.7			233.6	218.9			

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

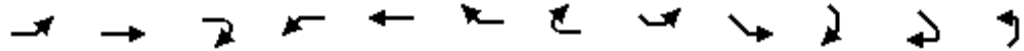
2018 With Site AM Peak
10/18/2013

							
Lane Group	NEL	NET	NER	SWL	SWT	SWR	SWR2
Lane Configurations							
Volume (vph)	98	2421	192	21	1746	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%		
Storage Length (ft)	350		300	150		100	
Storage Lanes	1		1	1		1	
Taper Length (ft)	25		25	25		25	
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor							
Frt			0.850			0.850	
Flt Protected	0.950			0.950			
Satd. Flow (prot)	1770	3725	1583	1770	3725	1583	0
Flt Permitted	0.114			0.950			
Satd. Flow (perm)	212	*3787	1583	1770	*3771	1583	0
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45		
Link Distance (ft)		1485			2107		
Travel Time (s)		22.5			31.9		
Confl. Peds. (#/hr)							
Peak Hour Factor	0.96	0.96	0.96	0.87	0.87	0.87	0.87
Adj. Flow (vph)	102	2522	200	24	2007	3	1
Shared Lane Traffic (%)							
Lane Group Flow (vph)	104	2522	200	24	2007	4	0
Turn Type	Prot		pm+ov	Prot		Perm	
Protected Phases	5	2	3	1	6		
Permitted Phases			2			6	
Detector Phase	5	2	3	1	6	6	
Switch Phase							
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	33.0	36.0	15.0	25.0	25.0	
Total Split (s)	53.0	108.0	36.0	15.0	70.0	70.0	0.0
Total Split (%)	26.5%	54.0%	18.0%	7.5%	35.0%	35.0%	0.0%
Maximum Green (s)	46.0	101.8	29.4	9.1	63.9	63.9	
Yellow Time (s)	3.0	4.6	3.6	3.0	4.4	4.4	
All-Red Time (s)	4.0	1.6	3.0	2.9	1.7	1.7	
Lost Time Adjust (s)	-2.0	-1.2	-1.6	-0.9	-1.1	-1.1	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	C-Max	
Walk Time (s)		7.0	4.0		7.0	7.0	
Flash Dont Walk (s)		16.0	25.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0		0	0	
Act Effct Green (s)	48.0	114.1	139.5	8.7	72.2	72.2	
Actuated g/C Ratio	0.24	0.57	0.70	0.04	0.36	0.36	
v/c Ratio	2.04	1.19	0.18	0.31	1.49	0.01	
Control Delay	516.6	110.3	3.6	108.6	262.4	41.3	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 With Site AM Peak

10/18/2013



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2
Queue Delay		0.0		0.0	0.0			0.0	0.0			
Total Delay		115.4		107.6	78.7			233.6	218.9			
LOS		F		F	E			F	F			
Approach Delay		115.4			102.8				226.5			
Approach LOS		F			F				F			
Queue Length 50th (ft)		52		212	40			~435	~392			
Queue Length 95th (ft)		68		160	44			232	216			
Internal Link Dist (ft)		225			540				279			
Turn Bay Length (ft)				50				125	125			
Base Capacity (vph)		75		270	241			188	180			
Starvation Cap Reductn		0		0	0			0	0			
Spillback Cap Reductn		0		0	0			0	0			
Storage Cap Reductn		0		0	0			0	0			
Reduced v/c Ratio		0.53		0.60	0.14			1.31	1.26			

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 147 (74%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 2.04

Intersection Signal Delay: 178.5

Intersection LOS: F

Intersection Capacity Utilization 105.2%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

ø1	ø2	ø4	ø3	
15 s	108 s	28 s	36 s	13 s
ø6	ø5			
70 s	53 s			

Lanes, Volumes, Timings
 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
 10/18/2013



Lane Group	NEL	NET	NER	SWL	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	516.6	110.3	3.6	108.6	262.4	41.3	
LOS	F	F	A	F	F	D	
Approach Delay		117.7			260.2		
Approach LOS		F			F		
Queue Length 50th (ft)	~214	~2076	46	31	~1885	3	
Queue Length 95th (ft)	m#229	m#2077	m55	m38	#1927	m4	
Internal Link Dist (ft)		1405			2027		
Turn Bay Length (ft)	350		300	150		100	
Base Capacity (vph)	51	2125	1134	89	1345	571	
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	2.04	1.19	0.18	0.27	1.49	0.01	
Intersection Summary							

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	270	0	36	16	6	42	204	2329	2	6	1214	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	400		0	200		0
Storage Lanes	0		1	0		1	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.99		0.99							
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.965		0.950			0.950		
Satd. Flow (prot)	3434	1863	1584	0	1602	1568	3519	3628	0	1719	3438	1538
Flt Permitted	0.950				0.965		0.950			0.950		
Satd. Flow (perm)	*3819	1863	1564	0	1594	1568	3519	*3811	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			1485	
Travel Time (s)		7.4			14.0			8.8			22.5	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.88	0.88	0.88	0.68	0.68	0.68	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	307	0	41	24	9	62	217	2478	2	6	1278	776
Shared Lane Traffic (%)												
Lane Group Flow (vph)	307	0	41	0	33	62	217	2480	0	6	1278	776
Turn Type	Split		Free	Split		pm+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	1	5	2		1	6	4
Permitted Phases			Free			3						6
Detector Phase	4	4		3	3	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	32.0	32.0		14.0	14.0	14.0	14.0	19.0		14.0	19.0	32.0
Total Split (s)	33.0	33.0	0.0	14.0	14.0	14.0	24.0	139.0	0.0	14.0	129.0	33.0
Total Split (%)	16.5%	16.5%	0.0%	7.0%	7.0%	7.0%	12.0%	69.5%	0.0%	7.0%	64.5%	16.5%
Maximum Green (s)	26.8	26.8		7.8	7.8	7.8	17.8	132.9		7.8	122.7	26.8
Yellow Time (s)	3.8	3.8		3.8	3.8	3.0	3.0	4.7		3.0	4.5	3.8
All-Red Time (s)	2.4	2.4		2.4	2.4	3.2	3.2	1.4		3.2	1.8	2.4
Lost Time Adjust (s)	-1.2	-1.2	0.0	-2.5	-1.2	-1.2	-1.2	-1.1	0.0	-1.2	-1.3	-1.2
Total Lost Time (s)	5.0	5.0	4.0	3.7	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0	1.0	1.0	6.0		1.0	6.0	1.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)	7.0	7.0										7.0
Flash Dont Walk (s)	18.0	18.0										18.0
Pedestrian Calls (#/hr)	0	0										0
Act Effect Green (s)	31.0		200.0		8.6	20.0	16.5	134.0		9.0	126.5	158.5
Actuated g/C Ratio	0.16		1.00		0.04	0.10	0.08	0.67		0.04	0.63	0.79

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.58		0.03		0.48	0.39	0.75	1.02		0.08	0.59	0.64
Control Delay	84.2		0.0		115.8	90.6	105.5	55.8		55.5	3.5	12.2
Queue Delay	0.0		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	84.2		0.0		115.8	90.6	105.5	55.8		55.5	3.5	12.2
LOS	F		A		F	F	F	E		E	A	B
Approach Delay					99.3			59.8			6.9	
Approach LOS					F			E			A	
Queue Length 50th (ft)	200		0		43	77	146	~1812		8	85	233
Queue Length 95th (ft)	252		0		66	100	196	#1905		m7	m50	m39
Internal Link Dist (ft)		302			435			504			1405	
Turn Bay Length (ft)			225			75	400			200		
Base Capacity (vph)	532		1564		72	157	334	2431		77	2174	1219
Starvation Cap Reductn	0		0		0	0	0	0		0	0	0
Spillback Cap Reductn	0		0		0	0	0	0		0	0	0
Storage Cap Reductn	0		0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.58		0.03		0.46	0.39	0.65	1.02		0.08	0.59	0.64

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 118 (59%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 40.5

Intersection LOS: D

Intersection Capacity Utilization 97.8%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 Ø2	 Ø1	 Ø3	 Ø4
139 s	14 s	14 s	33 s
 Ø5	 Ø6		
24 s	129 s		

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	178	32	508	391	471	32	57	103	368	139	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00		0.96		1.00	0.98	1.00	1.00	
Frt		0.977				0.850			0.850		0.993	
Flt Protected	0.950			0.950				0.982		0.950	0.979	
Satd. Flow (prot)	1517	3049	0	1752	1845	1672	0	1883	1482	1625	1948	0
Flt Permitted	0.512			0.462				0.982		0.950	0.979	
Satd. Flow (perm)	808	3049	0	848	1845	1613	0	1879	1456	1620	1945	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	7		3	3		7	6		3	3		6
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.79	0.79	0.79	0.88	0.88	0.88
Heavy Vehicles (%)	15%	15%	15%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	12	202	36	558	430	518	41	72	130	418	158	14
Shared Lane Traffic (%)										30%		
Lane Group Flow (vph)	12	238	0	558	430	518	0	113	130	293	297	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	33.0	33.0	0.0	35.0	68.0	37.0	25.0	25.0	35.0	37.0	37.0	0.0
Total Split (%)	25.4%	25.4%	0.0%	26.9%	52.3%	28.5%	19.2%	19.2%	26.9%	28.5%	28.5%	0.0%
Maximum Green (s)	25.7	25.7		28.2	60.7	30.3	18.3	18.3	28.2	30.3	30.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	28.0	28.0		63.0	63.0	92.5		22.5	52.5	29.5	29.5	
Actuated g/C Ratio	0.22	0.22		0.48	0.48	0.71		0.17	0.40	0.23	0.23	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.07	0.36		0.90	0.48	0.45		0.35	0.22	0.79	0.67	
Control Delay	42.1	45.3		45.6	24.8	7.3		52.1	24.4	63.4	53.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.1	45.3		45.6	24.8	7.3		52.1	24.4	63.4	53.6	
LOS	D	D		D	C	A		D	C	E	D	
Approach Delay		45.1			26.5			37.3			58.5	
Approach LOS		D			C			D			E	
Queue Length 50th (ft)	8	90		347	238	125		87	68	240	235	
Queue Length 95th (ft)	26	128		#568	331	175		128	99	343	329	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	174	657		620	894	1193		326	594	400	480	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.07	0.36		0.90	0.48	0.43		0.35	0.22	0.73	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 36.6

Intersection LOS: D

Intersection Capacity Utilization 92.9%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
35 s	33 s	37 s	25 s
 ø6			
68 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	0	692	12	0	1261	936	0	0	319	0	0	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	752	13	0	1371	1017	0	0	347	0	0	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	752	13	0	1371	1017	0	0	347	0	0	196
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

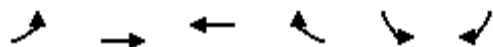
Control Type: Unsignalized

Intersection Capacity Utilization 61.3% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2018 With Site AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	1016	2145	342	0	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.979			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	4979	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	4979	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1129	2494	398	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1129	2892	0	0	32
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

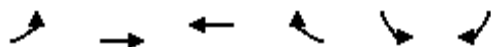
Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
14: NC 54 (Raleigh Road) & Glen Lennox Dr #1

2018 With Site AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	10	2125	2496	28	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.998			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1752	5036	4978	0	0	1596
Flt Permitted	0.950					
Satd. Flow (perm)	1752	5036	4978	0	0	1596
Link Speed (mph)		45	45		30	
Link Distance (ft)		164	247		247	
Travel Time (s)		2.5	3.7		5.6	
Confl. Peds. (#/hr)	1			1		2
Peak Hour Factor	0.90	0.90	0.87	0.87	1.00	0.78
Heavy Vehicles (%)	3%	3%	4%	4%	3%	3%
Adj. Flow (vph)	11	2361	2869	32	0	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	2361	2901	0	0	46
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 59.5%

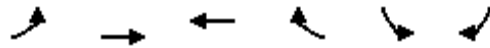
ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2018 With Site AM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↵			↵
Volume (vph)	0	2125	2515	9	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5080	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5080	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		247	359		229	
Travel Time (s)		3.7	5.4		6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2310	2734	10	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2310	2744	0	0	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 58.8%				ICU Level of Service B		
Analysis Period (min) 15						

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 With Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	1810	189	63	2235	67	184	32	101	85	26	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	250		0	150		150	250		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99		0.98	0.99	0.98	
Frt		0.986			0.996				0.850		0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	4946	0	1736	4960	0	1736	1827	1553	1719	1575	0
Flt Permitted	0.060			0.060			0.645			0.725		
Satd. Flow (perm)	111	4946	0	110	4960	0	1162	1827	1523	1303	1575	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		359			576			537			463	
Travel Time (s)		5.4			8.7			14.6			12.6	
Confl. Peds. (#/hr)	9		6	6		9	13		6	6		13
Peak Hour Factor	0.88	0.88	0.88	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86	0.86
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%	5%
Adj. Flow (vph)	70	2057	215	71	2511	75	283	49	155	99	30	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	2272	0	71	2586	0	283	49	155	99	115	0
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	27.0		13.0	26.0		41.0	41.0	13.0	39.0	39.0	
Total Split (s)	13.0	78.0	0.0	19.0	84.0	0.0	43.0	43.0	19.0	43.0	43.0	0.0
Total Split (%)	9.3%	55.7%	0.0%	13.6%	60.0%	0.0%	30.7%	30.7%	13.6%	30.7%	30.7%	0.0%
Maximum Green (s)	7.4	72.4		13.6	78.1		36.6	36.6	13.6	36.5	36.5	
Yellow Time (s)	3.0	3.8		3.0	4.1		3.1	3.1	3.0	3.2	3.2	
All-Red Time (s)	2.6	1.8		2.4	1.8		3.3	3.3	2.4	3.3	3.3	
Lost Time Adjust (s)	-0.6	-0.6	0.0	-0.4	-0.9	0.0	-1.4	-1.4	-0.4	-1.5	-1.5	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	2.0		2.0	2.0		3.0	3.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			13.0		27.0	27.0		25.0	25.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	74.4	74.4		83.0	83.0		36.6	36.6	50.6	36.6	36.6	
Actuated g/C Ratio	0.53	0.53		0.59	0.59		0.26	0.26	0.36	0.26	0.26	
v/c Ratio	0.46	0.86		0.31	0.88		0.93	0.10	0.28	0.29	0.28	
Control Delay	28.3	33.2		21.2	12.1		87.3	39.1	29.6	43.4	42.8	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 With Site AM Peak
10/18/2013

												
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	
Total Delay	28.3	33.2		21.2	12.1		87.3	39.1	29.6	43.4	42.8	
LOS	C	C		C	B		F	D	C	D	D	
Approach Delay		33.1			12.3			64.1			43.1	
Approach LOS		C			B			E			D	
Queue Length 50th (ft)	31	652		9	122		249	34	92	71	83	
Queue Length 95th (ft)	62	694		m26	230		240	49	101	119	131	
Internal Link Dist (ft)		279			496			457			383	
Turn Bay Length (ft)	275			250			150		150	250		
Base Capacity (vph)	153	2628		228	2941		315	496	554	354	428	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.46	0.86		0.31	0.88		0.90	0.10	0.28	0.28	0.27	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 16 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 26.4

Intersection LOS: C

Intersection Capacity Utilization 79.6%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

 ø2	 ø1	 ø4
78 s	19 s	43 s
 ø5	 ø6	 ø8
13 s	84 s	43 s

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

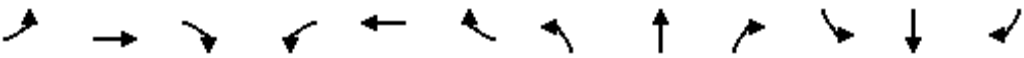
2018 With Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	1949	39	98	2281	15	16	4	180	32	7	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99	0.99		0.99	
Frt		0.997			0.999				0.850		0.941	
Flt Protected	0.950			0.950				0.962			0.977	
Satd. Flow (prot)	1770	5066	0	1736	4981	0	0	1775	1568	0	1696	0
Flt Permitted	0.043			0.052				0.785			0.856	
Satd. Flow (perm)	80	5066	0	95	4981	0	0	1439	1548	0	1486	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	6		8	8		6	9		1	1		9
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	26	2073	41	109	2534	17	20	5	222	42	9	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	2114	0	109	2551	0	0	25	222	0	91	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	75.0	0.0	17.0	79.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	9.3%	53.6%	0.0%	12.1%	56.4%	0.0%	34.3%	34.3%	34.3%	34.3%	34.3%	0.0%
Maximum Green (s)	7.1	68.8		11.1	72.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	0.0	-0.9	-1.2	0.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	101.1	88.5		99.1	96.3			25.9	25.9		25.9	
Actuated g/C Ratio	0.72	0.63		0.71	0.69			0.18	0.18		0.18	
v/c Ratio	0.17	0.66		0.57	0.74			0.09	0.78		0.33	
Control Delay	6.5	4.9		50.9	4.4			44.9	71.7		51.0	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2018 With Site AM Peak
10/18/2013

												
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	
Total Delay	6.5	4.9		50.9	4.4			44.9	71.7		51.0	
LOS	A	A		D	A			D	E		D	
Approach Delay		4.9			6.3			69.0			51.0	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	2	83		47	112			19	195		73	
Queue Length 95th (ft)	m4	104		m82	m101			39	236		100	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	154	3204		217	3426			442	475		456	
Starvation Cap Reductn	0	0		0	33			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.17	0.66		0.50	0.75			0.06	0.47		0.20	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 33 (24%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 9.5

Intersection LOS: A

Intersection Capacity Utilization 79.4%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	208	1874	128	119	2317	26	26	0	5	10	13	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95			0.97						
Frt			0.850			0.850		0.850			0.864	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1724	5036	1568	1736	4988	1553	1770	1583	0	1736	1578	0
Flt Permitted	0.040			0.074			0.342			0.753		
Satd. Flow (perm)	73	5036	1485	135	4988	1510	637	1583	0	1376	1578	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	8		10	10		8						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.73	0.73	0.73	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	224	2015	138	128	2491	28	36	0	7	11	14	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	224	2015	138	128	2491	28	36	7	0	11	147	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	28.0	28.0	14.0	19.0	19.0	14.0	14.0		15.0	15.0	
Total Split (s)	18.0	106.0	106.0	16.0	77.0	77.0	18.0	18.0	0.0	18.0	18.0	0.0
Total Split (%)	12.9%	75.7%	75.7%	11.4%	55.0%	55.0%	12.9%	12.9%	0.0%	12.9%	12.9%	0.0%
Maximum Green (s)	11.7	99.7	99.7	9.7	70.7	70.7	11.2	11.2		10.7	10.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	-1.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)	112.0	102.9	102.9	112.0	99.0	99.0	13.0	13.0		13.0	13.0	
Actuated g/C Ratio	0.80	0.74	0.74	0.80	0.71	0.71	0.09	0.09		0.09	0.09	
v/c Ratio	1.06	0.54	0.13	0.60	0.71	0.03	0.61	0.05		0.09	1.00	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	19%
Maximum Green (s)	23.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	108.4	7.4	6.0	36.9	12.1	2.3	101.1	58.8		59.9	136.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	108.4	7.4	6.0	36.9	12.1	2.3	101.1	58.8		59.9	136.7	
LOS	F	A	A	D	B	A	F	E		E	F	
Approach Delay	16.9			13.2			94.2			131.3		
Approach LOS	B			B			F			F		
Queue Length 50th (ft)	~176	184	27	38	673	4	32	6		9	~137	
Queue Length 95th (ft)	#349	246	m56	m64	600	m5	#63	18		30	#283	
Internal Link Dist (ft)	767			1857			371			455		
Turn Bay Length (ft)	350			150			100					
Base Capacity (vph)	212	3701	1091	235	3527	1068	59	147		128	147	
Starvation Cap Reductn	0	215	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	4	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.06	0.58	0.13	0.54	0.71	0.03	0.61	0.05		0.09	1.00	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 24 (17%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 19.1

Intersection LOS: B

Intersection Capacity Utilization 87.3%

ICU Level of Service E

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
16 s	106 s	18 s
 ø5	 ø10	 ø6
18 s	27 s	77 s
		 ø8
		18 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 With Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	1607	174	673	2273	154	79	16	55	58	26	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor			0.98	1.00				1.00		1.00		
Frt			0.850			0.850		0.975	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.975		0.950		
Satd. Flow (prot)	3434	5086	1584	3383	5011	1560	1427	1364	1276	3451	1872	1591
Flt Permitted	0.950			0.950			0.950	0.975		0.950		
Satd. Flow (perm)	3434	5086	1548	3378	5011	1560	1427	1364	1276	3441	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)			7	7					1	1		
Peak Hour Factor	0.86	0.86	0.86	0.94	0.94	0.94	0.78	0.78	0.78	0.79	0.79	0.79
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	19%	19%	19%	3%	3%	3%
Adj. Flow (vph)	134	1869	202	716	2418	164	101	21	71	73	33	146
Shared Lane Traffic (%)							34%		16%			
Lane Group Flow (vph)	134	1869	202	716	2418	164	67	66	60	73	33	146
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	64.0	18.0	40.0	88.0	18.0	18.0	18.0	58.0	18.0	18.0	34.0
Total Split (%)	11.4%	45.7%	12.9%	28.6%	62.9%	12.9%	12.9%	12.9%	41.4%	12.9%	12.9%	24.3%
Maximum Green (s)	8.8	57.4	10.9	32.9	81.5	10.7	10.9	10.9		10.7	10.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	0.0	-2.3	-2.3	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.1	5.0	5.0	7.3
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	10.4	60.1	72.5	35.0	84.7	102.2	12.4	12.4	43.2	12.5	12.5	18.3
Actuated g/C Ratio	0.07	0.43	0.52	0.25	0.60	0.73	0.09	0.09	0.31	0.09	0.09	0.13
v/c Ratio	0.53	0.86	0.25	0.85	0.80	0.14	0.53	0.55	0.15	0.24	0.20	0.71

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	72.9	31.1	10.4	37.5	7.7	3.0	76.5	78.2	22.6	61.1	61.8	60.0
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	72.9	31.1	10.4	37.5	7.7	3.0	76.5	78.2	22.6	61.1	61.8	60.0
LOS	E	C	B	D	A	A	E	E	C	E	E	E
Approach Delay	31.8			13.9			60.3			60.6		
Approach LOS	C			B			E			E		
Queue Length 50th (ft)	57	597	63	321	226	25	62	63	30	32	28	100
Queue Length 95th (ft)	87	648	92	m299	m243	m27	100	105	50	51	56	138
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	270	2185	812	846	3033	1145	133	127	399	320	174	220
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	0.50	0.86	0.25	0.85	0.80	0.14	0.50	0.52	0.15	0.23	0.19	0.66

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 93 (66%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 24.0

Intersection LOS: C

Intersection Capacity Utilization 72.7%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

			
ø2	ø1	ø3	ø4
64 s	40 s	18 s	18 s
			
ø5	ø6		
16 s	88 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	9	1556	139	32	2393	188	656	100	66	147	28	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.976			0.977	
Flt Protected	0.950			0.950			0.950	0.971		0.950	0.973	
Satd. Flow (prot)	1761	4448	1575	1761	5061	1576	1656	1652	0	1664	1665	0
Flt Permitted	0.059			0.065			0.950	0.971		0.950	0.973	
Satd. Flow (perm)	109	4448	1527	121	5061	1576	1656	1652	0	1664	1665	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	10	1673	149	34	2519	198	691	105	69	177	34	17
Shared Lane Traffic (%)							37%			35%		
Lane Group Flow (vph)	10	1673	149	34	2519	198	435	430	0	115	113	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	66.0	38.0	16.0	66.0	20.0	38.0	38.0	0.0	20.0	20.0	0.0
Total Split (%)	11.4%	47.1%	27.1%	11.4%	47.1%	14.3%	27.1%	27.1%	0.0%	14.3%	14.3%	0.0%
Maximum Green (s)	9.2	58.5	30.8	9.0	58.5	12.8	30.8	30.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	76.0	67.4	101.5	74.0	74.2	93.1	34.1	34.1		13.9	13.9	
Actuated g/C Ratio	0.54	0.48	0.72	0.53	0.53	0.66	0.24	0.24		0.10	0.10	
v/c Ratio	0.06	0.78	0.13	0.19	0.94	0.19	1.08	1.07		0.70	0.68	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.1	5.3	1.1	28.7	38.9	10.1	116.6	114.0		82.9	81.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	2.1	5.3	1.1	28.7	38.9	10.1	116.6	114.0		82.9	81.9	
LOS	A	A	A	C	D	B	F	F		F	F	
Approach Delay	5.0			36.7			115.3			82.4		
Approach LOS	A			D			F			F		
Queue Length 50th (ft)	0	47	3	14	728	58	~476	~468		107	105	
Queue Length 95th (ft)	m1	76	m10	31	#1039	122	#702	#692		163	162	
Internal Link Dist (ft)	929			334			420			673		
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	190	2141	1119	193	2684	1061	403	402		178	178	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	0.78	0.13	0.18	0.94	0.19	1.08	1.07		0.65	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 104 (74%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 40.3

Intersection LOS: D

Intersection Capacity Utilization 87.4%

ICU Level of Service E

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

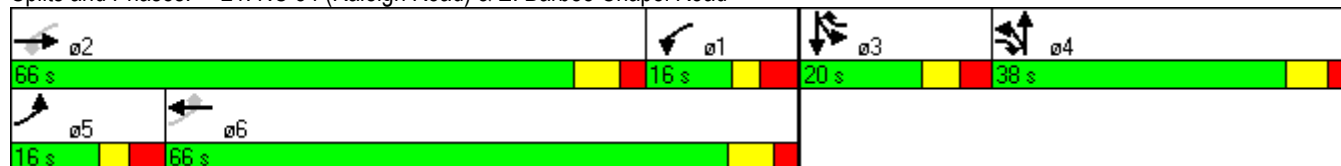
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road



Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

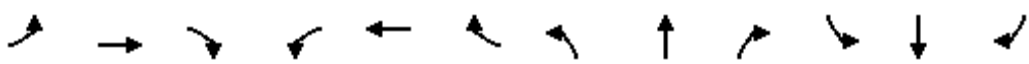
2018 With Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	381	375	61	145	244	87	51	427	97	77	611	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00		0.98	0.99	1.00		1.00	0.99	
Frt		0.979				0.850		0.972			0.956	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1577	1802	0	1719	1810	1538	1703	3300	0	1703	3210	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1572	1802	0	1714	1810	1513	1690	3300	0	1699	3210	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	3		4	4		3	7		4	4		7
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Parking (#/hr)	0											
Adj. Flow (vph)	414	408	66	156	262	94	54	454	103	83	657	273
Shared Lane Traffic (%)												
Lane Group Flow (vph)	414	474	0	156	262	94	54	557	0	83	930	0
Turn Type	Prot			Prot		pm+ov	Prot			Prot		
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	
Total Split (s)	40.0	51.0	0.0	20.0	31.0	18.0	15.0	41.0	0.0	18.0	44.0	0.0
Total Split (%)	30.8%	39.2%	0.0%	15.4%	23.8%	13.8%	11.5%	31.5%	0.0%	13.8%	33.8%	0.0%
Maximum Green (s)	34.1	45.1		14.4	25.4	12.1	8.8	35.3		12.1	38.6	
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	36.6	44.9		14.2	22.5	33.6	9.0	39.8		11.0	44.5	
Actuated g/C Ratio	0.28	0.35		0.11	0.17	0.26	0.07	0.31		0.08	0.34	
v/c Ratio	0.93	0.76		0.83	0.84	0.24	0.46	0.55		0.58	0.85	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	74.6	46.8		86.7	67.8	16.6	70.7	41.1		72.6	49.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	74.6	46.8		86.7	67.8	16.6	70.7	41.1		72.6	49.5	
LOS	E	D		F	E	B	E	D		E	D	
Approach Delay		59.8			64.2			43.7			51.4	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	339	348		122	225	28	45	212		68	400	
Queue Length 95th (ft)	#558	483		m#228	m270	m52	89	277		123	#546	
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	200											
Base Capacity (vph)	444	638		198	362	416	131	1011		170	1099	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.93	0.74		0.79	0.72	0.23	0.41	0.55		0.49	0.85	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 88 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 54.5

Intersection LOS: D

Intersection Capacity Utilization 83.0%

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.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
18 s	41 s	20 s	51 s
 ø5	 ø6	 ø8	 ø7
15 s	44 s	31 s	40 s

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	173	272	6	5	297	44	14	3	7	29	3	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			1.00	0.99
Frt		0.997			0.981			0.960				0.850
Flt Protected	0.950			0.950				0.972			0.957	
Satd. Flow (prot)	1719	3426	0	1752	3426	0	0	1729	0	0	1732	1538
Flt Permitted	0.460			0.560				0.829			0.997	
Satd. Flow (perm)	829	3426	0	1028	3426	0	0	1474	0	0	1796	1519
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	4		4	4		4	1		6	6		1
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.60	0.60	0.60	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	197	309	7	6	330	49	23	5	12	34	4	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	316	0	6	379	0	0	40	0	0	38	264
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	13.0	36.0	0.0	23.0	23.0	0.0	29.0	29.0	0.0	29.0	29.0	13.0
Total Split (%)	20.0%	55.4%	0.0%	35.4%	35.4%	0.0%	44.6%	44.6%	0.0%	44.6%	44.6%	20.0%
Maximum Green (s)	7.9	30.9		17.8	17.8		23.3	23.3		23.2	23.2	7.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	54.7	57.7		37.7	37.7			7.9			8.0	15.3
Actuated g/C Ratio	0.84	0.89		0.58	0.58			0.12			0.12	0.24
v/c Ratio	0.23	0.10		0.01	0.19			0.22			0.17	0.73
Control Delay	1.4	0.9		9.8	8.5			29.0			27.5	32.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	1.4	0.9		9.8	8.5			29.0			27.5	32.9
LOS	A	A		A	A			C			C	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		1.1			8.5			29.0			32.2	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	1	0		1	30			15			14	97
Queue Length 95th (ft)	m34	25		7	77			26			36	115
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	862	3042		597	1988			544			663	360
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.23	0.10		0.01	0.19			0.07			0.06	0.73

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 11.9

Intersection LOS: B

Intersection Capacity Utilization 48.9%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2018 With Site AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	70	4	2	100	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1814	0	0	1825	1770	0
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1814	0	0	1825	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.82	0.82	0.77	0.77	0.45	0.45
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	85	5	3	130	20	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	133	20	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	16.9%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2018 With Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	61	5	1	42	1	13	1	0	0	2	0
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			0.998							
Flt Protected		0.999			0.999			0.957				
Satd. Flow (prot)	0	1773	0	0	1857	0	0	1783	0	0	1863	0
Flt Permitted		0.999			0.999			0.957				
Satd. Flow (perm)	0	1773	0	0	1857	0	0	1783	0	0	1863	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.83	0.83	0.83	0.79	0.79	0.79	0.65	0.65	0.65	0.50	0.50	0.50
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	73	6	1	53	1	20	2	0	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	55	0	0	22	0	0	4	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.1%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
10/18/2013

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	82	1582	112	66	1479
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	300	
Storage Lanes	0	2		1	2	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.97	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	0	2787	3539	1583	3433	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	2787	3539	1583	3433	3539
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	449		664			797
Travel Time (s)	10.2		10.1			12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	91	1758	124	73	1643
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	91	1758	124	73	1643
Turn Type		Over		Perm	Prot	
Protected Phases		1	2		1	6
Permitted Phases				2		
Detector Phase		1	2	2	1	6
Switch Phase						
Minimum Initial (s)		7.0	12.0	12.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	26.0	174.0	174.0	26.0	200.0
Total Split (%)	0.0%	13.0%	87.0%	87.0%	13.0%	100.0%
Maximum Green (s)		19.0	167.0	167.0	19.0	193.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	C-Max
Act Effect Green (s)		21.0	169.0	169.0	21.0	200.0
Actuated g/C Ratio		0.10	0.84	0.84	0.10	1.00
v/c Ratio		0.31	0.59	0.09	0.20	0.46
Control Delay		86.0	1.6	0.8	83.1	0.4
Queue Delay		0.0	0.0	0.0	0.0	0.0
Total Delay		86.0	1.6	0.8	83.1	0.4
LOS		F	A	A	F	A
Approach Delay			1.5			4.0
Approach LOS			A			A
Queue Length 50th (ft)		64	47	6	45	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 With Site AM Peak
 10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 95th (ft)		102	50	8	76	0
Internal Link Dist (ft)	369		584			717
Turn Bay Length (ft)					300	
Base Capacity (vph)		293	2990	1338	360	3539
Starvation Cap Reductn		0	26	0	0	0
Spillback Cap Reductn		0	0	0	0	54
Storage Cap Reductn		0	0	0	0	0
Reduced v/c Ratio		0.31	0.59	0.09	0.20	0.47

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 181 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 4.7

Intersection LOS: A

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
174 s	26 s
 ø6	
200 s	



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	1975	1351	1197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	665		536		2107	
Travel Time (s)	15.1		8.1		31.9	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	1975	1501	1330
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1975	1501	1330
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 77.5% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
61: NC 54 EB Off Ramp &

2018 With Site AM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1197	0	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			665	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1330	0	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1330	0	80
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 66.3%	ICU Level of Service C					
Analysis Period (min) 15						

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

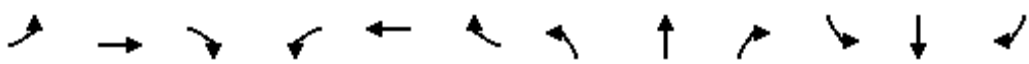
2018 With Site AM Peak

10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	944	72	0	2487	0	1197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	5085	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			164	476	
Travel Time (s)	1.4			2.5	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1124	86	0	2763	0	1234
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1124	86	0	2763	0	1234
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	106.9%			ICU Level of Service G		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	110	73	311	116	48	163	1050	232	52	953	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	175		0	375		325	225		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.99				1.00							
Frt		0.940			0.970				0.850		0.997	
Flt Protected	0.950			0.950	0.985		0.950			0.950		
Satd. Flow (prot)	1702	1684	0	1601	1659	0	1744	3487	1508	1686	3478	0
Flt Permitted	0.950			0.950	0.985		0.950			0.950		
Satd. Flow (perm)	1693	1684	0	1601	1659	0	1744	3487	1508	1686	3478	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	102	126	84	346	129	53	177	1141	252	55	1014	23
Shared Lane Traffic (%)				24%								
Lane Group Flow (vph)	102	210	0	263	265	0	177	1141	252	55	1037	0
Turn Type	Split			Split			Prot		Free	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases									Free			
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		18.0	68.0	
Total Split (s)	35.0	35.0	0.0	44.0	44.0	0.0	30.0	83.0	0.0	18.0	71.0	0.0
Total Split (%)	19.4%	19.4%	0.0%	24.4%	24.4%	0.0%	16.7%	46.1%	0.0%	10.0%	39.4%	0.0%
Maximum Green (s)	28.7	28.7		38.2	38.2		23.8	77.2		11.7	65.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.0	3.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	27.3	27.3		34.2	34.2		25.0	89.6	180.0	11.5	73.5	
Actuated g/C Ratio	0.15	0.15		0.19	0.19		0.14	0.50	1.00	0.06	0.41	
v/c Ratio	0.39	0.82		0.87	0.84		0.73	0.66	0.17	0.51	0.73	
Control Delay	72.9	98.3		96.4	92.8		75.4	24.1	0.2	97.5	50.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	72.9	98.3		96.4	92.8		75.4	24.1	0.2	97.5	50.1	
LOS	E	F		F	F		E	C	A	F	D	
Approach Delay		90.0			94.6			26.1			52.5	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	109	241		317	318		211	464	0	64	564	
Queue Length 95th (ft)	168	330		432	432		m#306	461	m0	118	675	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			175			375		325	225		
Base Capacity (vph)	284	281		347	359		242	1736	1508	122	1419	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.36	0.75		0.76	0.74		0.73	0.66	0.17	0.45	0.73	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 68 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 160

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 50.3

Intersection LOS: D

Intersection Capacity Utilization 77.3%

ICU Level of Service D

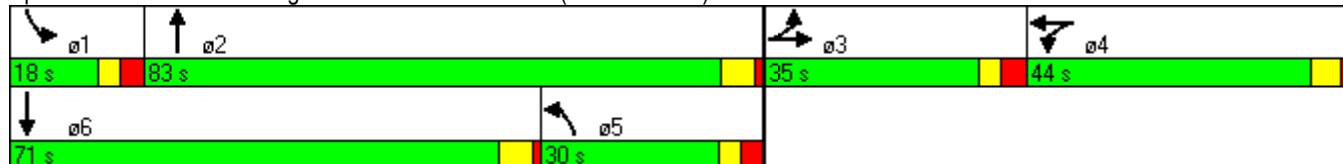
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	148	290	257	1302	11	1239	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12
Storage Length (ft)	175	0	250		125		125
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25	25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1770	1531	1752	3505	1811	3505	1568
Flt Permitted	0.950		0.159		0.148		
Satd. Flow (perm)	1770	1531	293	3505	282	3505	1568
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			45		45	
Link Distance (ft)	423			800		1344	
Travel Time (s)	8.2			12.1		20.4	
Peak Hour Factor	0.81	0.81	0.95	0.95	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%	3%
Adj. Flow (vph)	183	358	271	1371	11	1291	212
Shared Lane Traffic (%)							
Lane Group Flow (vph)	183	358	271	1371	11	1291	212
Turn Type		pm+ov	pm+pt		pm+pt		pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases		4	2		6		6
Detector Phase	4	5	5	2	1	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	20.0	30.0	30.0	134.0	15.0	119.0	20.0
Total Split (s)	29.0	32.0	32.0	136.0	15.0	119.0	29.0
Total Split (%)	16.1%	17.8%	17.8%	75.6%	8.3%	66.1%	16.1%
Maximum Green (s)	23.4	26.1	26.1	130.1	9.7	113.1	23.4
Yellow Time (s)	3.0	3.0	3.0	4.5	3.0	4.5	3.0
All-Red Time (s)	2.6	2.9	2.9	1.4	2.3	1.4	2.6
Lost Time Adjust (s)	-0.6	-0.9	-0.9	-0.9	-0.3	-0.9	-0.6
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	4.0	1.0	1.0	2.0	1.0	2.0	4.0
Recall Mode	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	22.5	54.5	142.6	142.6	115.5	115.5	143.0
Actuated g/C Ratio	0.12	0.30	0.79	0.79	0.64	0.64	0.79
v/c Ratio	0.83	0.77	0.60	0.49	0.05	0.57	0.17
Control Delay	105.0	69.5	31.4	3.3	5.3	10.6	1.4
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	105.0	69.5	31.4	3.5	5.3	10.6	1.4
LOS	F	E	C	A	A	B	A
Approach Delay	81.5			8.1		9.3	

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Approach LOS	F			A		A	
Queue Length 50th (ft)	213	383	93	44	3	258	17
Queue Length 95th (ft)	274	448	m193	121	m4	281	m20
Internal Link Dist (ft)	343			720		1264	
Turn Bay Length (ft)	175		250		125		125
Base Capacity (vph)	236	463	451	2777	266	2250	1240
Starvation Cap Reductn	0	0	0	634	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.77	0.60	0.64	0.04	0.57	0.17

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 65 (36%), Referenced to phase 2:NBT and 6:SBTU, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 69.2%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	254	56	38	30	52	15	60	1314	28	31	1277	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.97
Frt		0.940			0.966			0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1744	0	1761	1790	0	1744	3477	0	1744	3489	1561
Flt Permitted	0.403			0.685			0.153			0.098		
Satd. Flow (perm)	754	1744	0	1258	1790	0	281	3477	0	180	3489	1520
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			5	5			1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.93	0.93	0.93	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	302	67	45	38	66	19	65	1413	30	32	1316	310
Shared Lane Traffic (%)												
Lane Group Flow (vph)	302	112	0	38	85	0	65	1443	0	32	1316	310
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	20.0	32.4		30.0	30.0		15.0	104.0		15.0	104.0	104.0
Total Split (s)	30.0	60.0	0.0	30.0	30.0	0.0	15.0	105.0	0.0	15.0	105.0	105.0
Total Split (%)	16.7%	33.3%	0.0%	16.7%	16.7%	0.0%	8.3%	58.3%	0.0%	8.3%	58.3%	58.3%
Maximum Green (s)	23.7	53.6		23.6	23.6		9.0	98.9		9.4	98.9	98.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.0	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.0	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	44.4	44.4		14.4	14.4		115.4	115.4		110.6	110.6	110.6
Actuated g/C Ratio	0.25	0.25		0.08	0.08		0.64	0.64		0.61	0.61	0.61
v/c Ratio	0.92	0.26		0.38	0.59		0.25	0.65		0.18	0.61	0.33

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	94.5	55.5		87.7	96.1		13.2	14.5		6.7	7.2	6.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.2	0.0
Total Delay	94.5	55.5		87.7	96.1		13.2	14.5		6.7	7.4	6.2
LOS	F	E		F	F		B	B		A	A	A
Approach Delay		84.0			93.5			14.4			7.2	
Approach LOS		F			F			B			A	
Queue Length 50th (ft)	328	108		43	99		19	245		6	197	71
Queue Length 95th (ft)	#407	152		75	139		m34	266		m11	218	100
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	328	533		175	249		262	2230		197	2144	934
Starvation Cap Reductn	0	0		0	0		0	0		0	198	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.92	0.21		0.22	0.34		0.25	0.65		0.16	0.68	0.33

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 55 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 76.4%

ICU Level of Service D

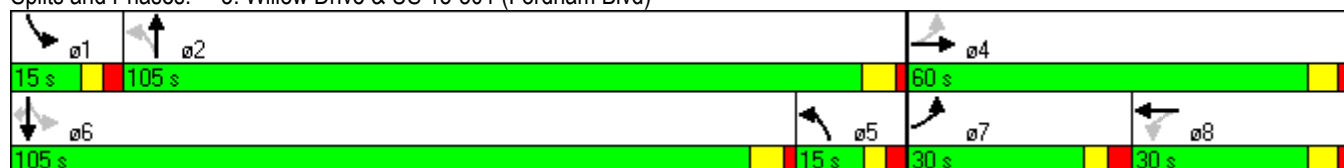
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	6	388	4	5	6	452	1237	7	15	1194	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-1%	
Storage Length (ft)	0		400	0		0	400		0	100		150
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99			0.99			1.00		1.00		
Frt			0.850		0.946			0.999				0.850
Flt Protected		0.954			0.988		0.950			0.950		
Satd. Flow (prot)	0	1751	2746	0	1644	0	3383	3483	0	1761	3522	1576
Flt Permitted		0.954			0.988		0.950			0.950		
Satd. Flow (perm)	0	1733	2746	0	1644	0	3383	3483	0	1759	3522	1576
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		566			126			1593			286	
Travel Time (s)		35.6			10.9			24.1			4.3	
Confl. Peds. (#/hr)	7					7			1	1		
Peak Hour Factor	0.85	0.85	0.85	0.75	0.75	0.75	0.96	0.96	0.96	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	145	7	456	5	7	8	471	1289	7	16	1312	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	152	456	0	20	0	471	1296	0	16	1312	134
Turn Type	Split		pm+ov	Split			Prot			Prot		pm+ov
Protected Phases	3	3	5	4	4		5	2		1	6	3
Permitted Phases			3									6
Detector Phase	3	3	5	4	4		5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	41.0	41.0		14.0	19.0		15.0	19.0	14.0
Total Split (s)	26.0	26.0	34.0	41.0	41.0	0.0	34.0	98.0	0.0	15.0	79.0	26.0
Total Split (%)	14.4%	14.4%	18.9%	22.8%	22.8%	0.0%	18.9%	54.4%	0.0%	8.3%	43.9%	14.4%
Maximum Green (s)	19.4	19.4	27.3	34.3	34.3		27.3	91.9		8.5	72.9	19.4
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	4.4		3.0	4.6	3.8
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	1.7		3.5	1.5	2.8
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	-1.7	-1.1	0.0	-1.5	-1.1	-1.6
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead		Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	3.0	1.0	1.0		3.0	6.0		3.0	6.0	1.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	None
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		18.9	55.1		9.0		34.3	133.6		9.4	103.3	127.2
Actuated g/C Ratio		0.10	0.31		0.05		0.19	0.74		0.05	0.57	0.71
v/c Ratio		0.83	0.54		0.24		0.73	0.50		0.17	0.65	0.12
Control Delay		111.5	45.9		89.4		75.2	12.6		58.2	8.9	4.0
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		111.5	45.9		89.4		75.2	12.6		58.2	8.9	4.0
LOS		F	D		F		E	B		E	A	A
Approach Delay		62.3			89.4			29.3			9.0	
Approach LOS		E			F			C			A	
Queue Length 50th (ft)		177	216		23		273	403		19	263	35
Queue Length 95th (ft)		#253	232		47		324	476		m30	533	65
Internal Link Dist (ft)		486			46			1513			206	
Turn Bay Length (ft)			400				400			100		150
Base Capacity (vph)		204	847		329		651	2585		98	2022	1133
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.75	0.54		0.06		0.72	0.50		0.16	0.65	0.12

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 96 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 27.1

Intersection LOS: C

Intersection Capacity Utilization 72.2%

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.

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

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø3	ø4
98 s	15 s	26 s	41 s
			
ø5	ø6		
34 s	79 s		

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	0	4	2	0	71	4	1603	9	70	1483	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	200		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.938			0.869			0.999			0.998	
Flt Protected		0.974			0.998		0.950			0.950		
Satd. Flow (prot)	0	1702	0	0	1600	0	1752	3501	0	1752	3498	0
Flt Permitted		0.974			0.998		0.950			0.950		
Satd. Flow (perm)	0	1702	0	0	1600	0	1752	3501	0	1752	3498	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			2038			1593	
Travel Time (s)		7.9			3.4			30.9			24.1	
Peak Hour Factor	0.69	0.69	0.69	0.77	0.77	0.77	0.98	0.98	0.98	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	7	0	6	3	0	92	4	1636	9	81	1724	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	95	0	4	1645	0	81	1744	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 63.0%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	13	1	4	7	0	55	56	10	1630	16	41	1443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		125		0	175	
Storage Lanes	0		0	0		0		1		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95
Frt		0.969			0.880				0.999			
Flt Protected		0.966			0.995			0.950			0.950	
Satd. Flow (prot)	0	1744	0	0	1615	0	0	1767	3501	0	1752	3505
Flt Permitted		0.966			0.995			0.950			0.950	
Satd. Flow (perm)	0	1744	0	0	1615	0	0	1767	3501	0	1752	3505
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				802			2038
Travel Time (s)		2.8			2.3				12.2			30.9
Peak Hour Factor	0.53	0.53	0.53	0.61	0.61	0.61	0.92	0.95	0.95	0.95	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	3%	3%	3%	3%	3%
Adj. Flow (vph)	25	2	8	11	0	90	61	11	1716	17	45	1568
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	0	101	0	0	72	1733	0	45	1572
Sign Control		Stop			Stop				Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 63.2% ICU Level of Service B

Analysis Period (min) 15

Lane Group	SBR
Lane Configurations	
Volume (vph)	4
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	0.95
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	3%
Adj. Flow (vph)	4
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	662	0	0	410	0	1142	24	0	1304	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	779	0	0	488	0	1269	27	0	1358	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	779	0	0	488	0	1269	27	0	1358	160
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.0	0.0
Total Split (%)	0.0%	0.0%	44.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.9%	0.0%
Maximum Green (s)			69.9								89.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			56.0			170.0		170.0	170.0		104.0	170.0
Actuated g/C Ratio			0.33			1.00		1.00	1.00		0.61	1.00
v/c Ratio			0.87			0.31		0.36	0.02		0.63	0.10
Control Delay			63.8			0.5		0.2	0.0		23.3	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.1	0.0
Total Delay			63.8			0.5		0.2	0.0		23.4	0.1
LOS			E			A		A	A		C	A
Approach Delay								0.2			20.9	
Approach LOS								A			C	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			462			0		0	0		490	0
Queue Length 95th (ft)			472			0		m0	m0		651	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1125			1580		3505	1583		2144	1568
Starvation Cap Reductn			0			0		0	0		103	0
Spillback Cap Reductn			0			0		0	0		0	0
Storage Cap Reductn			0			0		0	0		0	0
Reduced v/c Ratio			0.69			0.31		0.36	0.02		0.67	0.10

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 151 (89%), Referenced to phase 2:SBT and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 20.1

Intersection LOS: C

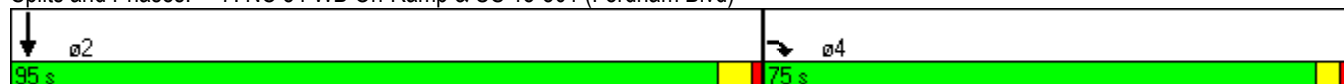
Intersection Capacity Utilization 67.5%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	97	0	1062	0	0	1648	318	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	108	0	1180	0	0	1831	353	0	32
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	108	0	1180	0	0	1831	353	0	32
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 55.6% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	4	13	5	11	153	4	6	37	51	12	29	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%			3%				2%		
Storage Length (ft)		0		0	50		0			125	0	
Storage Lanes		0		0	1		0			1	0	
Taper Length (ft)		25		25	25		25			25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						0.99						
Frt			0.955			0.862				0.903		
Flt Protected			0.975		0.950				0.950	0.983		
Satd. Flow (prot)	0	0	1734	0	1743	1562	0	0	1664	1555	0	0
Flt Permitted			0.804		0.950				0.950	0.983		
Satd. Flow (perm)	0	0	1430	0	1743	1562	0	0	1664	1555	0	0
Right Turn on Red				No				No				No
Satd. Flow (RTOR)												
Link Speed (mph)			30			35				25		
Link Distance (ft)			305			620				359		
Travel Time (s)			6.9			12.1				9.8		
Confl. Peds. (#/hr)								1				
Peak Hour Factor	0.70	0.70	0.70	0.70	0.77	0.77	0.77	0.77	0.72	0.72	0.72	0.72
Adj. Flow (vph)	6	19	7	16	199	5	8	48	71	17	40	4
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	0	0	48	0	199	61	0	0	64	68	0	0
Turn Type	Perm	Perm			Split				Split			
Protected Phases			7		3	3			4	4		
Permitted Phases	7	7										
Detector Phase	7	7	7		3	3			4	4		
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		7.0	7.0			5.0	5.0		
Minimum Split (s)	13.0	13.0	13.0		36.0	36.0			13.0	13.0		
Total Split (s)	13.0	13.0	13.0	0.0	36.0	36.0	0.0	0.0	14.0	14.0	0.0	0.0
Total Split (%)	7.6%	7.6%	7.6%	0.0%	21.2%	21.2%	0.0%	0.0%	8.2%	8.2%	0.0%	0.0%
Maximum Green (s)	5.8	5.8	5.8		29.4	29.4			6.6	6.6		
Yellow Time (s)	3.0	3.0	3.0		3.6	3.6			3.0	3.0		
All-Red Time (s)	4.2	4.2	4.2		3.0	3.0			4.4	4.4		
Lost Time Adjust (s)	0.0	0.0	-2.2	-2.2	-1.6	-1.6	-1.6	-1.6	-2.0	-2.4	-2.4	0.0
Total Lost Time (s)	7.2	7.2	5.0	1.8	5.0	5.0	2.4	2.4	5.4	5.0	1.6	4.0
Lead/Lag					Lag	Lag			Lead	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0			2.0	2.0		
Recall Mode	None	None	None		None	None			None	None		
Walk Time (s)					4.0	4.0						
Flash Dont Walk (s)					25.0	25.0						
Pedestrian Calls (#/hr)					0	0						
Act Effect Green (s)			10.2		24.9	24.9			8.6	9.0		
Actuated g/C Ratio			0.06		0.15	0.15			0.05	0.05		
v/c Ratio			0.56		0.78	0.27			0.76	0.83		
Control Delay			100.5		90.2	65.8			125.8	137.3		

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

								
Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2
Lane Configurations								
Volume (vph)	5	20	1802	128	39	1585	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			0%			0%		
Storage Length (ft)		350		300	150		100	
Storage Lanes		1		1	1		1	
Taper Length (ft)		25		25	25		25	
Lane Util. Factor	0.95	1.00	*1.00	1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor								
Frt				0.850			0.850	
Flt Protected		0.950			0.950			
Satd. Flow (prot)	0	1770	3725	1583	1770	3725	1583	0
Flt Permitted		0.950			0.950			
Satd. Flow (perm)	0	1770	*3787	1583	1770	*3771	1583	0
Right Turn on Red				No				No
Satd. Flow (RTOR)								
Link Speed (mph)			45			45		
Link Distance (ft)			1485			2107		
Travel Time (s)			22.5			31.9		
Confl. Peds. (#/hr)								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	22	2002	142	41	1668	11	11
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	28	2002	142	41	1668	22	0
Turn Type	Prot	Prot		pm+ov	Prot		Perm	
Protected Phases	5	5	2	3	1	6		
Permitted Phases				2			6	
Detector Phase	5	5	2	3	1	6	6	
Switch Phase								
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	14.0	33.0	36.0	15.0	25.0	25.0	
Total Split (s)	14.0	14.0	92.0	36.0	15.0	93.0	93.0	0.0
Total Split (%)	8.2%	8.2%	54.1%	21.2%	8.8%	54.7%	54.7%	0.0%
Maximum Green (s)	7.0	7.0	85.8	29.4	9.1	86.9	86.9	
Yellow Time (s)	3.0	3.0	4.6	3.6	3.0	4.4	4.4	
All-Red Time (s)	4.0	4.0	1.6	3.0	2.9	1.7	1.7	
Lost Time Adjust (s)	0.0	-2.0	-1.2	-1.6	-0.9	-1.1	-1.1	0.0
Total Lost Time (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	None	C-Max	None	None	C-Max	C-Max	
Walk Time (s)			7.0	4.0		7.0	7.0	
Flash Dont Walk (s)			16.0	25.0		11.0	11.0	
Pedestrian Calls (#/hr)			0	0		0	0	
Act Effct Green (s)		9.0	97.2	123.0	9.0	100.2	100.2	
Actuated g/C Ratio		0.05	0.57	0.72	0.05	0.59	0.59	
v/c Ratio		0.30	0.94	0.12	0.44	0.76	0.02	
Control Delay		69.2	31.3	4.2	91.7	23.7	15.8	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak

10/18/2013

												
Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2
Queue Delay			0.0		0.0	0.0			0.0	0.0		
Total Delay			100.5		90.2	65.8			125.8	137.3		
LOS			F		F	E			F	F		
Approach Delay			100.5			84.4				131.7		
Approach LOS			F			F				F		
Queue Length 50th (ft)			52		216	61			75	81		
Queue Length 95th (ft)			#84		252	90			#116	#128		
Internal Link Dist (ft)			225			540				279		
Turn Bay Length (ft)					50				125	125		
Base Capacity (vph)			85		318	285			84	82		
Starvation Cap Reductn			0		0	0			0	0		
Spillback Cap Reductn			0		0	0			0	0		
Storage Cap Reductn			0		0	0			0	0		
Reduced v/c Ratio			0.56		0.63	0.21			0.76	0.83		

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 2 (1%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 35.2

Intersection LOS: D

Intersection Capacity Utilization 81.4%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø4	 ø3	 ø7
15 s	92 s	14 s	36 s	13 s
 ø6	 ø5			
93 s	14 s			

Lanes, Volumes, Timings
 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
 10/18/2013

								
Lane Group	NEL2	NEL	NET	NER	SWL	SWT	SWR	SWR2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		69.2	31.3	4.2	91.7	23.7	15.8	
LOS		E	C	A	F	C	B	
Approach Delay			30.0			25.2		
Approach LOS			C			C		
Queue Length 50th (ft)		29	~1179	30	45	564	9	
Queue Length 95th (ft)		m40	#1321	m34	m70	718	m16	
Internal Link Dist (ft)			1405			2027		
Turn Bay Length (ft)		350		300	150		100	
Base Capacity (vph)		94	2129	1177	104	2196	933	
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		0.30	0.94	0.12	0.39	0.76	0.02	
Intersection Summary								

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	596	2	97	14	3	17	95	1343	4	11	1335	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	400		0	200		0
Storage Lanes	0		1	0		1	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.99		0.99			1.00		1.00		
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.961		0.950			0.950		
Satd. Flow (prot)	3502	1900	1615	0	1595	1568	3418	3524	0	1736	3471	1553
Flt Permitted	0.950				0.961		0.950			0.950		
Satd. Flow (perm)	*3819	1900	1592	0	1577	1568	3418	*3811	0	1728	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			1485	
Travel Time (s)		7.4			14.0			8.8			22.5	
Confl. Peds. (#/hr)			7	7					4	4		
Peak Hour Factor	0.86	0.86	0.86	0.77	0.77	0.77	0.86	0.86	0.86	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	693	2	113	18	4	22	110	1562	5	12	1467	476
Shared Lane Traffic (%)												
Lane Group Flow (vph)	693	2	113	0	22	22	110	1567	0	12	1467	476
Turn Type	Split		Free	Split		pm+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	1	5	2		1	6	4
Permitted Phases			Free			3						6
Detector Phase	4	4		3	3	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	32.0	32.0		14.0	14.0	14.0	14.0	19.0		14.0	19.0	32.0
Total Split (s)	48.0	48.0	0.0	14.0	14.0	14.0	15.0	94.0	0.0	14.0	93.0	48.0
Total Split (%)	28.2%	28.2%	0.0%	8.2%	8.2%	8.2%	8.8%	55.3%	0.0%	8.2%	54.7%	28.2%
Maximum Green (s)	41.8	41.8		7.8	7.8	7.8	8.8	87.9		7.8	86.7	41.8
Yellow Time (s)	3.8	3.8		3.8	3.8	3.0	3.0	4.7		3.0	4.5	3.8
All-Red Time (s)	2.4	2.4		2.4	2.4	3.2	3.2	1.4		3.2	1.8	2.4
Lost Time Adjust (s)	-1.2	-1.2	0.0	-2.5	-1.2	-1.2	-1.2	-1.1	0.0	-1.2	-1.3	-1.2
Total Lost Time (s)	5.0	5.0	4.0	3.7	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag	Lead		Lag	Lead	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0	1.0	1.0	6.0		1.0	6.0	1.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)	7.0	7.0										7.0
Flash Dont Walk (s)	18.0	18.0										18.0
Pedestrian Calls (#/hr)	0	0										0
Act Effect Green (s)	49.5	49.5	170.0		8.4	16.8	9.4	94.0		8.7	88.0	142.5
Actuated g/C Ratio	0.29	0.29	1.00		0.05	0.10	0.06	0.55		0.05	0.52	0.84

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.68	0.00	0.07		0.28	0.14	0.58	0.80		0.13	0.82	0.37
Control Delay	58.5	47.5	0.1		87.2	68.6	90.7	35.6		60.4	16.9	1.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.5	47.5	0.1		87.2	68.6	90.7	35.6		60.4	16.9	1.7
LOS	E	D	A		F	E	F	D		E	B	A
Approach Delay		50.3			77.9			39.2			13.4	
Approach LOS		D			E			D			B	
Queue Length 50th (ft)	371	2	0		24	22	62	773		14	145	20
Queue Length 95th (ft)	425	9	0		50	45	94	808		m18	281	46
Internal Link Dist (ft)		302			435			504			1405	
Turn Bay Length (ft)			225			75	400			200		
Base Capacity (vph)	1019	553	1592		84	158	201	1949		92	1797	1302
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.68	0.00	0.07		0.26	0.14	0.55	0.80		0.13	0.82	0.37

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 4 (2%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 30.4

Intersection LOS: C

Intersection Capacity Utilization 73.4%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø3	 ø4
94 s	14 s	14 s	48 s
 ø6	 ø5		
93 s	15 s		

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	225	33	201	293	323	35	104	114	313	92	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.95	0.99		0.99		0.93		1.00	0.98	1.00	1.00	
Frt		0.981				0.850			0.850		0.989	
Flt Protected	0.950			0.950				0.988		0.950	0.976	
Satd. Flow (prot)	1646	3322	0	1752	1845	1672	0	1967	1538	1625	1932	0
Flt Permitted	0.573			0.392				0.988		0.950	0.976	
Satd. Flow (perm)	945	3322	0	718	1845	1549	0	1962	1513	1623	1932	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	25		5	5		25	10		1	1		10
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.82	0.82	0.82	0.93	0.93	0.93
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	30	281	41	212	308	340	43	127	139	337	99	16
Shared Lane Traffic (%)										33%		
Lane Group Flow (vph)	30	322	0	212	308	340	0	170	139	226	226	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	23.0	57.0	41.0	32.0	32.0	23.0	41.0	41.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	17.7%	43.8%	31.5%	24.6%	24.6%	17.7%	31.5%	31.5%	0.0%
Maximum Green (s)	26.7	26.7		16.2	49.7	34.3	25.3	25.3	16.2	34.3	34.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-1.8	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.5	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	30.5	30.5		52.0	51.5	78.5		36.5	53.0	26.5	26.5	
Actuated g/C Ratio	0.23	0.23		0.40	0.40	0.60		0.28	0.41	0.20	0.20	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.14	0.41		0.51	0.42	0.35		0.31	0.22	0.68	0.57	
Control Delay	42.5	44.5		31.4	30.7	11.3		40.8	24.6	57.6	51.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.5	44.5		31.4	30.7	11.3		40.8	24.6	57.6	51.5	
LOS	D	D		C	C	B		D	C	E	D	
Approach Delay		44.4			23.2			33.5			54.6	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	20	123		121	186	119		113	69	186	182	
Queue Length 95th (ft)	44	150		184	269	133		177	117	256	247	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	222	780		430	731	1083		553	638	450	535	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.14	0.41		0.49	0.42	0.31		0.31	0.22	0.50	0.42	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 35.8

Intersection LOS: D

Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
23 s	34 s	41 s	32 s
 ø6			
57 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	706	29	0	689	662	0	0	318	0	0	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	767	32	0	749	720	0	0	346	0	0	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	767	32	0	749	720	0	0	346	0	0	167
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 45.9% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2018 With Site Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	1012	1334	410	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.965			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	4907	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	4907	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	0.90	0.90	0.86	0.86	0.90	0.85
Adj. Flow (vph)	0	1124	1551	477	0	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1124	2028	0	0	28
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 44.9%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
14: NC 54 (Raleigh Road) & Glen Lennox Dr #1

2018 With Site Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	34	1611	1583	23	0	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.998			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1736	4988	4978	0	0	1565
Flt Permitted	0.950					
Satd. Flow (perm)	1736	4988	4978	0	0	1565
Link Speed (mph)		45	45		30	
Link Distance (ft)		164	247		247	
Travel Time (s)		2.5	3.7		5.6	
Confl. Peds. (#/hr)	1			1		2
Peak Hour Factor	0.97	0.97	0.94	0.94	1.00	0.55
Heavy Vehicles (%)	4%	4%	4%	4%	5%	5%
Adj. Flow (vph)	35	1661	1684	24	0	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	1661	1708	0	0	78
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

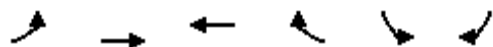
Control Type: Unsignalized

Intersection Capacity Utilization 41.8% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2018 With Site Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	1611	1654	22	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.998			0.865
Flt Protected						
Satd. Flow (prot)	0	4940	4978	0	0	1315
Flt Permitted						
Satd. Flow (perm)	0	4940	4978	0	0	1315
Link Speed (mph)		45	45		25	
Link Distance (ft)		247	359		229	
Travel Time (s)		3.7	5.4		6.2	
Peak Hour Factor	1.00	0.97	0.95	0.95	1.00	0.44
Heavy Vehicles (%)	5%	5%	4%	4%	25%	25%
Adj. Flow (vph)	0	1661	1741	23	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1661	1764	0	0	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 42.4% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 With Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	1432	39	98	1459	92	151	17	85	116	16	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	250		0	150		150	250		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		1.00		0.98	0.99	0.99	
Frt		0.996			0.991				0.850		0.874	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	4964	0	1752	4984	0	1752	1845	1568	1736	1573	0
Flt Permitted	0.080			0.100			0.606			0.744		
Satd. Flow (perm)	146	4964	0	184	4984	0	1113	1845	1539	1351	1573	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		359			576			537			463	
Travel Time (s)		5.4			8.7			14.6			12.6	
Confl. Peds. (#/hr)	1		3	3		1	5		6	6		5
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	94	1627	44	107	1586	100	174	20	98	141	20	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1671	0	107	1686	0	174	20	98	141	126	0
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	28.0		29.0	26.0		41.0	41.0	29.0	39.0	39.0	
Total Split (s)	13.0	50.0	0.0	29.0	66.0	0.0	41.0	41.0	29.0	41.0	41.0	0.0
Total Split (%)	10.8%	41.7%	0.0%	24.2%	55.0%	0.0%	34.2%	34.2%	24.2%	34.2%	34.2%	0.0%
Maximum Green (s)	7.4	44.4		23.6	60.1		34.6	34.6	23.6	34.5	34.5	
Yellow Time (s)	3.0	3.8		3.0	4.1		3.1	3.1	3.0	3.2	3.2	
All-Red Time (s)	2.6	1.8		2.4	1.8		3.3	3.3	2.4	3.3	3.3	
Lost Time Adjust (s)	-0.6	-0.6	0.0	-0.4	-0.9	0.0	-1.4	-1.4	-0.4	-1.5	-1.5	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	1.0	3.0		1.0	3.0		1.0	1.0	1.0	1.0	1.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			13.0		27.0	27.0		25.0	25.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	58.5	58.5		73.9	73.9		22.5	22.5	46.5	22.5	22.5	
Actuated g/C Ratio	0.49	0.49		0.62	0.62		0.19	0.19	0.39	0.19	0.19	
v/c Ratio	0.51	0.69		0.25	0.55		0.83	0.06	0.16	0.56	0.43	
Control Delay	29.5	26.8		13.8	4.1		76.4	36.6	20.0	51.3	45.8	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 With Site Noon Peak
10/18/2013

												
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	
Total Delay	29.5	26.8		13.8	4.1		76.4	36.6	20.0	51.3	45.8	
LOS	C	C		B	A		E	D	C	D	D	
Approach Delay		26.9			4.7			54.8			48.7	
Approach LOS		C			A			D			D	
Queue Length 50th (ft)	38	356		24	27		131	13	45	100	87	
Queue Length 95th (ft)	83	463		83	157		189	31	67	136	120	
Internal Link Dist (ft)		279			496			457			383	
Turn Bay Length (ft)	275			250			150		150	250		
Base Capacity (vph)	189	2420		427	3069		334	554	602	405	472	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.50	0.69		0.25	0.55		0.52	0.04	0.16	0.35	0.27	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 62 (52%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 20.6

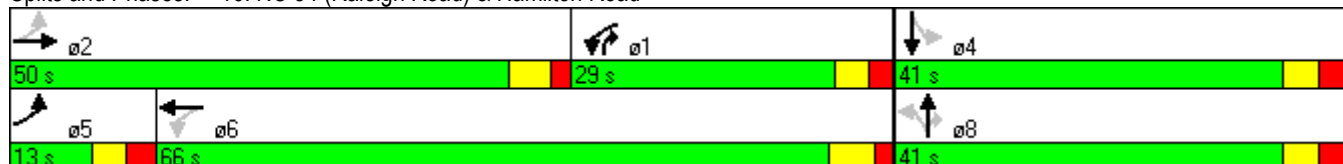
Intersection LOS: C

Intersection Capacity Utilization 66.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road



Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

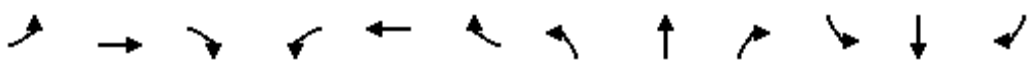
2018 With Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Volume (vph)	36	1620	43	76	1607	15	30	5	135	25	9	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.996			0.999				0.850		0.935	
Flt Protected	0.950			0.950				0.959			0.981	
Satd. Flow (prot)	1736	4964	0	1752	5029	0	0	1752	1553	0	1532	0
Flt Permitted	0.106			0.072				0.735			0.870	
Satd. Flow (perm)	194	4964	0	133	5029	0	0	1341	1553	0	1359	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	5		3	3		5	2					2
Peak Hour Factor	0.85	0.85	0.85	0.96	0.96	0.96	0.83	0.83	0.83	0.74	0.74	0.74
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Adj. Flow (vph)	42	1906	51	79	1674	16	36	6	163	34	12	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	1957	0	79	1690	0	0	42	163	0	89	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	59.0	0.0	13.0	59.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	10.8%	49.2%	0.0%	10.8%	49.2%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	7.1	52.8		7.1	52.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effect Green (s)	87.6	80.7		87.6	81.2			18.4	18.4		18.4	
Actuated g/C Ratio	0.73	0.67		0.73	0.68			0.15	0.15		0.15	
v/c Ratio	0.17	0.59		0.37	0.50			0.20	0.68		0.43	
Control Delay	4.0	4.4		22.2	6.3			44.4	62.0		50.9	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2018 With Site Noon Peak
10/18/2013

												
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	
Total Delay	4.0	4.4		22.2	6.3			44.4	62.0		50.9	
LOS	A	A		C	A			D	E		D	
Approach Delay		4.4			7.0			58.4			50.9	
Approach LOS		A			A			E			D	
Queue Length 50th (ft)	3	61		17	135			29	121		63	
Queue Length 95th (ft)	m6	116		m52	167			54	167		88	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	244	3338		212	3403			481	556		487	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.17	0.59		0.37	0.50			0.09	0.29		0.18	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 63 (53%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 9.2

Intersection LOS: A

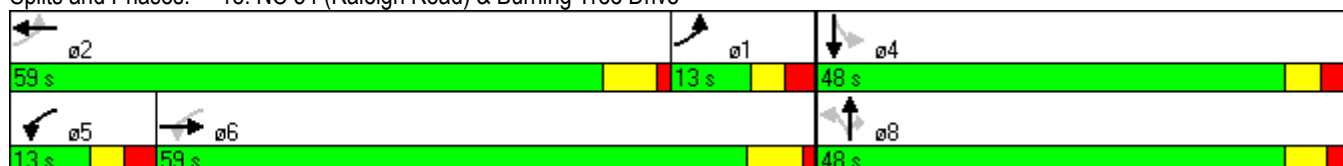
Intersection Capacity Utilization 62.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 With Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	161	1425	30	15	1444	16	43	6	31	15	5	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97		0.99		1.00		
Frt			0.850			0.850		0.874			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	4988	1553	1736	4988	1553	1770	1605	0	1736	1562	0
Flt Permitted	0.125			0.142			0.411			0.716		
Satd. Flow (perm)	225	4988	1553	259	4988	1514	766	1605	0	1302	1562	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	4					4			3	3		
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.59	0.59	0.59	0.86	0.86	0.86
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	168	1484	31	16	1520	17	73	10	53	17	6	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1484	31	16	1520	17	73	63	0	17	184	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	44.0	44.0	14.0	44.0	44.0	14.0	14.0		15.0	15.0	
Total Split (s)	18.0	80.0	80.0	14.0	49.0	49.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	15.0%	66.7%	66.7%	11.7%	40.8%	40.8%	21.7%	21.7%	0.0%	21.7%	21.7%	0.0%
Maximum Green (s)	11.7	73.7	73.7	7.7	42.7	42.7	19.2	19.2		18.7	18.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lag	Lead	Lead	Lag								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)	86.7	86.1	86.1	89.7	73.9	73.9	18.3	18.3		18.3	18.3	
Actuated g/C Ratio	0.72	0.72	0.72	0.75	0.62	0.62	0.15	0.15		0.15	0.15	
v/c Ratio	0.52	0.41	0.03	0.05	0.50	0.02	0.62	0.26		0.09	0.77	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	23%
Maximum Green (s)	23.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	14.1	7.6	4.4	3.9	8.2	7.8	70.3	46.5		43.1	69.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	14.1	7.6	4.4	3.9	8.2	7.8	70.3	46.5		43.1	69.9	
LOS	B	A	A	A	A	A	E	D		D	E	
Approach Delay		8.2			8.2			59.2			67.6	
Approach LOS		A			A			E			E	
Queue Length 50th (ft)	34	186	4	2	122	3	53	43		11	136	
Queue Length 95th (ft)	46	213	m9	m4	146	m7	65	54		31	204	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	345	3578	1114	304	3070	932	134	281		228	273	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.49	0.41	0.03	0.05	0.50	0.02	0.54	0.22		0.07	0.67	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 14 (12%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 13.5

Intersection LOS: B

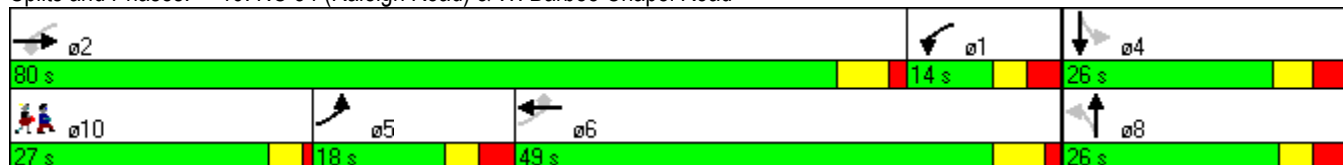
Intersection Capacity Utilization 69.0%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road



Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	1308	67	70	1224	71	66	33	113	133	25	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00		0.99	1.00	1.00				
Frt			0.850			0.850		0.925	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.996		0.950		
Satd. Flow (prot)	3401	5037	1568	3350	4963	1545	1648	1531	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.996		0.950		
Satd. Flow (perm)	3400	5037	1526	3338	4963	1525	1646	1531	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	1		12	12		1	1					1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.65	0.65	0.65	0.83	0.83	0.83
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	131	1406	72	73	1275	74	102	51	174	160	30	195
Shared Lane Traffic (%)							10%		35%			
Lane Group Flow (vph)	131	1406	72	73	1275	74	92	122	113	160	30	195
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	42.0	15.0	15.0	42.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	17.0	56.0	27.0	16.0	55.0	21.0	27.0	27.0	43.0	21.0	21.0	38.0
Total Split (%)	14.2%	46.7%	22.5%	13.3%	45.8%	17.5%	22.5%	22.5%	35.8%	17.5%	17.5%	31.7%
Maximum Green (s)	9.8	49.4	19.9	8.9	48.5	13.7	19.9	19.9		13.7	13.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	11.8	62.1	77.4	10.8	61.1	72.9	15.3	15.3	31.1	11.8	11.8	23.6
Actuated g/C Ratio	0.10	0.52	0.64	0.09	0.51	0.61	0.13	0.13	0.26	0.10	0.10	0.20
v/c Ratio	0.39	0.54	0.07	0.24	0.50	0.08	0.44	0.63	0.30	0.47	0.16	0.62

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	47.0	7.1	1.9	47.3	10.8	4.7	53.6	62.8	36.5	55.2	50.3	35.8
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	47.0	7.1	1.9	47.3	10.8	4.7	53.6	62.8	36.5	55.2	50.3	35.8
LOS	D	A	A	D	B	A	D	E	D	E	D	D
Approach Delay	10.1			12.4			51.2			45.0		
Approach LOS	B			B			D			D		
Queue Length 50th (ft)	54	95	4	27	108	16	70	100	73	61	22	101
Queue Length 95th (ft)	87	58	7	57	78	19	84	112	83	85	47	120
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	340	2608	1078	307	2529	976	302	281	455	465	252	375
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	0.39	0.54	0.07	0.24	0.50	0.08	0.30	0.43	0.25	0.34	0.12	0.52

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 119 (99%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 18.1

Intersection LOS: B

Intersection Capacity Utilization 55.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø4	 ø3
56 s	16 s	27 s	21 s
 ø6	 ø5		
55 s	17 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	11	1348	222	39	1201	106	163	51	57	94	42	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97				1.00	1.00			1.00	
Frt			0.850			0.850		0.936			0.971	
Flt Protected	0.950			0.950			0.950	0.990		0.950	0.988	
Satd. Flow (prot)	1727	4363	1545	1761	5061	1576	1656	1616	0	1648	1660	0
Flt Permitted	0.163			0.087			0.950	0.990		0.950	0.988	
Satd. Flow (perm)	296	4363	1495	161	5061	1576	1654	1615	0	1648	1660	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	12	1434	236	41	1264	112	177	55	62	104	47	16
Shared Lane Traffic (%)							16%			20%		
Lane Group Flow (vph)	12	1434	236	41	1264	112	149	145	0	83	84	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	27.0	15.0	14.0	29.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	14.0	60.0	26.0	14.0	60.0	20.0	26.0	26.0	0.0	20.0	20.0	0.0
Total Split (%)	11.7%	50.0%	21.7%	11.7%	50.0%	16.7%	21.7%	21.7%	0.0%	16.7%	16.7%	0.0%
Maximum Green (s)	7.2	52.5	18.8	7.0	52.5	12.8	18.8	18.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	1.8	5.0	5.0	1.8
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effect Green (s)	73.0	63.8	81.4	71.0	69.4	86.8	17.6	17.6		12.4	12.4	
Actuated g/C Ratio	0.61	0.53	0.68	0.59	0.58	0.72	0.15	0.15		0.10	0.10	
v/c Ratio	0.04	0.62	0.23	0.19	0.43	0.10	0.61	0.61		0.49	0.49	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 With Site Noon Peak

10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	3.9	7.4	2.4	12.5	16.7	7.0	58.6	58.8		60.1	60.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	3.9	7.4	2.4	12.5	16.7	7.0	58.6	58.8		60.1	60.1	
LOS	A	A	A	B	B	A	E	E		E	E	
Approach Delay		6.7			15.9			58.7			60.1	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	1	115	21	12	170	19	114	111		65	65	
Queue Length 95th (ft)	m3	120	22	29	298	57	184	180		118	118	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	287	2319	1065	215	2926	1119	290	283		206	208	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.62	0.22	0.19	0.43	0.10	0.51	0.51		0.40	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 119 (99%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 17.1

Intersection LOS: B

Intersection Capacity Utilization 55.0%

ICU Level of Service B

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

ø1	ø2	ø4	ø3
14 s	60 s	26 s	20 s
ø6	ø5		
60 s	14 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	308	277	31	198	297	238	49	587	171	135	475	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		1.00		0.98	0.99	0.99		1.00	0.99	
Frt		0.985				0.850		0.966			0.948	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1577	1814	0	1719	1810	1538	1736	3335	0	1752	3277	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1565	1814	0	1715	1810	1501	1724	3335	0	1745	3277	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	8		3	3		8	5		10	10		5
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Parking (#/hr)	0											
Adj. Flow (vph)	350	315	35	220	330	264	51	611	178	145	511	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	350	350	0	220	330	264	51	789	0	145	780	0
Turn Type	Prot			Prot		pm+ov	Prot			Prot		
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	
Total Split (s)	38.0	44.0	0.0	26.0	32.0	19.0	15.0	41.0	0.0	19.0	45.0	0.0
Total Split (%)	29.2%	33.8%	0.0%	20.0%	24.6%	14.6%	11.5%	31.5%	0.0%	14.6%	34.6%	0.0%
Maximum Green (s)	32.1	38.1		20.4	26.4	13.1	8.8	35.3		13.1	39.6	
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	31.3	37.8		19.4	25.9	39.3	8.9	39.4		13.4	46.5	
Actuated g/C Ratio	0.24	0.29		0.15	0.20	0.30	0.07	0.30		0.10	0.36	
v/c Ratio	0.92	0.66		0.86	0.91	0.58	0.42	0.78		0.81	0.67	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	78.1	47.2		77.6	75.6	20.8	69.1	48.8		87.5	40.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	78.1	47.2		77.6	75.6	20.8	69.1	48.8		87.5	40.6	
LOS	E	D		E	E	C	E	D		F	D	
Approach Delay		62.6			58.4			50.0			47.9	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	284	256		164	284	76	42	332		121	308	
Queue Length 95th (ft)	#439	354		m#276	m#411	m143	86	#417		#227	393	
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	200											
Base Capacity (vph)	400	545		278	376	465	134	1010		189	1171	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.88	0.64		0.79	0.88	0.57	0.38	0.78		0.77	0.67	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 28 (22%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 54.2

Intersection LOS: D

Intersection Capacity Utilization 83.9%

ICU Level of Service E

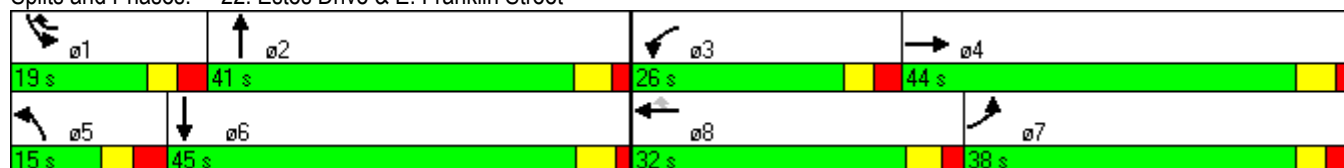
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	212	343	5	4	352	43	7	4	6	76	10	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.998			0.984			0.950				0.850
Flt Protected	0.950			0.950				0.979			0.958	
Satd. Flow (prot)	1719	3430	0	1736	3403	0	0	1655	0	0	1734	1538
Flt Permitted	0.431			0.514				0.837			0.736	
Satd. Flow (perm)	775	3430	0	933	3403	0	0	1414	0	0	1322	1518
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		6	6		8	2		10	10		2
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	5%	5%	5%
Adj. Flow (vph)	247	399	6	4	387	47	8	4	7	79	10	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	405	0	4	434	0	0	19	0	0	89	336
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	13.0	36.0	0.0	23.0	23.0	0.0	29.0	29.0	0.0	29.0	29.0	13.0
Total Split (%)	20.0%	55.4%	0.0%	35.4%	35.4%	0.0%	44.6%	44.6%	0.0%	44.6%	44.6%	20.0%
Maximum Green (s)	7.9	30.9		17.8	17.8		23.3	23.3		23.2	23.2	7.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	48.2	49.2		32.7	32.7			9.4			9.4	18.3
Actuated g/C Ratio	0.74	0.76		0.50	0.50			0.14			0.14	0.28
v/c Ratio	0.34	0.16		0.01	0.25			0.09			0.47	0.78
Control Delay	3.0	2.0		12.0	11.5			23.9			33.2	30.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	3.0	2.0		12.0	11.5			23.9			33.2	30.9
LOS	A	A		B	B			C			C	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		2.4			11.5			23.9			31.4	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	12	10		1	49			7			34	107
Queue Length 95th (ft)	m48	33		6	97			22			69	145
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	729	2594		469	1711			522			488	435
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.34	0.16		0.01	0.25			0.04			0.18	0.77

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 56.5%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2018 With Site Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	71	7	2	52	13	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988				0.991	
Flt Protected				0.998	0.955	
Satd. Flow (prot)	1805	0	0	1823	1763	0
Flt Permitted				0.998	0.955	
Satd. Flow (perm)	1805	0	0	1823	1763	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.79	0.79	0.71	0.71	0.46	0.46
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	90	9	3	73	28	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	76	30	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.4%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2018 With Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	47	9	1	37	2	9	0	2	3	2	3
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		0.980			0.992			0.979			0.951	
Flt Protected		0.997			0.999			0.959			0.982	
Satd. Flow (prot)	0	1703	0	0	1828	0	0	1749	0	0	1740	0
Flt Permitted		0.997			0.999			0.959			0.982	
Satd. Flow (perm)	0	1703	0	0	1828	0	0	1749	0	0	1740	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.83	0.83	0.83	0.67	0.67	0.67
Heavy Vehicles (%)	9%	9%	9%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	6	67	13	1	49	3	11	0	2	4	3	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	53	0	0	13	0	0	11	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.0% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
10/18/2013

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↔↔	↔↔	↔	↔↔	↔↔
Volume (vph)	0	112	1623	71	61	1405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	300	
Storage Lanes	0	2		1	2	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.97	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	0	2787	3539	1583	3433	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	2787	3539	1583	3433	3539
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		45			45
Link Distance (ft)	717		659			802
Travel Time (s)	19.6		10.0			12.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	124	1803	79	68	1561
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	124	1803	79	68	1561
Turn Type		Over		Perm	Prot	
Protected Phases		1	2		1	6
Permitted Phases				2		
Detector Phase		1	2	2	1	6
Switch Phase						
Minimum Initial (s)		7.0	12.0	12.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	24.0	146.0	146.0	24.0	170.0
Total Split (%)	0.0%	14.1%	85.9%	85.9%	14.1%	100.0%
Maximum Green (s)		17.0	139.0	139.0	17.0	163.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	C-Max
Act Effect Green (s)		19.0	141.0	141.0	19.0	170.0
Actuated g/C Ratio		0.11	0.83	0.83	0.11	1.00
v/c Ratio		0.40	0.61	0.06	0.18	0.44
Control Delay		74.4	3.4	1.3	69.6	0.4
Queue Delay		0.0	0.0	0.0	0.0	0.0
Total Delay		74.4	3.4	1.3	69.6	0.4
LOS		E	A	A	E	A
Approach Delay			3.3			3.3
Approach LOS			A			A
Queue Length 50th (ft)		74	74	5	36	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 With Site Noon Peak
 10/18/2013

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 95th (ft)		114	81	9	m62	0
Internal Link Dist (ft)	637		579			722
Turn Bay Length (ft)					300	
Base Capacity (vph)		311	2935	1313	384	3539
Starvation Cap Reductn		0	35	0	0	0
Spillback Cap Reductn		0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0
Reduced v/c Ratio		0.40	0.62	0.06	0.18	0.44

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 64 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 5.7

Intersection LOS: A

Intersection Capacity Utilization 59.0%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
146 s	24 s
 ø6	
170 s	

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2018 With Site Noon Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	1676	1062	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	667		536		2107	
Travel Time (s)	15.2		8.1		31.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1862	1180	894
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1862	1180	894
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 62.0% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
61: NC 54 EB Off Ramp &

2018 With Site Noon Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	805	0	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			667	476	
Travel Time (s)	4.7			15.2	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	894	0	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	894	0	108
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	45.7%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2018 With Site Noon Peak
10/18/2013

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑		↗
Volume (vph)	909	103	0	1744	0	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	5085	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			164	476	
Travel Time (s)	1.4			2.5	9.3	
Peak Hour Factor	0.84	0.84	0.90	0.90	0.90	0.97
Adj. Flow (vph)	1082	123	0	1938	0	830
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1082	123	0	1938	0	830
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	81.6%			ICU Level of Service D		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	123	74	388	144	45	154	1310	393	116	1183	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	175		0	375		325	225		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.98				0.99							
Frt		0.944			0.977				0.850		0.998	
Flt Protected	0.950			0.950	0.983		0.950			0.950		
Satd. Flow (prot)	1702	1691	0	1617	1680	0	1761	3522	1523	1719	3550	0
Flt Permitted	0.950			0.950	0.983		0.950			0.950		
Satd. Flow (perm)	1666	1691	0	1617	1680	0	1761	3522	1523	1719	3550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	17					17						
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	96	131	79	408	152	47	162	1379	414	123	1259	17
Shared Lane Traffic (%)				26%								
Lane Group Flow (vph)	96	210	0	302	305	0	162	1379	414	123	1276	0
Turn Type	Split			Split			Prot		Free	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases									Free			
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		15.0	68.0	
Total Split (s)	29.0	29.0	0.0	40.0	40.0	0.0	25.0	82.0	0.0	19.0	76.0	0.0
Total Split (%)	17.1%	17.1%	0.0%	23.5%	23.5%	0.0%	14.7%	48.2%	0.0%	11.2%	44.7%	0.0%
Maximum Green (s)	22.7	22.7		34.2	34.2		18.8	76.2		12.7	70.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	23.3	23.3		33.8	33.8		20.0	79.3	170.0	13.7	72.9	
Actuated g/C Ratio	0.14	0.14		0.20	0.20		0.12	0.47	1.00	0.08	0.43	
v/c Ratio	0.41	0.91		0.94	0.91		0.78	0.84	0.27	0.89	0.84	
Control Delay	72.7	110.3		102.8	97.3		83.1	35.2	0.3	127.0	49.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	72.7	110.3		102.8	97.3		83.1	35.2	0.3	127.0	49.9	
LOS	E	F		F	F		F	D	A	F	D	
Approach Delay		98.5			100.0			31.8			56.6	
Approach LOS		F			F			C			E	
Queue Length 50th (ft)	99	233		350	351		170	546	0	138	677	
Queue Length 95th (ft)	163	#389		#545	#534		#296	744	0	#266	777	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			175			375		325	225		
Base Capacity (vph)	240	239		333	346		207	1642	1523	142	1523	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.40	0.88		0.91	0.88		0.78	0.84	0.27	0.87	0.84	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 91 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 54.4

Intersection LOS: D

Intersection Capacity Utilization 89.1%

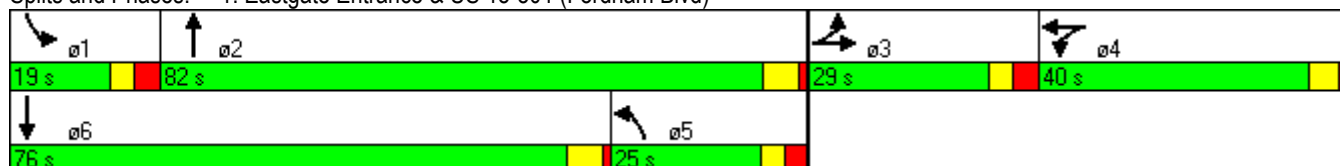
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Volume (vph)	151	270	214	1717	13	1562	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12
Storage Length (ft)	175	0	250		125		125
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25	25	25		25		25
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Ped Bike Factor			1.00				0.98
Frt		0.850					0.850
Flt Protected	0.950		0.950		0.950		
Satd. Flow (prot)	1770	1531	1770	3539	1829	3539	1583
Flt Permitted	0.950		0.068		0.080		
Satd. Flow (perm)	1770	1531	127	3539	154	3539	1549
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	35			45		45	
Link Distance (ft)	423			800		1344	
Travel Time (s)	8.2			12.1		20.4	
Confl. Peds. (#/hr)			3				3
Peak Hour Factor	0.95	0.95	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	159	284	228	1827	14	1698	220
Shared Lane Traffic (%)							
Lane Group Flow (vph)	159	284	228	1827	14	1698	220
Turn Type		pm+ov	pm+pt		pm+pt		pm+ov
Protected Phases	4	5	5	2	1	6	4
Permitted Phases		4	2		6		6
Detector Phase	4	5	5	2	1	6	4
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	12.0	7.0	12.0	7.0
Minimum Split (s)	13.0	13.0	13.0	18.0	13.0	18.0	13.0
Total Split (s)	30.0	33.0	33.0	127.0	13.0	107.0	30.0
Total Split (%)	17.6%	19.4%	19.4%	74.7%	7.6%	62.9%	17.6%
Maximum Green (s)	24.4	27.1	27.1	121.1	7.7	101.1	24.4
Yellow Time (s)	3.0	3.0	3.0	4.5	3.0	4.5	3.0
All-Red Time (s)	2.6	2.9	2.9	1.4	2.3	1.4	2.6
Lost Time Adjust (s)	-0.6	-0.9	-0.9	-0.9	-0.3	-0.9	-0.6
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lead	Lag	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	1.0	1.0	1.0	2.0	1.0	2.0	1.0
Recall Mode	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	18.8	50.7	141.2	136.0	116.9	109.3	128.1
Actuated g/C Ratio	0.11	0.30	0.83	0.80	0.69	0.64	0.75
v/c Ratio	0.81	0.62	0.62	0.65	0.08	0.75	0.19
Control Delay	102.8	57.1	40.8	3.5	2.4	6.2	0.9
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	102.8	57.1	40.8	3.7	2.4	6.2	0.9
LOS	F	E	D	A	A	A	A

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Approach Delay	73.5			7.8		5.5	
Approach LOS	E			A		A	
Queue Length 50th (ft)	176	271	146	97	1	251	10
Queue Length 95th (ft)	254	361	m250	161	m2	339	m11
Internal Link Dist (ft)	343			720		1264	
Turn Bay Length (ft)	175		250		125		125
Base Capacity (vph)	260	448	377	2832	185	2275	1205
Starvation Cap Reductn	0	0	0	282	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.63	0.60	0.72	0.08	0.75	0.18

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 68 (40%), Referenced to phase 2:NBT and 6:SBTU, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 13.4

Intersection LOS: B

Intersection Capacity Utilization 75.9%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

ø2	ø1	ø4
127 s	13 s	30 s
ø6	ø5	
107 s	33 s	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	182	63	29	47	59	25	42	1554	46	45	1522	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.96
Frt		0.952			0.956			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1771	0	1744	1755	0	1778	3541	0	1778	3557	1591
Flt Permitted	0.394			0.688			0.086			0.063		
Satd. Flow (perm)	738	1771	0	1254	1755	0	161	3541	0	118	3557	1531
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			4	4			3		1	1		3
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	212	73	34	53	67	28	46	1708	51	48	1619	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	212	107	0	53	95	0	46	1759	0	48	1619	263
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		14.0	14.0		15.0	19.0		15.0	19.0	19.0
Total Split (s)	23.0	48.0	0.0	25.0	25.0	0.0	15.0	107.0	0.0	15.0	107.0	107.0
Total Split (%)	13.5%	28.2%	0.0%	14.7%	14.7%	0.0%	8.8%	62.9%	0.0%	8.8%	62.9%	62.9%
Maximum Green (s)	16.7	41.6		18.6	18.6		8.9	100.9		9.4	100.9	100.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		2									2	2
Act Effct Green (s)	37.9	37.9		15.0	15.0		118.3	111.8		117.8	111.5	111.5
Actuated g/C Ratio	0.22	0.22		0.09	0.09		0.70	0.66		0.69	0.66	0.66
v/c Ratio	0.77	0.27		0.48	0.62		0.24	0.76		0.30	0.69	0.26

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	77.2	55.6		87.1	91.0		5.9	8.8		10.8	7.7	5.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.3	0.0
Total Delay	77.2	55.6		87.1	91.0		5.9	8.8		10.8	7.9	5.6
LOS	E	E		F	F		A	A		B	A	A
Approach Delay		70.0			89.6			8.7			7.7	
Approach LOS		E			F			A			A	
Queue Length 50th (ft)	210	100		57	104		5	175		7	168	45
Queue Length 95th (ft)	276	147		103	163		m7	186		m10	167	59
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	275	448		148	206		208	2328		181	2334	1005
Starvation Cap Reductn	0	0		0	0		0	0		0	196	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.77	0.24		0.36	0.46		0.22	0.76		0.27	0.76	0.26

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 76 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 15.7

Intersection LOS: B

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø4
15 s	107 s	48 s
 ø5	 ø6	 ø7
15 s	107 s	23 s
		 ø8
		25 s

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	14	419	7	10	18	513	1618	9	18	1518	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-1%	
Storage Length (ft)	0		400	0		0	400		0	100		150
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.98			0.98							
Frt			0.850		0.930			0.999				0.850
Flt Protected		0.957			0.990		0.950			0.950		
Satd. Flow (prot)	0	1774	2773	0	1625	0	3416	3518	0	1778	3557	1591
Flt Permitted		0.957			0.990		0.950			0.950		
Satd. Flow (perm)	0	1747	2773	0	1625	0	3416	3518	0	1778	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		566			126			1593			286	
Travel Time (s)		35.6			10.9			24.1			4.3	
Confl. Peds. (#/hr)	12					12						
Peak Hour Factor	0.92	0.92	0.92	0.75	0.75	0.75	0.98	0.98	0.98	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	137	15	455	9	13	24	523	1651	9	19	1565	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	152	455	0	46	0	523	1660	0	19	1565	108
Turn Type	Split		pm+ov	Split			Prot			Prot		pm+ov
Protected Phases	3	3	5	4	4		5	2		1	6	3
Permitted Phases			3									6
Detector Phase	3	3	5	4	4		5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	42.0	42.0		14.0	19.0		15.0	19.0	14.0
Total Split (s)	19.0	19.0	30.0	42.0	42.0	0.0	30.0	94.0	0.0	15.0	79.0	19.0
Total Split (%)	11.2%	11.2%	17.6%	24.7%	24.7%	0.0%	17.6%	55.3%	0.0%	8.8%	46.5%	11.2%
Maximum Green (s)	12.4	12.4	23.3	35.3	35.3		23.3	87.9		8.5	72.9	12.4
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	4.4		3.0	4.6	3.8
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	1.7		3.5	1.5	2.8
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	-1.7	-1.1	0.0	-1.5	-1.1	-1.6
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	6.0		2.0	6.0	1.0
Minimum Gap (s)	1.0	1.0	2.0	1.0	1.0		2.0	6.0		2.0	6.0	1.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	None
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 With Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		23.3	64.7		10.7		36.4	114.7		9.4	82.3	106.6
Actuated g/C Ratio		0.14	0.38		0.06		0.21	0.67		0.06	0.48	0.63
v/c Ratio		0.63	0.43		0.45		0.72	0.70		0.19	0.91	0.11
Control Delay		81.1	40.3		90.0		68.3	21.7		62.5	30.7	3.2
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		81.1	40.3		90.0		68.3	21.7		62.5	30.7	3.2
LOS		F	D		F		E	C		E	C	A
Approach Delay		50.5			90.0			32.8			29.3	
Approach LOS		D			F			C			C	
Queue Length 50th (ft)		163	214		51		282	654		20	637	16
Queue Length 95th (ft)		242	265		80		352	838		m29	#1086	m31
Internal Link Dist (ft)		486			46			1513			206	
Turn Bay Length (ft)			400				400			100		150
Base Capacity (vph)		243	1055		354		731	2374		105	1723	998
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.63	0.43		0.13		0.72	0.70		0.18	0.91	0.11

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 103 (61%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 34.5

Intersection LOS: C

Intersection Capacity Utilization 84.3%

ICU Level of Service E

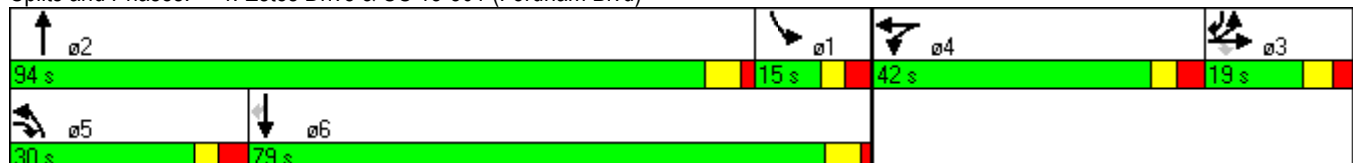
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	1	3	0	144	2	2004	96	184	1753	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	150		150
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.966			0.868				0.850			0.850
Flt Protected		0.964			0.999		0.950			0.950		
Satd. Flow (prot)	0	1735	0	0	1615	0	1770	3539	1583	1770	3539	1583
Flt Permitted		0.964			0.999		0.950			0.950		
Satd. Flow (perm)	0	1735	0	0	1615	0	1770	3539	1583	1770	3539	1583
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			2038			1593	
Travel Time (s)		7.9			3.4			30.9			24.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	0.50	0.50	0.50	0.70	0.70	0.70	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	6	0	2	4	0	206	2	2155	103	192	1826	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	210	0	2	2155	103	192	1826	21
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 84.6% ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	4	0	11	5	0	46	101	11	2137	30	85	1660
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		125		0	175	
Storage Lanes	0		0	0		0		1		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95
Frt		0.902			0.878				0.998			0.998
Flt Protected		0.987			0.995			0.950			0.950	
Satd. Flow (prot)	0	1581	0	0	1627	0	0	1770	3532	0	1770	3532
Flt Permitted		0.987			0.995			0.950			0.950	
Satd. Flow (perm)	0	1581	0	0	1627	0	0	1770	3532	0	1770	3532
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				801			2038
Travel Time (s)		2.8			2.3				12.1			30.9
Peak Hour Factor	0.68	0.68	0.68	0.80	0.80	0.80	0.92	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	6	0	16	6	0	58	110	11	2226	31	89	1729
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	64	0	0	121	2257	0	89	1747
Sign Control		Stop			Stop				Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 78.1% ICU Level of Service D

Analysis Period (min) 15

Lane Group	SBR
Lane Configurations	
Volume (vph)	17
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	0.95
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	2%
Adj. Flow (vph)	18
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	984	0	0	448	0	1615	19	0	1624	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	0	0	1158	0	0	533	0	1794	21	0	1692	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1158	0	0	533	0	1794	21	0	1692	106
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			4.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	96.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	104.0	0.0
Total Split (%)	0.0%	0.0%	48.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	52.0%	0.0%
Maximum Green (s)			90.9								98.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Walk Time (s)			5.0									
Flash Dont Walk (s)			11.0									
Pedestrian Calls (#/hr)			0									
Act Effect Green (s)			89.3			200.0		200.0	200.0		100.7	200.0
Actuated g/C Ratio			0.45			1.00		1.00	1.00		0.50	1.00
v/c Ratio			0.95			0.34		0.51	0.01		0.95	0.07
Control Delay			68.9			0.6		0.3	0.0		58.5	0.1
Queue Delay			0.0			0.0		0.0	0.0		1.1	0.0
Total Delay			68.9			0.6		0.3	0.0		59.5	0.1

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
LOS			E			A		A	A		E	A
Approach Delay								0.3			56.0	
Approach LOS								A			E	
Queue Length 50th (ft)			816			0		0	0		1133	0
Queue Length 95th (ft)			851			0		m0	m0		#1299	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1244			1580		3539	1583		1783	1568
Starvation Cap Reductn			0			0		0	0		23	0
Spillback Cap Reductn			0			0		0	0		0	0
Storage Cap Reductn			0			0		0	0		0	0
Reduced v/c Ratio			0.93			0.34		0.51	0.01		0.96	0.07

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 169 (85%), Referenced to phase 2:SBT and 6:, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 34.2

Intersection LOS: C

Intersection Capacity Utilization 87.6%

ICU Level of Service E

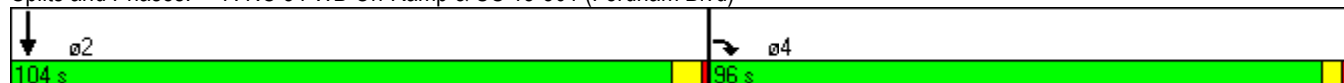
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	224	0	1405	0	0	2286	321	0	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	249	0	1561	0	0	2540	357	0	67
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	249	0	1561	0	0	2540	357	0	67
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

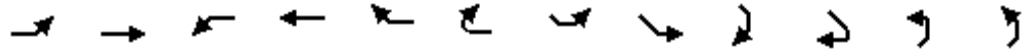
Intersection Capacity Utilization 73.7% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 With Site PM Peak

10/18/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2	NEL
Lane Configurations												
Volume (vph)	9	3	81	3	3	45	49	5	61	1	6	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%		3%				2%				
Storage Length (ft)	0		0		0			125	0			350
Storage Lanes	0		1		0			1	0			1
Taper Length (ft)	25		25		25			25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor				0.99								
Frt				0.858				0.870				
Flt Protected		0.964	0.950				0.950	0.993				0.950
Satd. Flow (prot)	0	1796	1743	1553	0	0	1664	1513	0	0	0	1770
Flt Permitted		0.744	0.950				0.950	0.993				0.950
Satd. Flow (perm)	0	1386	1743	1553	0	0	1664	1513	0	0	0	1770
Right Turn on Red						No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30		35				25				
Link Distance (ft)		305		620				359				
Travel Time (s)		6.9		12.1				9.8				
Confl. Peds. (#/hr)						1						
Peak Hour Factor	0.39	0.39	0.86	0.86	0.86	0.86	0.59	0.59	0.59	0.59	0.92	0.92
Adj. Flow (vph)	23	8	94	3	3	52	83	8	103	2	7	22
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	31	94	58	0	0	75	121	0	0	0	29
Turn Type	Perm		Split				Split				Prot	Prot
Protected Phases		7	3	3			4	4			5	5
Permitted Phases	7											
Detector Phase	7	7	3	3			4	4			5	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	7.0	7.0			5.0	5.0			7.0	7.0
Minimum Split (s)	13.0	13.0	36.0	36.0			13.0	13.0			14.0	14.0
Total Split (s)	13.0	13.0	36.0	36.0	0.0	0.0	15.0	15.0	0.0	0.0	14.0	14.0
Total Split (%)	6.5%	6.5%	18.0%	18.0%	0.0%	0.0%	7.5%	7.5%	0.0%	0.0%	7.0%	7.0%
Maximum Green (s)	5.8	5.8	29.4	29.4			7.6	7.6			7.0	7.0
Yellow Time (s)	3.0	3.0	3.6	3.6			3.0	3.0			3.0	3.0
All-Red Time (s)	4.2	4.2	3.0	3.0			4.4	4.4			4.0	4.0
Lost Time Adjust (s)	0.0	-2.2	-1.6	-1.6	-1.6	-1.6	-2.0	-2.4	-2.4	0.0	0.0	-2.0
Total Lost Time (s)	7.2	5.0	5.0	5.0	2.4	2.4	5.4	5.0	1.6	4.0	7.0	5.0
Lead/Lag			Lag	Lag			Lead	Lead			Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0			2.0	2.0			2.0	2.0
Recall Mode	None	None	None	None			None	None			None	None
Walk Time (s)			4.0	4.0								
Flash Dont Walk (s)			25.0	25.0								
Pedestrian Calls (#/hr)			0	0								
Act Effct Green (s)		11.3	16.8	16.8			12.4	12.8				9.0
Actuated g/C Ratio		0.06	0.08	0.08			0.06	0.06				0.04
v/c Ratio		0.40	0.64	0.45			0.73	1.25				0.36
Control Delay		104.4	107.6	96.7			124.4	234.9				85.4

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

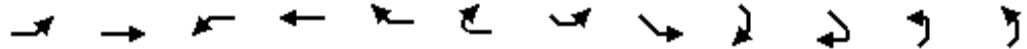
2018 With Site PM Peak
10/18/2013

						
Lane Group	NET	NER	SWL	SWT	SWR	SWR2
Lane Configurations	↑↑	↑	↓	↑↑	↑	
Volume (vph)	2256	114	39	2181	13	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%		
Storage Length (ft)		300	150		100	
Storage Lanes		1	1		1	
Taper Length (ft)		25	25		25	
Lane Util. Factor	*1.00	1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850			0.850	
Flt Protected			0.950			
Satd. Flow (prot)	3725	1583	1770	3725	1583	0
Flt Permitted			0.950			
Satd. Flow (perm)	*3787	1583	1770	*3771	1583	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45		
Link Distance (ft)	1485			2107		
Travel Time (s)	22.5			31.9		
Confl. Peds. (#/hr)						
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2452	124	43	2423	14	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2452	124	43	2423	21	0
Turn Type		pm+ov	Prot		Perm	
Protected Phases	2	3	1	6		
Permitted Phases		2			6	
Detector Phase	2	3	1	6	6	
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	33.0	36.0	15.0	25.0	25.0	
Total Split (s)	121.0	36.0	15.0	122.0	122.0	0.0
Total Split (%)	60.5%	18.0%	7.5%	61.0%	61.0%	0.0%
Maximum Green (s)	114.8	29.4	9.1	115.9	115.9	
Yellow Time (s)	4.6	3.6	3.0	4.4	4.4	
All-Red Time (s)	1.6	3.0	2.9	1.7	1.7	
Lost Time Adjust (s)	-1.2	-1.6	-0.9	-1.1	-1.1	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Recall Mode	C-Max	None	None	C-Max	C-Max	
Walk Time (s)	7.0	4.0		7.0	7.0	
Flash Dont Walk (s)	16.0	25.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	129.6	147.3	9.6	130.4	130.4	
Actuated g/C Ratio	0.65	0.74	0.05	0.65	0.65	
v/c Ratio	1.02	0.11	0.51	1.00	0.02	
Control Delay	39.6	3.7	100.6	39.8	12.8	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 With Site PM Peak

10/18/2013



Lane Group	EBL	EBT	WBL	WBT	WBR	WBR2	SEL2	SEL	SER	SER2	NEL2	NEL
Queue Delay		0.0	0.0	0.0			0.0	0.0				0.0
Total Delay		104.4	107.6	96.7			124.4	234.9				85.4
LOS		F	F	F			F	F				F
Approach Delay		104.4		103.5				192.6				
Approach LOS		F		F				F				
Queue Length 50th (ft)		40	122	74			106	~238				38
Queue Length 95th (ft)		34	180	120			#113	#227				m46
Internal Link Dist (ft)		225		540				279				
Turn Bay Length (ft)							125	125				350
Base Capacity (vph)		79	270	241			103	97				80
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		0.39	0.35	0.24			0.73	1.25				0.36

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 48.7

Intersection LOS: D

Intersection Capacity Utilization 86.4%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

Ø2	Ø1	Ø4	Ø3	
121 s	15 s	15 s	36 s	13 s
Ø6	Ø5			
122 s	14 s			



Lane Group	NET	NER	SWL	SWT	SWR	SWR2
Queue Delay	3.4	0.0	0.0	0.0	0.0	
Total Delay	43.0	3.7	100.6	39.8	12.8	
LOS	D	A	F	D	B	
Approach Delay	41.6			40.7		
Approach LOS	D			D		
Queue Length 50th (ft)	~1741	19	58	~1670	8	
Queue Length 95th (ft)	#1944	m32	m67	#1895	m11	
Internal Link Dist (ft)	1405			2027		
Turn Bay Length (ft)		300	150		100	
Base Capacity (vph)	2413	1247	89	2428	1032	
Starvation Cap Reductn	24	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	1.03	0.10	0.48	1.00	0.02	
Intersection Summary						

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	660	6	157	14	3	19	106	1717	4	12	2042	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	400		0	200		0
Storage Lanes	0		1	0		1	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.99		0.99			1.00		1.00		
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.961		0.950			0.950		
Satd. Flow (prot)	3502	1900	1615	0	1611	1583	3485	3592	0	1770	3539	1583
Flt Permitted	0.950				0.961		0.950			0.950		
Satd. Flow (perm)	*3819	1900	1593	0	1596	1583	3485	*3811	0	1768	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			1485	
Travel Time (s)		7.4			14.0			8.8			22.5	
Confl. Peds. (#/hr)			5	5					1	1		
Peak Hour Factor	0.85	0.85	0.85	0.84	0.84	0.84	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	776	7	185	17	4	23	110	1789	4	12	2127	281
Shared Lane Traffic (%)												
Lane Group Flow (vph)	776	7	185	0	21	23	110	1793	0	12	2127	281
Turn Type	Split		Free	Split		pm+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	1	5	2		1	6	4
Permitted Phases			Free			3						6
Detector Phase	4	4		3	3	1	5	2		1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	32.0	32.0		14.0	14.0	14.0	14.0	19.0		14.0	19.0	32.0
Total Split (s)	48.0	48.0	0.0	14.0	14.0	14.0	14.0	124.0	0.0	14.0	124.0	48.0
Total Split (%)	24.0%	24.0%	0.0%	7.0%	7.0%	7.0%	7.0%	62.0%	0.0%	7.0%	62.0%	24.0%
Maximum Green (s)	41.8	41.8		7.8	7.8	7.8	7.8	117.9		7.8	117.7	41.8
Yellow Time (s)	3.8	3.8		3.8	3.8	3.0	3.0	4.7		3.0	4.5	3.8
All-Red Time (s)	2.4	2.4		2.4	2.4	3.2	3.2	1.4		3.2	1.8	2.4
Lost Time Adjust (s)	-1.2	-1.2	0.0	-2.5	-1.2	-1.2	-1.2	-1.1	0.0	-1.2	-1.3	-1.2
Total Lost Time (s)	5.0	5.0	4.0	3.7	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0	1.0	1.0	6.0		1.0	6.0	1.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)	7.0	7.0										7.0
Flash Dont Walk (s)	18.0	18.0										18.0
Pedestrian Calls (#/hr)	0	0										0
Act Effect Green (s)	48.8	48.8	200.0		8.4	17.0	8.8	121.8		8.8	119.2	170.0
Actuated g/C Ratio	0.24	0.24	1.00		0.04	0.08	0.04	0.61		0.04	0.60	0.85

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.91	0.02	0.12		0.31	0.17	0.71	0.82		0.15	1.01	0.21
Control Delay	87.0	61.7	0.1		104.9	84.4	118.3	35.2		62.9	28.2	0.6
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	4.4		0.0	1.7	0.0
Total Delay	87.0	61.7	0.1		104.9	84.4	118.3	39.6		62.9	29.8	0.6
LOS	F	E	A		F	F	F	D		E	C	A
Approach Delay		70.2			94.2			44.2			26.6	
Approach LOS		E			F			D			C	
Queue Length 50th (ft)	~551	7	0		27	28	75	981		15	~1260	9
Queue Length 95th (ft)	#629	22	0		60	58	#121	1082		m15	m#616	m2
Internal Link Dist (ft)		302			435			504			1405	
Turn Bay Length (ft)			225			75	400			200		
Base Capacity (vph)	855	464	1593		72	136	157	2187		80	2109	1346
Starvation Cap Reductn	0	0	0		0	0	0	0		0	12	0
Spillback Cap Reductn	0	0	0		0	0	0	322		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.91	0.02	0.12		0.29	0.17	0.70	0.96		0.15	1.01	0.21

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 20 (10%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 41.3

Intersection LOS: D

Intersection Capacity Utilization 90.3%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 Ø2	 Ø1	 Ø3	 Ø4
124 s	14 s	14 s	48 s
 Ø5	 Ø6		
14 s	124 s		

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	506	37	205	334	510	21	154	261	523	143	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.96	1.00		0.99		0.93		1.00	0.98		0.99	
Frt		0.990				0.850			0.850		0.989	
Flt Protected	0.950			0.950				0.994		0.950	0.975	
Satd. Flow (prot)	1662	3389	0	1770	1863	1689	0	2037	1583	1625	1923	0
Flt Permitted	0.547			0.152				0.994		0.950	0.975	
Satd. Flow (perm)	919	3389	0	281	1863	1575	0	2027	1559	1625	1923	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	22		12	12		22	49					49
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	42	588	43	220	359	548	24	177	300	562	154	28
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	42	631	0	220	359	548	0	201	300	371	373	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	17.0	17.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	24.0	58.0	45.0	27.0	27.0	24.0	45.0	45.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	18.5%	44.6%	34.6%	20.8%	20.8%	18.5%	34.6%	34.6%	0.0%
Maximum Green (s)	26.7	26.7		17.2	50.7	38.3	20.3	20.3	17.2	38.3	38.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	31.0	31.0		53.0	53.0	89.7		25.3	42.3	36.7	36.7	
Actuated g/C Ratio	0.24	0.24		0.41	0.41	0.69		0.19	0.33	0.28	0.28	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.19	0.78		0.71	0.47	0.49		0.51	0.59	0.81	0.69	
Control Delay	43.7	54.5		40.5	30.8	8.9		53.3	39.2	57.5	48.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	43.7	54.5		40.5	30.8	8.9		53.3	39.2	57.5	48.2	
LOS	D	D		D	C	A		D	D	E	D	
Approach Delay		53.8			22.0			44.9			52.8	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	29	266		124	219	147		158	203	294	284	
Queue Length 95th (ft)	61	322		197	311	204		232	282	423	400	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	219	808		332	760	1162		396	534	500	592	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.19	0.78		0.66	0.47	0.47		0.51	0.56	0.74	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 40.3

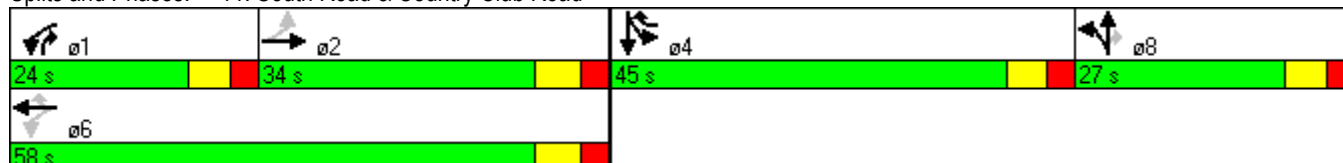
Intersection LOS: D

Intersection Capacity Utilization 82.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 11: South Road & Country Club Road



Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	0	1428	62	0	944	984	0	0	321	0	0	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	1552	67	0	1026	1070	0	0	349	0	0	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1552	67	0	1026	1070	0	0	349	0	0	111
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

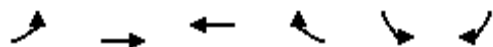
Control Type: Unsignalized

Intersection Capacity Utilization 66.0% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2018 With Site PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	1734	1907	448	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.971			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	4938	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	4938	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1927	2217	521	0	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1927	2738	0	0	22
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

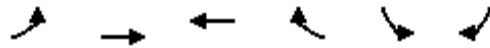
Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
14: NC 54 (Raleigh Road) & Glen Lennox Dr #1

2018 With Site PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	31	2419	2403	40	0	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Ped Bike Factor						
Frt			0.998			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1770	5085	5075	0	0	1611
Flt Permitted	0.950					
Satd. Flow (perm)	1770	5085	5075	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		164	247		247	
Travel Time (s)		2.5	3.7		5.6	
Confl. Peds. (#/hr)	10			10		
Peak Hour Factor	0.97	0.97	0.92	0.92	1.00	0.85
Adj. Flow (vph)	32	2494	2612	43	0	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	2494	2655	0	0	82
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 58.3% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2018 With Site PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Volume (vph)	0	2419	2418	23	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5080	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5080	0	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		247	359		229	
Travel Time (s)		3.7	5.4		6.2	
Peak Hour Factor	1.00	0.94	0.91	0.91	1.00	0.67
Adj. Flow (vph)	0	2573	2657	25	0	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2573	2682	0	0	10
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 57.2%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	108	2130	68	100	2031	130	165	27	108	117	20	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	250		0	150		150	50		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99		0.96	0.97	0.98	
Frt		0.995			0.991				0.850		0.876	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5050	0	1770	5026	0	1770	1863	1583	1770	1601	0
Flt Permitted	0.052			0.052			0.610			0.730		
Satd. Flow (perm)	97	5050	0	97	5026	0	1126	1863	1513	1317	1601	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		359			576			537			463	
Travel Time (s)		5.4			8.7			14.6			12.6	
Confl. Peds. (#/hr)	7		11	11		7	8		25	25		8
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.65	0.65	0.65	0.89	0.89	0.89
Adj. Flow (vph)	115	2266	72	112	2282	146	254	42	166	131	22	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	2338	0	112	2428	0	254	42	166	131	128	0
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	27.0		13.0	26.0		41.0	41.0	13.0	39.0	39.0	
Total Split (s)	13.0	86.0	0.0	17.0	90.0	0.0	47.0	47.0	17.0	47.0	47.0	0.0
Total Split (%)	8.7%	57.3%	0.0%	11.3%	60.0%	0.0%	31.3%	31.3%	11.3%	31.3%	31.3%	0.0%
Maximum Green (s)	7.4	80.4		11.6	84.1		40.6	40.6	11.6	40.5	40.5	
Yellow Time (s)	3.0	3.8		3.0	4.1		3.1	3.1	3.0	3.2	3.2	
All-Red Time (s)	2.6	1.8		2.4	1.8		3.3	3.3	2.4	3.3	3.3	
Lost Time Adjust (s)	-0.6	-0.6	0.0	-0.4	-0.9	0.0	-1.4	-1.4	-0.4	-1.5	-1.5	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	2.0		2.0	2.0		3.0	3.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			13.0		27.0	27.0		25.0	25.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effect Green (s)	85.4	85.4		88.5	88.5		37.6	37.6	49.6	37.6	37.6	
Actuated g/C Ratio	0.57	0.57		0.59	0.59		0.25	0.25	0.33	0.25	0.25	
v/c Ratio	0.74	0.81		0.59	0.82		0.90	0.09	0.33	0.40	0.32	
Control Delay	56.6	29.7		36.0	8.7		86.7	41.4	35.4	49.5	46.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	56.6	29.7		36.0	8.7		86.7	41.4	35.4	49.5	46.9	
LOS	E	C		D	A		F	D	D	D	D	
Approach Delay		31.0			9.9			64.2			48.2	
Approach LOS		C			A			E			D	
Queue Length 50th (ft)	62	682		49	91		236	31	111	105	100	
Queue Length 95th (ft)	#175	765		m90	168		225	45	117	165	157	
Internal Link Dist (ft)		279			496			457			383	
Turn Bay Length (ft)	275			250			150		150	50		
Base Capacity (vph)	155	2874		191	2964		315	522	506	369	448	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.74	0.81		0.59	0.82		0.81	0.08	0.33	0.36	0.29	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 110 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 25.1

Intersection LOS: C

Intersection Capacity Utilization 83.9%

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.

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

		
ø2	ø1	ø4
86 s	17 s	47 s
		
ø5	ø6	ø8
13 s	90 s	47 s

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2018 With Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Volume (vph)	67	2341	29	158	2241	51	29	13	182	28	33	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.998			0.997				0.850		0.944	
Flt Protected	0.950			0.950				0.966			0.987	
Satd. Flow (prot)	1770	5070	0	1770	5063	0	0	1799	1583	0	1720	0
Flt Permitted	0.040			0.043				0.711			0.907	
Satd. Flow (perm)	75	5070	0	80	5063	0	0	1317	1583	0	1580	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	14		18	18		14	9					9
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.86	0.86	0.86	0.83	0.83	0.83
Adj. Flow (vph)	71	2464	31	178	2518	57	34	15	212	34	40	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	2495	0	178	2575	0	0	49	212	0	127	0
Turn Type	D,P+P			D,P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	83.0	0.0	19.0	89.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	8.7%	55.3%	0.0%	12.7%	59.3%	0.0%	32.0%	32.0%	32.0%	32.0%	32.0%	0.0%
Maximum Green (s)	7.1	76.8		13.1	82.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	109.2	92.3		109.2	101.2			25.8	25.8		25.8	
Actuated g/C Ratio	0.73	0.62		0.73	0.67			0.17	0.17		0.17	
v/c Ratio	0.49	0.80		0.72	0.75			0.22	0.78		0.47	
Control Delay	26.2	8.8		70.4	7.2			53.2	77.8		60.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	26.2	8.8		70.4	7.2			53.2	77.8		60.2	
LOS	C	A		E	A			D	E		E	
Approach Delay		9.3			11.3			73.2			60.2	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	23	133		125	152			42	201		113	
Queue Length 95th (ft)	m37	442		m180	273			73	262		155	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	145	3120		257	3414			378	454		453	
Starvation Cap Reductn	0	0		0	43			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.49	0.80		0.69	0.76			0.13	0.47		0.28	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 124 (83%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 14.3

Intersection LOS: B

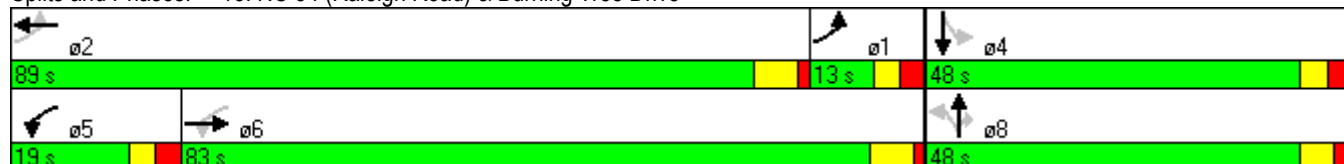
Intersection Capacity Utilization 85.2%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	184	2305	39	12	2148	25	111	12	109	15	0	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.90			0.96						
Frt			0.850			0.850		0.865			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1741	5085	1583	1770	5085	1583	1770	1611	0	1770	1583	0
Flt Permitted	0.044			0.040			0.373			0.532		
Satd. Flow (perm)	81	5085	1430	75	5085	1527	695	1611	0	991	1583	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	15		22	22		15						
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.80	0.80	0.80	0.93	0.93	0.93
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	190	2376	40	13	2261	26	139	15	136	16	0	225
Shared Lane Traffic (%)												
Lane Group Flow (vph)	190	2376	40	13	2261	26	139	151	0	16	225	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	44.0	44.0	16.0	44.0	44.0	18.0	18.0		18.0	18.0	
Total Split (s)	18.0	97.0	97.0	16.0	75.0	75.0	37.0	37.0	0.0	37.0	37.0	0.0
Total Split (%)	12.0%	64.7%	64.7%	10.7%	50.0%	50.0%	24.7%	24.7%	0.0%	24.7%	24.7%	0.0%
Maximum Green (s)	11.7	90.7	90.7	9.7	68.7	68.7	30.2	30.2		29.7	29.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	104.5	104.2	104.2	107.5	91.3	91.3	30.5	30.5		30.5	30.5	
Actuated g/C Ratio	0.70	0.69	0.69	0.72	0.61	0.61	0.20	0.20		0.20	0.20	
v/c Ratio	0.94	0.67	0.04	0.09	0.73	0.03	0.99	0.46		0.08	0.70	
Control Delay	79.8	17.1	13.8	3.1	5.7	4.2	129.9	57.1		48.6	67.6	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	13%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	79.8	17.2	13.8	3.1	5.7	4.2	129.9	57.1		48.6	67.6	
LOS	E	B	B	A	A	A	F	E		D	E	
Approach Delay		21.7			5.7			92.0			66.3	
Approach LOS		C			A			F			E	
Queue Length 50th (ft)	155	387	14	1	105	3	135	130		13	204	
Queue Length 95th (ft)	m#238	526	m26	m1	102	m3	#229	178		35	301	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	202	3531	993	178	3096	930	148	344		211	338	
Starvation Cap Reductn	0	183	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.94	0.71	0.04	0.07	0.73	0.03	0.94	0.44		0.08	0.67	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 105 (70%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 87.5%

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
16 s	97 s	37 s
 ø5	 ø10	 ø6
18 s	20 s	75 s
		 ø8
		37 s

Lane Group	ø10
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	128	2229	83	59	1886	97	126	18	456	165	10	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.95	1.00		0.98	1.00	1.00				
Fr _t			0.850			0.850		0.869	0.850			0.850
Fl _t Protected	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (prot)	3467	5136	1599	3416	5060	1575	1648	1440	1475	3485	1891	1607
Fl _t Permitted	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (perm)	3466	5136	1517	3407	5060	1548	1640	1439	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	4		25	25		4	4					4
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	135	2346	87	65	2073	107	148	21	536	192	12	199
Shared Lane Traffic (%)							10%		47%			
Lane Group Flow (vph)	135	2346	87	65	2073	107	133	288	284	192	12	199
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	75.0	41.0	16.0	75.0	18.0	41.0	41.0	57.0	18.0	18.0	34.0
Total Split (%)	10.7%	50.0%	27.3%	10.7%	50.0%	12.0%	27.3%	27.3%	38.0%	12.0%	12.0%	22.7%
Maximum Green (s)	8.8	68.4	33.9	8.9	68.5	10.7	33.9	33.9		10.7	10.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	10.7	72.8	106.0	11.0	73.1	86.1	33.2	33.2	44.2	13.0	13.0	23.7
Actuated g/C Ratio	0.07	0.49	0.71	0.07	0.49	0.57	0.22	0.22	0.29	0.09	0.09	0.16
v/c Ratio	0.55	0.94	0.08	0.26	0.84	0.12	0.36	0.90	0.65	0.64	0.07	0.78

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	61.3	47.0	6.5	51.7	22.3	5.8	51.8	87.1	44.9	76.4	64.3	56.8
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	61.3	47.0	6.5	51.7	22.3	5.8	51.8	87.1	44.9	76.4	64.3	56.8
LOS	E	D	A	D	C	A	D	F	D	E	E	E
Approach Delay	46.4			22.4			63.5			66.3		
Approach LOS	D			C			E			E		
Queue Length 50th (ft)	69	575	9	32	686	21	114	296	190	95	11	117
Queue Length 95th (ft)	m106	#920	m49	m45	264	m33	171	#419	254	132	32	#180
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300		200	300	200		450		250			
Base Capacity (vph)	255	2493	1110	251	2466	891	396	346	462	302	164	257
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	0.53	0.94	0.08	0.26	0.84	0.12	0.34	0.83	0.61	0.64	0.07	0.77

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 69 (46%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 40.7

Intersection LOS: D

Intersection Capacity Utilization 81.2%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

			
ø2	ø1	ø3	ø4
75 s	16 s	18 s	41 s
			
ø5	ø6		
16 s	75 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	6	2069	786	153	1786	184	263	63	41	119	83	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96			0.98						
Frt			0.850			0.850		0.966			0.985	
Flt Protected	0.950			0.950			0.950	0.979		0.950	0.993	
Satd. Flow (prot)	1761	4448	1575	1778	5111	1591	1673	1665	0	1664	1714	0
Flt Permitted	0.059			0.058			0.950	0.979		0.950	0.993	
Satd. Flow (perm)	109	4448	1507	109	5111	1554	1673	1665	0	1664	1714	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)	1		6	6		1						
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	6	2155	819	163	1900	196	292	70	46	135	94	12
Shared Lane Traffic (%)							30%			12%		
Lane Group Flow (vph)	6	2155	819	163	1900	196	204	204	0	119	122	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	80.0	33.0	17.0	81.0	20.0	33.0	33.0	0.0	20.0	20.0	0.0
Total Split (%)	10.7%	53.3%	22.0%	11.3%	54.0%	13.3%	22.0%	22.0%	0.0%	13.3%	13.3%	0.0%
Maximum Green (s)	9.2	72.5	25.8	10.0	73.5	12.8	25.8	25.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	91.0	75.0	103.7	87.0	89.2	103.6	28.7	28.7		14.3	14.3	
Actuated g/C Ratio	0.61	0.50	0.69	0.58	0.59	0.69	0.19	0.19		0.10	0.10	
v/c Ratio	0.04	0.97	0.78	0.83	0.62	0.18	0.64	0.64		0.75	0.74	
Control Delay	5.8	25.2	8.1	82.9	21.4	7.6	66.4	66.6		93.2	92.2	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2018 With Site PM Peak

10/18/2013

												
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	
Total Delay	5.8	25.2	8.1	82.9	21.4	7.6	66.4	66.6		93.2	92.2	
LOS	A	C	A	F	C	A	E	E		F	F	
Approach Delay		20.4			24.6			66.5			92.7	
Approach LOS		C			C			E			F	
Queue Length 50th (ft)	1	544	156	102	400	50	196	196		121	124	
Queue Length 95th (ft)	m2	#967	m153	#230	561	107	293	294		#210	#213	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	188	2224	1055	197	3041	1083	319	318		166	171	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.97	0.78	0.83	0.62	0.18	0.64	0.64		0.72	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 75 (50%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 28.2

Intersection LOS: C

Intersection Capacity Utilization 77.8%

ICU Level of Service D

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2	 ø1	 ø3	 ø4
80 s	17 s	20 s	33 s
 ø5	 ø6		
16 s	81 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	364	349	59	214	408	229	76	826	188	118	669	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		0.99		0.98	0.99	0.99		1.00	0.97	
Frt		0.978				0.850		0.972			0.943	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1815	0	1770	1863	1583	1770	3421	0	1770	3236	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1761	1815	0	1757	1863	1551	1748	3421	0	1763	3236	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	5		9	9		5	14		13	13		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	375	360	61	221	421	236	82	888	202	126	712	438
Shared Lane Traffic (%)												
Lane Group Flow (vph)	375	421	0	221	421	236	82	1090	0	126	1150	0
Turn Type	Prot			Prot		pm+ov	Prot			Prot		
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Detector Phase	7	4		3	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	
Total Split (s)	34.0	43.0	0.0	26.0	35.0	16.0	15.0	55.0	0.0	16.0	56.0	0.0
Total Split (%)	24.3%	30.7%	0.0%	18.6%	25.0%	11.4%	10.7%	39.3%	0.0%	11.4%	40.0%	0.0%
Maximum Green (s)	28.1	37.1		20.4	29.4	10.1	8.8	49.3		10.1	50.6	
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	29.0	39.1		19.9	30.0	41.0	9.5	50.0		11.0	51.5	
Actuated g/C Ratio	0.21	0.28		0.14	0.21	0.29	0.07	0.36		0.08	0.37	
v/c Ratio	1.02	0.83		0.88	1.06	0.52	0.68	0.89		0.91	0.97	
Control Delay	106.6	62.8		84.6	106.7	24.8	90.7	52.9		117.9	62.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	106.6	62.8		84.6	106.7	24.8	90.7	52.9		117.9	62.7	
LOS	F	E		F	F	C	F	D		F	E	
Approach Delay		83.4			79.1			55.5			68.2	
Approach LOS		F			E			E			E	
Queue Length 50th (ft)	~362	366		172	~423	104	74	491		116	541	
Queue Length 95th (ft)	#566	#542		m#315	#614	m155	#149	#594		#243	#696	
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	200											
Base Capacity (vph)	367	507		266	399	457	126	1222		139	1189	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	1.02	0.83		0.83	1.06	0.52	0.65	0.89		0.91	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 88 (63%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 69.9

Intersection LOS: E

Intersection Capacity Utilization 96.4%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

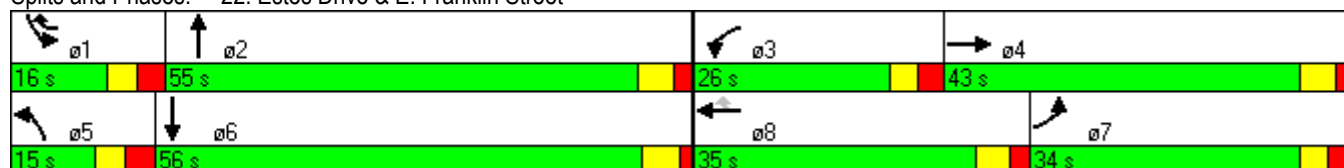
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



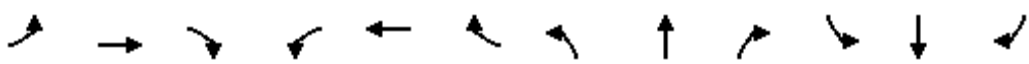
Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	240	406	9	5	455	57	13	9	13	91	11	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.983			0.950				0.850
Flt Protected	0.950			0.950				0.982			0.957	
Satd. Flow (prot)	1770	3526	0	1770	3465	0	0	1724	0	0	1765	1568
Flt Permitted	0.348			0.499				0.837			0.713	
Satd. Flow (perm)	645	3526	0	918	3465	0	0	1469	0	0	1304	1548
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		11	11		8	1		11	11		1
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.69	0.69	0.69	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	253	427	9	6	523	66	19	13	19	96	12	369
Shared Lane Traffic (%)												
Lane Group Flow (vph)	253	436	0	6	589	0	0	51	0	0	108	369
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	18.0	41.0	0.0	23.0	23.0	0.0	29.0	29.0	0.0	29.0	29.0	18.0
Total Split (%)	25.7%	58.6%	0.0%	32.9%	32.9%	0.0%	41.4%	41.4%	0.0%	41.4%	41.4%	25.7%
Maximum Green (s)	12.9	35.9		17.8	17.8		23.3	23.3		23.2	23.2	12.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	52.0	53.0		35.2	35.2			10.5			10.5	20.8
Actuated g/C Ratio	0.74	0.76		0.50	0.50			0.15			0.15	0.30
v/c Ratio	0.38	0.16		0.01	0.34			0.23			0.55	0.80
Control Delay	4.2	2.8		12.8	12.9			27.4			37.7	32.4
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	4.2	2.8		12.8	12.9			27.4			37.7	32.4
LOS	A	A		B	B			C			D	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		3.3			12.9			27.4			33.6	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	28	23		1	77			20			44	128
Queue Length 95th (ft)	m77	m70		8	135			34			84	170
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	692	2672		462	1744			504			447	494
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.37	0.16		0.01	0.34			0.10			0.24	0.75

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 15.1

Intersection LOS: B

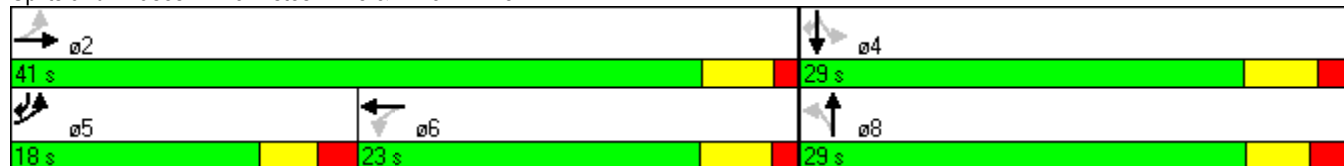
Intersection Capacity Utilization 58.8%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2018 With Site PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	261	17	1	134	11	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.953	
Flt Protected					0.969	
Satd. Flow (prot)	1848	0	0	1863	1720	0
Flt Permitted					0.969	
Satd. Flow (perm)	1848	0	0	1863	1720	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Confl. Peds. (#/hr)						11
Peak Hour Factor	0.62	0.62	0.62	0.62	0.85	0.85
Adj. Flow (vph)	421	27	2	216	13	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	448	0	0	218	20	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.8%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2018 With Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	56	10	0	41	3	11	2	0	4	2	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		0.980			0.991						0.919	
Flt Protected		0.997						0.959			0.988	
Satd. Flow (prot)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Flt Permitted		0.997						0.959			0.988	
Satd. Flow (perm)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.65	0.65	0.65	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%
Adj. Flow (vph)	5	60	11	0	44	3	17	3	0	5	3	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	47	0	0	20	0	0	20	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	17.8%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 With Site PM Peak

10/18/2013

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	185	1938	67	67	1624
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	300	
Storage Lanes	0	2		1	2	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.97	0.95
Frt		0.850		0.850		
Flt Protected					0.950	
Satd. Flow (prot)	0	2787	3539	1583	3433	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	2787	3539	1583	3433	3539
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		45			45
Link Distance (ft)	697		659			801
Travel Time (s)	19.0		10.0			12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	206	2153	74	74	1804
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	206	2153	74	74	1804
Turn Type		Over		Perm	Prot	
Protected Phases		1	2		1	6
Permitted Phases				2		
Detector Phase		1	2	2	1	6
Switch Phase						
Minimum Initial (s)		7.0	12.0	12.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	32.0	168.0	168.0	32.0	200.0
Total Split (%)	0.0%	16.0%	84.0%	84.0%	16.0%	100.0%
Maximum Green (s)		25.0	161.0	161.0	25.0	193.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	C-Max
Act Effct Green (s)		21.9	168.1	168.1	21.9	200.0
Actuated g/C Ratio		0.11	0.84	0.84	0.11	1.00
v/c Ratio		0.67	0.72	0.06	0.20	0.51
Control Delay		96.5	3.5	1.5	81.0	0.5
Queue Delay		0.0	0.0	0.0	0.0	0.0
Total Delay		96.5	3.5	1.5	81.0	0.6
LOS		F	A	A	F	A
Approach Delay			3.5			3.7
Approach LOS			A			A
Queue Length 50th (ft)		151	118	6	46	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 With Site PM Peak
 10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 95th (ft)		201	143	12	m74	0
Internal Link Dist (ft)	617		579			721
Turn Bay Length (ft)					300	
Base Capacity (vph)		376	2974	1330	463	3539
Starvation Cap Reductn		0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	275
Storage Cap Reductn		0	0	0	0	0
Reduced v/c Ratio		0.55	0.72	0.06	0.16	0.55

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 57 (29%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 8.0

Intersection LOS: A

Intersection Capacity Utilization 68.4%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

	ø1		ø2
32 s		168 s	
	ø6		
200 s			

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2018 With Site PM Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	2348	1405	983
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	667		536		2107	
Travel Time (s)	15.2		8.1		31.9	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2348	1561	1092
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2348	1561	1092
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 85.5% ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings
61: NC 54 EB Off Ramp &

2018 With Site PM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	983	0	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			667	476	
Travel Time (s)	4.7			15.2	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1092	0	249
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1092	0	249
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	55.1%			ICU Level of Service B		
Analysis Period (min)	15					

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2018 With Site PM Peak

10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑		↗
Volume (vph)	1505	229	0	2355	0	983
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	5085	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			164	476	
Travel Time (s)	1.4			2.5	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1792	273	0	2617	0	1013
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1792	273	0	2617	0	1013
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	109.1%			ICU Level of Service H		
Analysis Period (min)	15					

2018 With Site Phase 1 Mitigated

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	47	3	289	7	7	13	4	294	1430	5	14	1433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99			0.99							
Frt			0.850		0.936							
Flt Protected		0.955			0.987			0.950			0.950	
Satd. Flow (prot)	0	1703	2668	0	1507	0	0	3383	3487	0	1744	3489
Flt Permitted		0.955			0.987			0.950			0.950	
Satd. Flow (perm)	0	1680	2668	0	1507	0	0	3383	3487	0	1744	3489
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	10					10						
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	2%	3%	3%	3%	4%	4%
Adj. Flow (vph)	52	3	321	10	10	18	4	323	1571	5	16	1666
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	321	0	38	0	0	327	1576	0	16	1666
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	20.0	20.0	45.0	41.0	41.0		45.0	45.0	59.0		15.0	19.0
Total Split (s)	20.0	20.0	45.0	41.0	41.0	0.0	45.0	45.0	94.0	0.0	15.0	64.0
Total Split (%)	11.8%	11.8%	26.5%	24.1%	24.1%	0.0%	26.5%	26.5%	55.3%	0.0%	8.8%	37.6%
Maximum Green (s)	13.4	13.4	38.3	34.3	34.3		38.3	38.3	87.9		8.5	57.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak
10/18/2013

Lane Group	SBR
Lane Configurations	
Volume (vph)	67
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1561
Flt Permitted	
Satd. Flow (perm)	1561
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	4%
Adj. Flow (vph)	78
Shared Lane Traffic (%)	
Lane Group Flow (vph)	78
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	11.8%
Maximum Green (s)	13.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		10.8	38.2		10.3			22.4	127.6		9.4	109.2
Actuated g/C Ratio		0.06	0.22		0.06			0.13	0.75		0.06	0.64
v/c Ratio		0.51	0.54		0.41			0.73	0.60		0.16	0.74
Control Delay		92.7	60.7		89.9			80.7	13.1		60.6	11.2
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		92.7	60.7		89.9			80.7	13.1		60.6	11.2
LOS		F	E		F			F	B		E	B
Approach Delay		65.4			89.9				24.7			11.2
Approach LOS		E			F				C			B
Queue Length 50th (ft)		61	182		42			183	459		17	152
Queue Length 95th (ft)		110	222		66			231	625		m31	565
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		150	876		319			796	2617		103	2241
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.37	0.37		0.12			0.41	0.60		0.16	0.74

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 26 (15%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 23.3

Intersection LOS: C

Intersection Capacity Utilization 87.1%

ICU Level of Service E

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø4	ø3
94 s	15 s	41 s	20 s
			
ø5	ø6		
45 s	64 s		



Lane Group	SBR
Act Effect Green (s)	121.0
Actuated g/C Ratio	0.71
v/c Ratio	0.07
Control Delay	2.4
Queue Delay	0.0
Total Delay	2.4
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	6
Queue Length 95th (ft)	19
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1149
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.07
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	8	0	0	107	0	1617	18	59	1636	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected										0.950		
Satd. Flow (prot)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Flt Permitted										0.950		
Satd. Flow (perm)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1002			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.71	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	12	0	0	151	0	1739	19	69	1902	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	12	0	0	151	0	1739	19	69	1902	14
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	32.0	14.0	108.0	108.0	32.0	126.0	126.0
Total Split (%)	0.0%	0.0%	10.0%	0.0%	0.0%	22.9%	10.0%	77.1%	77.1%	22.9%	90.0%	90.0%
Maximum Green (s)			7.0			25.0	7.0	101.0	101.0	25.0	119.0	119.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			20.5		109.5	109.5	20.5	132.4	132.4
Actuated g/C Ratio			0.06			0.15		0.78	0.78	0.15	0.95	0.95
v/c Ratio			0.12			0.65		0.63	0.02	0.27	0.57	0.01
Control Delay			64.5			69.1		5.0	2.8	54.1	2.2	1.0
Queue Delay			0.0			0.0		0.0	0.0	0.0	0.0	0.0
Total Delay			64.5			69.1		5.1	2.8	54.1	2.2	1.0
LOS			E			E		A	A	D	A	A
Approach Delay								5.1			4.0	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			10			132		134	2	57	0	0
Queue Length 95th (ft)			25			151		177	m3	95	208	4
Internal Link Dist (ft)		208			43			922			1513	
Turn Bay Length (ft)									150	200		150
Base Capacity (vph)			104			305		2742	1227	338	3315	1483
Starvation Cap Reductn			0			0		96	0	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.12			0.50		0.66	0.02	0.20	0.57	0.01

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 120 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 7.2

Intersection LOS: A

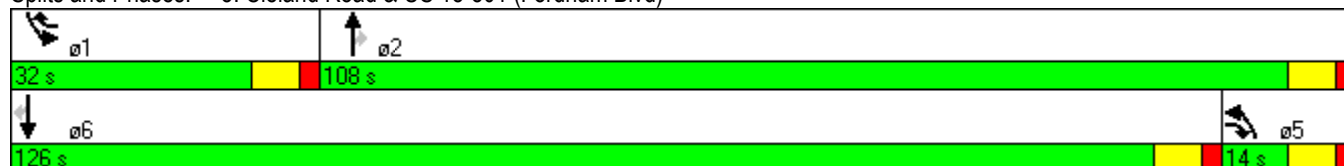
Intersection Capacity Utilization 59.7%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Volume (vph)	0	0	24	0	0	51	42	13	1747	25	39	1525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				797			1036
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	0.69	0.69	0.69	0.80	0.80	0.80	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	35	0	0	64	46	14	1920	27	45	1773
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	35	0	0	64	0	60	1920	27	45	1773
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	17.0	0.0	0.0	19.0	17.0	17.0	121.0	121.0	19.0	123.0
Total Split (%)	0.0%	0.0%	12.1%	0.0%	0.0%	13.6%	12.1%	12.1%	86.4%	86.4%	13.6%	87.9%
Maximum Green (s)			10.0			12.0	10.0	10.0	114.0	114.0	12.0	116.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			11.1			12.2		11.1	121.6	121.6	12.2	122.7
Actuated g/C Ratio			0.08			0.09		0.08	0.87	0.87	0.09	0.88
v/c Ratio			0.27			0.46		0.43	0.63	0.02	0.29	0.58
Control Delay			65.9			70.9		72.6	2.7	1.4	60.9	3.2
Queue Delay			0.0			0.0		0.0	0.0	0.0	0.0	0.0
Total Delay			65.9			70.9		72.6	2.7	1.4	60.9	3.2
LOS			E			E		E	A	A	E	A
Approach Delay									4.8			4.7
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	3%
Adj. Flow (vph)	6
Shared Lane Traffic (%)	
Lane Group Flow (vph)	6
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	123.0
Total Split (%)	87.9%
Maximum Green (s)	116.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	122.7
Actuated g/C Ratio	0.88
v/c Ratio	0.00
Control Delay	1.8
Queue Delay	0.0
Total Delay	1.8
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			30			56		54	101	3	39	211
Queue Length 95th (ft)			51			94		m95	105	m4	m72	172
Internal Link Dist (ft)		24			5				717			956
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			138			161		150	3044	1362	175	3072
Starvation Cap Reductn			0			0		0	0	0	0	18
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.25			0.40		0.40	0.63	0.02	0.26	0.58

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 94 (67%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 6.3

Intersection LOS: A

Intersection Capacity Utilization 62.5%

ICU Level of Service B

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)

	
ø1	ø2
19 s	121 s
	
ø5	ø6
17 s	123 s



Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m1
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1374
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.00
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	936	0	0	342	0	1395	27	0	1346	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	1101	0	0	407	0	1550	30	0	1402	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1101	0	0	407	0	1550	30	0	1402	188
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.0	0.0
Total Split (%)	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%
Maximum Green (s)			64.9								64.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			1.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			60.8			140.0		140.0	140.0		69.2	140.0
Actuated g/C Ratio			0.43			1.00		1.00	1.00		0.49	1.00
v/c Ratio			0.93			0.26		0.44	0.02		0.81	0.12
Control Delay			30.1			0.2		0.3	0.0		32.0	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			30.1			0.2		0.3	0.0		32.0	0.1
LOS			C			A		A	A		C	A
Approach Delay								0.3			28.2	
Approach LOS								A			C	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			409			0		0	0		577	0
Queue Length 95th (ft)			446			m0		0	m0		702	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1269			1580		3505	1583		1732	1568
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			0.87			0.26		0.44	0.02		0.81	0.12

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 16.8

Intersection LOS: B

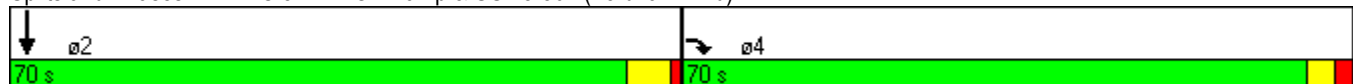
Intersection Capacity Utilization 78.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		 		 		
Volume (vph)	24	102	208	14	2671	237	1852	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					776		916		
Travel Time (s)					11.8		13.9		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.61	0.52	0.47	0.47	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	39	196	443	30	2782	247	2129	6	1
Shared Lane Traffic (%)									
Lane Group Flow (vph)	39	196	473	0	2782	247	2129	7	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0	25.0	
Total Split (s)	14.0	28.0	28.0	0.0	98.0	0.0	98.0	98.0	0.0
Total Split (%)	10.0%	20.0%	20.0%	0.0%	70.0%	0.0%	70.0%	70.0%	0.0%
Maximum Green (s)	7.0	21.0	21.0		91.0		91.0	91.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes								
Vehicle Extension (s)	3.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	25.2	25.2		100.8	140.0	93.6	93.6	
Actuated g/C Ratio	0.06	0.18	0.18		0.72	1.00	0.67	0.67	
v/c Ratio	0.38	0.69	0.95		1.04	0.16	0.86	0.01	
Control Delay	73.6	67.9	86.7		30.2	0.0	9.6	2.0	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		27.6	0.0	0.5	0.0	
Total Delay	73.6	67.9	86.7		57.8	0.0	10.0	2.0	
LOS	E	E	F		E	A	B	A	
Approach Delay					53.1		10.0		
Approach LOS					D		B		
Queue Length 50th (ft)	35	172	~264		~1086	0	510	1	
Queue Length 95th (ft)	50	140	151		m#1017	m0	229	m1	
Internal Link Dist (ft)					696		836		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	104	286	497		2685	1583	2490	1058	
Starvation Cap Reductn	0	0	0		162	0	90	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.38	0.69	0.95		1.10	0.16	0.89	0.01	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 26 (19%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 40.8

Intersection LOS: D

Intersection Capacity Utilization 88.8%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø2	 ø3	 ø4
98 s	14 s	28 s
 ø6		
98 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	270	0	36	16	0	48	0	2533	8	0	1220	947
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	450		0	0		0
Storage Lanes	0		1	1		1	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99								
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3434	0	1584	1752	0	1568	0	4010	0	0	3438	1538
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1564	1744	0	1568	0	*3811	0	0	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			706	
Travel Time (s)		7.4			14.0			8.8			10.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.88	1.00	0.88	0.68	1.00	0.68	1.00	0.94	0.94	1.00	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Parking (#/hr)										0		
Adj. Flow (vph)	307	0	41	24	0	71	0	2695	9	0	1284	997
Shared Lane Traffic (%)												
Lane Group Flow (vph)	307	0	41	24	0	71	0	2704	0	0	1284	997
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				19.0			19.0	
Total Split (s)	32.0	0.0	0.0	32.0	0.0	0.0	0.0	108.0	0.0	0.0	108.0	0.0
Total Split (%)	22.9%	0.0%	0.0%	22.9%	0.0%	0.0%	0.0%	77.1%	0.0%	0.0%	77.1%	0.0%
Maximum Green (s)	25.0			25.0				101.0			101.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	18.0		140.0	18.0		140.0		112.0			112.0	140.0

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.13		1.00	0.13		1.00		0.80			0.80	1.00
v/c Ratio	0.70		0.03	0.11		0.05		0.84			0.47	0.65
Control Delay	66.8		0.0	53.2		0.1		12.5			2.1	2.3
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.2	0.0
Total Delay	66.8		0.0	53.2		0.1		12.5			2.3	2.3
LOS	E		A	D		A		B			A	A
Approach Delay								12.5			2.3	
Approach LOS								B			A	
Queue Length 50th (ft)	140		0	20		0		604			71	9
Queue Length 95th (ft)	179		0	35		0		840			84	31
Internal Link Dist (ft)		302			435			504			626	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	662		1564	338		1568		3209			2751	1538
Starvation Cap Reductn	0		0	0		0		0			538	0
Spillback Cap Reductn	0		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.46		0.03	0.07		0.05		0.84			0.58	0.65

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 31 (22%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 11.2

Intersection LOS: B

Intersection Capacity Utilization 65.2%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø3
108 s	32 s
 ø6	
108 s	

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2018 Mitigated AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1016	2145	342	0	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1129	2494	398	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1129	2494	398	0	32
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.4%

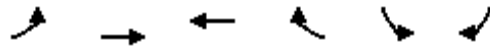
ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2018 Mitigated AM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2141	2515	37	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		206	565		229	
Travel Time (s)		3.1	8.6		6.2	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2141	2734	40	0	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2141	2734	40	0	48
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 58.6% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	62	1810	189	63	2235	68	184	32	101	85	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	250	
Storage Lanes		1		0	1		1	1		1	1	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00				0.95	0.99		0.98	0.99	0.98
Frt			0.986				0.850			0.850		0.889
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1755	4946	0	1736	4988	1553	1736	1827	1553	1719	1574
Flt Permitted		0.950			0.057			0.644			0.725	
Satd. Flow (perm)	0	1753	4946	0	104	4988	1474	1160	1827	1523	1303	1574
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			565			576			537			463
Travel Time (s)			8.6			8.7			14.6			12.6
Confl. Peds. (#/hr)		9		6	6		9	13		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86
Heavy Vehicles (%)	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%
Adj. Flow (vph)	11	70	2057	215	71	2511	76	283	49	155	99	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	2272	0	71	2511	76	283	49	155	99	116
Turn Type	Prot	Prot			pm+pt		Perm	Perm		pm+ov	Perm	
Protected Phases	5	5	2		1	6			8	1		4
Permitted Phases					6		6	8		8	4	
Detector Phase	5	5	2		1	6	6	8	8	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	13.0	27.0		13.0	26.0	26.0	41.0	41.0	13.0	39.0	39.0
Total Split (s)	14.0	14.0	82.0	0.0	13.0	81.0	81.0	45.0	45.0	13.0	45.0	45.0
Total Split (%)	10.0%	10.0%	58.6%	0.0%	9.3%	57.9%	57.9%	32.1%	32.1%	9.3%	32.1%	32.1%
Maximum Green (s)	8.4	8.4	76.4		7.6	75.1	75.1	38.6	38.6	7.6	38.5	38.5
Yellow Time (s)	3.0	3.0	3.8		3.0	4.1	4.1	3.1	3.1	3.0	3.2	3.2
All-Red Time (s)	2.6	2.6	1.8		2.4	1.8	1.8	3.3	3.3	2.4	3.3	3.3
Lost Time Adjust (s)	0.0	-0.6	-0.6	0.0	-0.4	-0.9	-0.9	-1.4	-1.4	-0.4	-1.5	-1.5
Total Lost Time (s)	5.6	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag			Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	C-Max	Min	Min	None	Min	Min
Walk Time (s)			7.0			7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)			12.0			13.0	13.0	27.0	27.0		25.0	25.0
Pedestrian Calls (#/hr)			0			0	0	0	0		0	0
Act Effct Green (s)		9.3	79.7		78.5	78.5	78.5	37.3	37.3	45.3	37.3	37.3
Actuated g/C Ratio		0.07	0.57		0.56	0.56	0.56	0.27	0.27	0.32	0.27	0.27
v/c Ratio		0.70	0.81		0.47	0.90	0.09	0.92	0.10	0.31	0.29	0.28
Control Delay		91.2	29.1		27.2	11.9	7.1	83.4	37.9	34.2	42.3	41.8

Lane Group	SBR
Lane Configurations	
Volume (vph)	74
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	13
Peak Hour Factor	0.86
Heavy Vehicles (%)	5%
Adj. Flow (vph)	86
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Mitigated AM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		91.2	29.1		27.2	11.9	7.1	83.4	37.9	34.2	42.3	41.8
LOS		F	C		C	B	A	F	D	C	D	D
Approach Delay			31.2			12.2			63.2			42.0
Approach LOS			C			B			E			D
Queue Length 50th (ft)		73	682		11	73	6	244	33	97	70	82
Queue Length 95th (ft)		m#121	676		m34	179	m19	235	48	106	117	130
Internal Link Dist (ft)			485			496			457			383
Turn Bay Length (ft)		300			250		150	150		150	250	
Base Capacity (vph)		118	2816		152	2796	826	331	522	494	372	450
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.69	0.81		0.47	0.90	0.09	0.85	0.09	0.31	0.27	0.26

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 23 (16%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 25.5

Intersection LOS: C

Intersection Capacity Utilization 80.5%

ICU Level of Service D

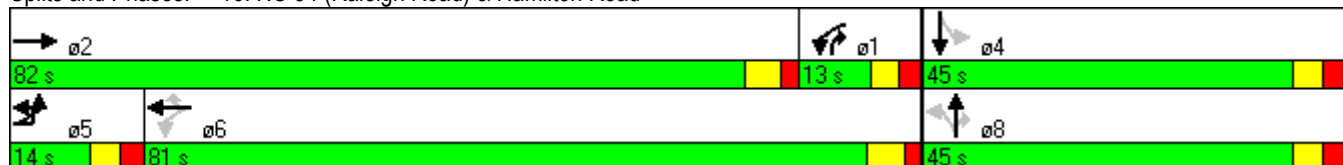
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	381	375	61	145	244	87	51	427	97	77	611	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.98		1.00		1.00		0.95
Frt		0.979				0.850		0.972				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	1802	0	1719	1810	1538	1703	3300	0	1703	3406	1524
Flt Permitted	0.950			0.950			0.293			0.321		
Satd. Flow (perm)	3212	1802	0	1714	1810	1513	525	3300	0	574	3406	1451
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	3		4	4		3	7		4	4		7
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Parking (#/hr)	0											
Adj. Flow (vph)	414	408	66	156	262	94	54	454	103	83	657	273
Shared Lane Traffic (%)												
Lane Group Flow (vph)	414	474	0	156	262	94	54	557	0	83	657	273
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	29.0	52.0	0.0	24.0	47.0	15.0	15.0	39.0	0.0	15.0	39.0	29.0
Total Split (%)	22.3%	40.0%	0.0%	18.5%	36.2%	11.5%	11.5%	30.0%	0.0%	11.5%	30.0%	22.3%
Maximum Green (s)	23.1	46.1		18.4	41.4	9.1	8.8	33.3		9.1	33.6	23.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	31.0	39.3		15.8	24.1	33.2	54.3	45.8		56.5	49.0	80.0
Actuated g/C Ratio	0.24	0.30		0.12	0.19	0.26	0.42	0.35		0.43	0.38	0.62
v/c Ratio	0.54	0.87		0.75	0.78	0.24	0.18	0.48		0.25	0.51	0.30

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Mitigated AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	45.5	59.6		72.7	58.5	18.6	24.9	36.8		25.1	36.2	8.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	45.5	59.6		72.7	58.5	18.6	24.9	36.8		25.1	36.2	8.7
LOS	D	E		E	E	B	C	D		C	D	A
Approach Delay	53.0			55.5			35.8			27.9		
Approach LOS	D			E			D			C		
Queue Length 50th (ft)	155	375		123	201	32	25	195		40	234	65
Queue Length 95th (ft)	204	477		m194	m264	m48	59	284		83	338	124
Internal Link Dist (ft)	718			652			519			599		
Turn Bay Length (ft)	250											
Base Capacity (vph)	772	651		251	585	400	316	1163		340	1283	911
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.54	0.73		0.62	0.45	0.23	0.17	0.48		0.24	0.51	0.30

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 84 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 41.5

Intersection LOS: D

Intersection Capacity Utilization 79.9%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
15 s	39 s	24 s	52 s
 ø5	 ø6	 ø8	 ø7
15 s	39 s	47 s	29 s

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2018 Mitigated AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	61	5	1	42	1	13	1	0	0	2	0
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			0.998							
Flt Protected		0.999			0.999			0.957				
Satd. Flow (prot)	0	1773	0	0	1857	0	0	1783	0	0	1863	0
Flt Permitted		0.999			0.999			0.957				
Satd. Flow (perm)	0	1773	0	0	1857	0	0	1783	0	0	1863	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.83	0.83	0.83	0.79	0.79	0.79	0.65	0.65	0.65	0.50	0.50	0.50
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	73	6	1	53	1	20	2	0	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	55	0	0	22	0	0	4	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.1%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↖↖	↖↖	↖		↖↖	↖↖
Volume (vph)	0	82	1582	112	12	66	1479
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	30		45				45
Link Distance (ft)	449		664				797
Travel Time (s)	10.2		10.1				12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	91	1758	124	13	73	1643
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	91	1758	124	0	86	1643
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	18.0	122.0	122.0	18.0	18.0	140.0
Total Split (%)	0.0%	12.9%	87.1%	87.1%	12.9%	12.9%	100.0%
Maximum Green (s)		11.0	115.0	115.0	11.0	11.0	133.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		13.0	117.0	117.0		13.0	140.0
Actuated g/C Ratio		0.09	0.84	0.84		0.09	1.00
v/c Ratio		0.35	0.59	0.09		0.27	0.46
Control Delay		63.7	2.7	1.5		59.5	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		63.7	2.8	1.5		59.5	0.4
LOS		E	A	A		E	A
Approach Delay			2.7				3.3
Approach LOS			A				A
Queue Length 50th (ft)		44	95	9		38	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak
 10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		77	171	24		68	0
Internal Link Dist (ft)	369		584				717
Turn Bay Length (ft)						300	
Base Capacity (vph)		259	2958	1323		319	3539
Starvation Cap Reductn		0	18	0		0	0
Spillback Cap Reductn		0	0	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.35	0.60	0.09		0.27	0.46

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 88 (63%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 4.5

Intersection LOS: A

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
122 s	18 s
 ø6	
140 s	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	10	0	1788	0	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		59			59				1036			
Travel Time (s)		1.3			1.3				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	11	0	1987	0	8	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	11	0	1987	0	8	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	121.0	0.0	19.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	86.4%	0.0%	13.6%	0.0%
Maximum Green (s)							7.0		114.0		12.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		136.1		9.1	
Actuated g/C Ratio							0.06		0.97		0.06	
v/c Ratio							0.10		0.58		0.07	
Control Delay							68.7		0.8		68.0	
Queue Delay							0.0		0.0		0.0	
Total Delay							68.7		0.8		68.0	
LOS							E		A		E	
Approach Delay									1.1			
Approach LOS									A			
Queue Length 50th (ft)							10		0		7	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1637	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1002	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	1819	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1819	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	126.0	0.0
Total Split (%)	90.0%	0.0%
Maximum Green (s)	119.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	132.4	
Actuated g/C Ratio	0.95	
v/c Ratio	0.54	
Control Delay	0.8	
Queue Delay	0.0	
Total Delay	0.8	
LOS	A	
Approach Delay	1.1	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m17		60		m13	
Internal Link Dist (ft)		1			1				956			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							114		3440		177	
Starvation Cap Reductn							0		4		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.10		0.58		0.05	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 104 (74%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 1.1

Intersection LOS: A

Intersection Capacity Utilization 53.6%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	ø1		ø2
19 s		121 s	
	ø5		ø6
14 s		126 s	



Lane Group	SBT	SBR
Queue Length 95th (ft)	30	
Internal Link Dist (ft)	922	
Turn Bay Length (ft)		
Base Capacity (vph)	3347	
Starvation Cap Reductn	21	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.55	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬆		⬆⬆		⬆	
Volume (vph)	0	0	0	0	0	0	226	0	2625	0	174	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		113			83				706			
Travel Time (s)		2.6			1.9				10.7			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.92	0.90	0.92	0.90	0.92
Adj. Flow (vph)	0	0	0	0	0	0	251	0	2917	0	193	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	251	0	2917	0	193	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	36.0	0.0	120.0	0.0	20.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.7%	0.0%	85.7%	0.0%	14.3%	0.0%
Maximum Green (s)							29.0		113.0		13.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							26.2		115.0		15.0	
Actuated g/C Ratio							0.19		0.82		0.11	
v/c Ratio							0.76		1.00		1.02	
Control Delay							64.8		23.5		113.7	
Queue Delay							0.0		0.0		0.0	
Total Delay							64.8		23.5		113.7	
LOS							E		C		F	
Approach Delay									26.8			
Approach LOS									C			
Queue Length 50th (ft)							226		~1305		~190	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak
 10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	1910	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	776	
Travel Time (s)	11.8	
Peak Hour Factor	0.90	0.92
Adj. Flow (vph)	2122	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2122	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	104.0	0.0
Total Split (%)	74.3%	0.0%
Maximum Green (s)	97.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	103.8	
Actuated g/C Ratio	0.74	
v/c Ratio	0.73	
Control Delay	4.6	
Queue Delay	0.2	
Total Delay	4.8	
LOS	A	
Approach Delay	13.9	
Approach LOS	B	
Queue Length 50th (ft)	190	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m274		#1563		m#247	
Internal Link Dist (ft)		33			3				626			
Turn Bay Length (ft)											250	
Base Capacity (vph)							392		2907		190	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.64		1.00		1.02	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 27 (19%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 21.3

Intersection LOS: C

Intersection Capacity Utilization 90.5%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø1	 ø2
20 s	120 s
 ø5	 ø6
36 s	104 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	m265	
Internal Link Dist (ft)	696	
Turn Bay Length (ft)		
Base Capacity (vph)	2901	
Starvation Cap Reductn	171	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.78	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↕	↕	
Volume (vph)	0	0	88	103	2547	1975	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	128				916	1192	
Travel Time (s)	3.5				13.9	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	98	114	2830	2194	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	212	2830	2194	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	23.0	23.0	
Total Split (s)	0.0	0.0	31.0	31.0	140.0	109.0	0.0
Total Split (%)	0.0%	0.0%	22.1%	22.1%	100.0%	77.9%	0.0%
Maximum Green (s)			24.0	24.0	133.0	102.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				22.7	140.0	107.3	
Actuated g/C Ratio				0.16	1.00	0.77	
v/c Ratio				0.74	0.80	0.81	
Control Delay				51.0	2.7	13.3	
Queue Delay				0.0	0.0	0.1	
Total Delay				51.0	2.7	13.5	
LOS				D	A	B	
Approach Delay					6.1	13.5	
Approach LOS					A	B	
Queue Length 50th (ft)				188	16	496	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2018 Mitigated AM Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m183	m0	588	
Internal Link Dist (ft)	48				836	1112	
Turn Bay Length (ft)				250			
Base Capacity (vph)				329	3539	2713	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	58	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.64	0.80	0.83	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 8 (6%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 9.2

Intersection LOS: A

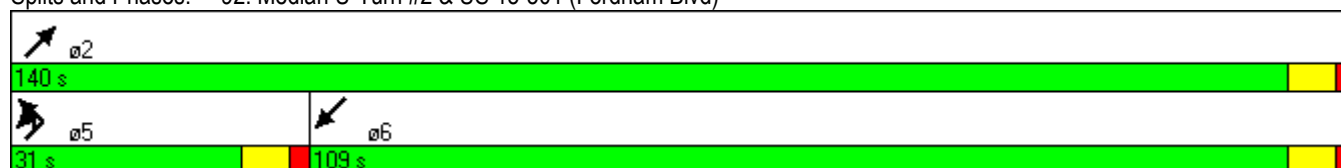
Intersection Capacity Utilization 74.6%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	123	6	388	4	5	6	6	452	1237	7	15	1194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99			0.99				1.00		1.00	
Frt			0.850		0.946				0.999			
Flt Protected		0.954			0.988			0.950			0.950	
Satd. Flow (prot)	0	1751	2746	0	1644	0	0	3383	3483	0	1761	3522
Flt Permitted		0.954			0.988			0.950			0.950	
Satd. Flow (perm)	0	1733	2746	0	1644	0	0	3383	3483	0	1759	3522
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	7					7				1	1	
Peak Hour Factor	0.85	0.85	0.85	0.75	0.75	0.75	0.96	0.96	0.96	0.96	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	145	7	456	5	7	8	6	471	1289	7	16	1312
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	152	456	0	20	0	0	477	1296	0	16	1312
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	41.0	41.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	26.0	26.0	34.0	41.0	41.0	0.0	34.0	34.0	98.0	0.0	15.0	79.0
Total Split (%)	14.4%	14.4%	18.9%	22.8%	22.8%	0.0%	18.9%	18.9%	54.4%	0.0%	8.3%	43.9%
Maximum Green (s)	19.4	19.4	27.3	34.3	34.3		27.3	27.3	91.9		8.5	72.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	3.0	1.0	1.0		3.0	3.0	6.0		3.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lane Group	SBR
Lane Configurations	
Volume (vph)	122
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1576
Flt Permitted	
Satd. Flow (perm)	1576
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	3%
Adj. Flow (vph)	134
Shared Lane Traffic (%)	
Lane Group Flow (vph)	134
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	26.0
Total Split (%)	14.4%
Maximum Green (s)	19.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		18.9	55.5		9.0			34.6	133.6		9.4	103.0
Actuated g/C Ratio		0.10	0.31		0.05			0.19	0.74		0.05	0.57
v/c Ratio		0.83	0.54		0.24			0.73	0.50		0.17	0.65
Control Delay		111.5	45.6		89.4			75.1	12.6		58.2	9.1
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		111.5	45.6		89.4			75.1	12.6		58.2	9.1
LOS		F	D		F			E	B		E	A
Approach Delay		62.1			89.4				29.4			9.1
Approach LOS		E			F				C			A
Queue Length 50th (ft)		177	215		23			277	403		19	263
Queue Length 95th (ft)		#253	231		47			328	476		m30	541
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		204	851		329			656	2585		98	2015
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.75	0.54		0.06			0.73	0.50		0.16	0.65

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 96 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 27.2

Intersection LOS: C

Intersection Capacity Utilization 86.8%

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.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø3	ø4
98 s	15 s	26 s	41 s
			
ø5	ø6		
34 s	79 s		



Lane Group	SBR
Act Effct Green (s)	126.9
Actuated g/C Ratio	0.70
v/c Ratio	0.12
Control Delay	4.1
Queue Delay	0.0
Total Delay	4.1
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	36
Queue Length 95th (ft)	66
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1129
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.12
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	9	0	0	73	4	1608	9	70	1489	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1031			1593	
Travel Time (s)		7.9			3.4			15.6			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.77	0.98	0.98	0.98	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	13	0	0	95	4	1641	9	81	1731	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	13	0	0	95	4	1641	9	81	1731	20
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	15.0	0.0	0.0	23.0	15.0	97.0	97.0	23.0	105.0	105.0
Total Split (%)	0.0%	0.0%	12.5%	0.0%	0.0%	19.2%	12.5%	80.8%	80.8%	19.2%	87.5%	87.5%
Maximum Green (s)			8.0			16.0	8.0	90.0	90.0	16.0	98.0	98.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.4			14.1	9.4	95.9	95.9	14.1	112.0	112.0
Actuated g/C Ratio			0.08			0.12	0.08	0.80	0.80	0.12	0.93	0.93
v/c Ratio			0.10			0.51	0.03	0.59	0.01	0.39	0.53	0.01
Control Delay			53.1			58.4	47.2	2.5	1.2	53.7	2.3	1.3
Queue Delay			0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay			53.1			58.4	47.2	2.5	1.2	53.7	2.3	1.3
LOS			D			E	D	A	A	D	A	A
Approach Delay								2.6			4.6	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			10			70	3	77	1	59	0	0
Queue Length 95th (ft)			23			103	m5	86	m0	101	192	5
Internal Link Dist (ft)		208			43			951			1513	
Turn Bay Length (ft)							150		150	200		150
Base Capacity (vph)			134			239	146	2800	1253	263	3271	1464
Starvation Cap Reductn			0			0	0	0	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.10			0.40	0.03	0.59	0.01	0.31	0.53	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 14 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 5.2

Intersection LOS: A

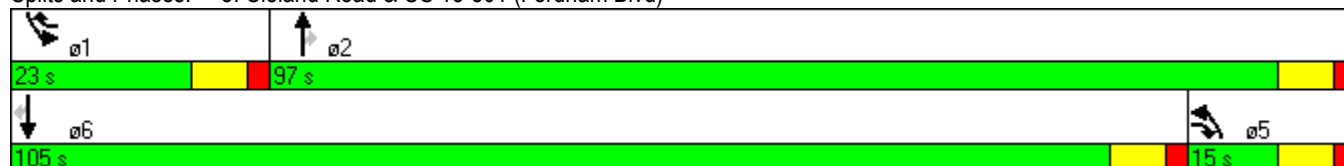
Intersection Capacity Utilization 58.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	0	0	18	0	0	62	56	10	1643	17	41	1443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				802			1006
Travel Time (s)		2.8			2.3				12.2			15.2
Peak Hour Factor	0.53	0.53	0.53	0.61	0.61	0.61	0.95	0.95	0.95	0.95	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	34	0	0	102	59	11	1729	18	45	1568
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	34	0	0	102	0	70	1729	18	45	1568
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	18.0	0.0	0.0	23.0	18.0	18.0	97.0	97.0	23.0	102.0
Total Split (%)	0.0%	0.0%	15.0%	0.0%	0.0%	19.2%	15.0%	15.0%	80.8%	80.8%	19.2%	85.0%
Maximum Green (s)			11.0			16.0	11.0	11.0	90.0	90.0	16.0	95.0
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)	0.0	0.0	2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	9.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			7.5			14.5		11.5	95.5	95.5	14.5	102.3
Actuated g/C Ratio			0.06			0.12		0.10	0.80	0.80	0.12	0.85
v/c Ratio			0.34			0.53		0.42	0.62	0.01	0.21	0.52
Control Delay			62.3			59.0		58.3	3.1	1.8	45.1	3.7
Queue Delay			0.0			0.0		0.0	0.0	0.0	0.0	0.0
Total Delay			62.3			59.0		58.3	3.2	1.8	45.1	3.7
LOS			E			E		E	A	A	D	A
Approach Delay									5.3			4.8
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	4
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	3%
Adj. Flow (vph)	4
Shared Lane Traffic (%)	
Lane Group Flow (vph)	4
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	102.0
Total Split (%)	85.0%
Maximum Green (s)	95.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	102.3
Actuated g/C Ratio	0.85
v/c Ratio	0.00
Control Delay	2.2
Queue Delay	0.0
Total Delay	2.2
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			26			75		54	77	1	32	166
Queue Length 95th (ft)			35			85		m88	92	m3	67	172
Internal Link Dist (ft)		24			5				722			926
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			121			239		190	2789	1248	263	2987
Starvation Cap Reductn			0			0		0	103	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.28			0.43		0.37	0.64	0.01	0.17	0.52

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 7.2

Intersection LOS: A

Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m1
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1336
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.00
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	662	0	0	410	0	1142	24	0	1304	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	779	0	0	488	0	1269	27	0	1358	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	779	0	0	488	0	1269	27	0	1358	160
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	53.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.0	0.0
Total Split (%)	0.0%	0.0%	44.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.8%	0.0%
Maximum Green (s)			47.9								61.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			40.4			120.0		120.0	120.0		69.6	120.0
Actuated g/C Ratio			0.34			1.00		1.00	1.00		0.58	1.00
v/c Ratio			0.85			0.31		0.36	0.02		0.67	0.10
Control Delay			34.7			0.5		0.2	0.0		16.8	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			34.7			0.5		0.2	0.0		16.8	0.1
LOS			C			A		A	A		B	A
Approach Delay								0.2			15.1	
Approach LOS								A			B	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			336			0		0	0		384	0
Queue Length 95th (ft)			139			0		0	m0		373	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1093			1580		3505	1583		2033	1568
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			0.71			0.31		0.36	0.02		0.67	0.10

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 24 (20%), Referenced to phase 2:SBT and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 12.4

Intersection LOS: B

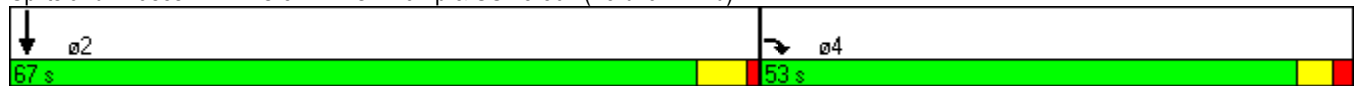
Intersection Capacity Utilization 67.5%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		 		 		
Volume (vph)	29	200	92	3	1891	184	1777	19	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		1			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					717		906		
Travel Time (s)					10.9		13.7		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.70	0.77	0.72	0.72	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	41	260	128	4	2101	204	1871	20	11
Shared Lane Traffic (%)									
Lane Group Flow (vph)	41	260	132	0	2101	204	1871	31	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	36.0	16.4	16.4		33.0		25.0	25.0	
Total Split (s)	15.0	25.0	25.0	0.0	80.0	0.0	80.0	80.0	0.0
Total Split (%)	12.5%	20.8%	20.8%	0.0%	66.7%	0.0%	66.7%	66.7%	0.0%
Maximum Green (s)	8.0	18.0	18.0		73.0		73.0	73.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lead	Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.5	20.0	20.0		86.0	120.0	78.3	78.3	
Actuated g/C Ratio	0.08	0.17	0.17		0.72	1.00	0.65	0.65	
v/c Ratio	0.32	0.98	0.29		0.79	0.13	0.77	0.03	
Control Delay	59.2	101.0	45.7		7.1	0.1	16.3	4.4	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.2	0.0	0.2	0.0	
Total Delay	59.2	101.0	45.7		7.3	0.1	16.5	4.4	
LOS	E	F	D		A	A	B	A	
Approach Delay					6.7		16.3		
Approach LOS					A		B		
Queue Length 50th (ft)	31	203	51		137	0	683	6	
Queue Length 95th (ft)	52	#290	67		328	m0	637	m7	
Internal Link Dist (ft)					637		826		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	134	265	460		2674	1583	2431	1033	
Starvation Cap Reductn	0	0	0		99	0	108	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.31	0.98	0.29		0.82	0.13	0.81	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 17.5

Intersection LOS: B

Intersection Capacity Utilization 73.3%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

ø2	ø4	ø3
80 s	25 s	15 s
ø6		
80 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	596	0	99	14	0	20	0	1438	17	0	1346	531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.998				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1752	0	1568	0	3886	0	0	3471	1553
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1592	1735	0	1568	0	*3811	0	0	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			766	
Travel Time (s)		7.4			14.0			8.8			11.6	
Confl. Peds. (#/hr)			7	7					4	4		
Peak Hour Factor	0.86	1.00	0.86	0.77	1.00	0.77	1.00	0.86	0.86	1.00	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	693	0	115	18	0	26	0	1672	20	0	1479	584
Shared Lane Traffic (%)												
Lane Group Flow (vph)	693	0	115	18	0	26	0	1692	0	0	1479	584
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				19.0			19.0	
Total Split (s)	41.0	0.0	0.0	41.0	0.0	0.0	0.0	79.0	0.0	0.0	79.0	0.0
Total Split (%)	34.2%	0.0%	0.0%	34.2%	0.0%	0.0%	0.0%	65.8%	0.0%	0.0%	65.8%	0.0%
Maximum Green (s)	34.0			34.0				72.0			72.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	-1.2	-2.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	2.8	5.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	29.3		120.0	29.3		120.0		80.7			80.7	120.0
Actuated g/C Ratio	0.24		1.00	0.24		1.00		0.67			0.67	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.81		0.07	0.04		0.02		0.65			0.63	0.38
Control Delay	50.5		0.1	32.5		0.0		13.5			4.2	0.5
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.1	0.0
Total Delay	50.5		0.1	32.5		0.0		13.5			4.3	0.5
LOS	D		A	C		A		B			A	A
Approach Delay								13.5			3.2	
Approach LOS								B			A	
Queue Length 50th (ft)	261		0	11		0		330			75	0
Queue Length 95th (ft)	291		0	24		0		425			110	0
Internal Link Dist (ft)		302			435			504			686	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	1051		1592	526		1568		2612			2333	1553
Starvation Cap Reductn	0		0	0		0		0			142	0
Spillback Cap Reductn	0		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.66		0.07	0.03		0.02		0.65			0.68	0.38

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 88 (73%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 14.1

Intersection LOS: B

Intersection Capacity Utilization 62.5%

ICU Level of Service B

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 Ø2	 Ø3
79 s	41 s
 Ø6	
79 s	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	706	29	0	689	662	0	0	318	0	0	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	767	32	0	749	720	0	0	346	0	0	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	767	32	0	749	720	0	0	346	0	0	167
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

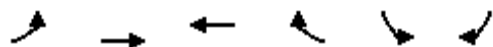
Control Type: Unsignalized

Intersection Capacity Utilization 45.9% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2018 Mitigated Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1012	1334	410	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	0.90	0.90	0.86	0.86	0.90	0.85
Adj. Flow (vph)	0	1124	1551	477	0	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1124	1551	477	0	28
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

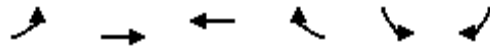
Intersection Capacity Utilization 35.8% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2018 Mitigated Noon Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1714	1654	45	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	4940	4988	1553	0	1315
Flt Permitted						
Satd. Flow (perm)	0	4940	4988	1553	0	1315
Link Speed (mph)		45	45		25	
Link Distance (ft)		218	553		229	
Travel Time (s)		3.3	8.4		6.2	
Peak Hour Factor	1.00	0.97	0.95	0.95	1.00	0.44
Heavy Vehicles (%)	5%	5%	4%	4%	25%	25%
Adj. Flow (vph)	0	1767	1741	47	0	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1767	1741	47	0	111
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 42.0% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	34	83	1421	39	98	1459	97	151	17	85	116	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	250	
Storage Lanes		1		0	1		1	1		1	1	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00		1.00		0.98	1.00		0.98	0.99	0.99
Frt			0.996				0.850			0.850		0.873
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1745	4964	0	1752	5036	1568	1752	1845	1568	1736	1571
Flt Permitted		0.950			0.111			0.593			0.744	
Satd. Flow (perm)	0	1744	4964	0	205	5036	1532	1089	1845	1539	1351	1571
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			553			576			537			463
Travel Time (s)			8.4			8.7			14.6			12.6
Confl. Peds. (#/hr)		1		3	3		1	5		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82
Heavy Vehicles (%)	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%	4%	4%
Adj. Flow (vph)	37	94	1615	44	107	1586	105	174	20	98	141	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	131	1659	0	107	1586	105	174	20	98	141	132
Turn Type	Prot	Prot			pm+pt		Perm	Perm		pm+ov	Perm	
Protected Phases	5	5	2		1	6			8	1		4
Permitted Phases					6		6	8		8	4	
Detector Phase	5	5	2		1	6	6	8	8	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	13.0	28.0		29.0	26.0	26.0	41.0	41.0	29.0	39.0	39.0
Total Split (s)	21.0	21.0	50.0	0.0	29.0	58.0	58.0	41.0	41.0	29.0	41.0	41.0
Total Split (%)	17.5%	17.5%	41.7%	0.0%	24.2%	48.3%	48.3%	34.2%	34.2%	24.2%	34.2%	34.2%
Maximum Green (s)	15.4	15.4	44.4		23.6	52.1	52.1	34.6	34.6	23.6	34.5	34.5
Yellow Time (s)	3.0	3.0	3.8		3.0	4.1	4.1	3.1	3.1	3.0	3.2	3.2
All-Red Time (s)	2.6	2.6	1.8		2.4	1.8	1.8	3.3	3.3	2.4	3.3	3.3
Lost Time Adjust (s)	0.0	-0.6	-0.6	0.0	-0.4	-0.9	-0.9	-1.4	-1.4	-0.4	-1.5	-1.5
Total Lost Time (s)	5.6	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag			Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Vehicle Extension (s)	1.0	1.0	3.0		1.0	3.0	3.0	1.0	1.0	1.0	1.0	1.0
Recall Mode	None	None	C-Max		None	C-Max	C-Max	None	None	None	Min	Min
Walk Time (s)			7.0			7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)			12.0			13.0	13.0	27.0	27.0		25.0	25.0
Pedestrian Calls (#/hr)			0			0	0	0	0		0	0
Act Effct Green (s)		13.0	58.2		69.2	69.2	69.2	22.8	22.8	46.8	22.8	22.8
Actuated g/C Ratio		0.11	0.48		0.58	0.58	0.58	0.19	0.19	0.39	0.19	0.19
v/c Ratio		0.69	0.69		0.25	0.55	0.12	0.84	0.06	0.16	0.55	0.44
Control Delay		67.9	24.1		13.5	5.5	3.3	77.8	36.3	19.9	50.7	46.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	92
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Peak Hour Factor	0.82
Heavy Vehicles (%)	4%
Adj. Flow (vph)	112
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Mitigated Noon Peak
10/18/2013

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		67.9	24.1		13.5	5.5	3.3	77.8	36.3	19.9	50.7	46.0
LOS		E	C		B	A	A	E	D	B	D	D
Approach Delay			27.3			5.8			55.5			48.4
Approach LOS			C			A			E			D
Queue Length 50th (ft)		98	332		21	28	5	131	13	45	100	91
Queue Length 95th (ft)		155	452		83	362	23	189	30	67	136	126
Internal Link Dist (ft)			473			496			457			383
Turn Bay Length (ft)		300			250		150	150		150	250	
Base Capacity (vph)		240	2409		428	2906	884	327	554	606	405	471
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.55	0.69		0.25	0.55	0.12	0.53	0.04	0.16	0.35	0.28

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 21.4

Intersection LOS: C

Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

50 s		29 s		41 s	
21 s	58 s	41 s			



Lane Group	SBR
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	308	277	31	198	297	238	49	587	171	135	475	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.98	0.99	0.99		1.00		0.96
Frt		0.985				0.850		0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	1814	0	1719	1810	1538	1736	3335	0	1752	3505	1568
Flt Permitted	0.950			0.950			0.419			0.204		
Satd. Flow (perm)	3187	1814	0	1715	1810	1501	760	3335	0	375	3505	1505
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	8		3	3		8	5		10	10		5
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Parking (#/hr)	0											
Adj. Flow (vph)	350	315	35	220	330	264	51	611	178	145	511	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	350	350	0	220	330	264	51	789	0	145	511	269
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	25.0	39.0	0.0	29.0	43.0	16.0	15.0	46.0	0.0	16.0	47.0	25.0
Total Split (%)	19.2%	30.0%	0.0%	22.3%	33.1%	12.3%	11.5%	35.4%	0.0%	12.3%	36.2%	19.2%
Maximum Green (s)	19.1	33.1		23.4	37.4	10.1	8.8	40.3		10.1	41.6	19.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	20.9	29.3		20.4	28.8	39.3	58.1	49.7		63.5	54.6	75.5
Actuated g/C Ratio	0.16	0.23		0.16	0.22	0.30	0.45	0.38		0.49	0.42	0.58
v/c Ratio	0.67	0.86		0.81	0.82	0.58	0.13	0.62		0.49	0.35	0.30

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Mitigated Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	58.0	68.1		72.8	57.9	24.6	20.6	37.0		25.6	29.1	10.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.0	68.1		72.8	57.9	24.6	20.6	37.0		25.6	29.1	10.4
LOS	E	E		E	E	C	C	D		C	C	B
Approach Delay	63.1			51.1			36.0			23.1		
Approach LOS	E			D			D			C		
Queue Length 50th (ft)	142	282		171	246	104	22	295		67	162	74
Queue Length 95th (ft)	193	375		m268	m306	m138	50	390		120	230	139
Internal Link Dist (ft)	718			652			519			599		
Turn Bay Length (ft)	250									200		
Base Capacity (vph)	543	474		317	529	466	424	1276		303	1471	895
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.64	0.74		0.69	0.62	0.57	0.12	0.62		0.48	0.35	0.30

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 80 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 41.9

Intersection LOS: D

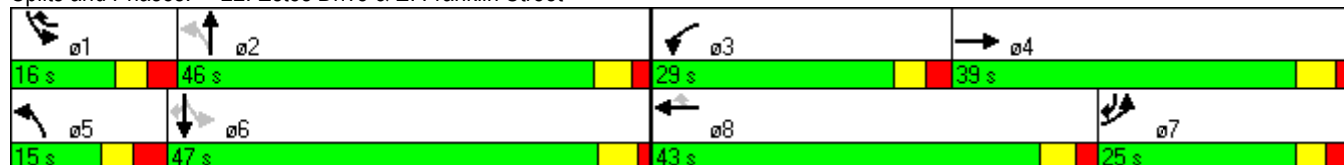
Intersection Capacity Utilization 78.2%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2018 Mitigated Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	47	9	1	37	2	9	0	2	3	2	3
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		0.980			0.992			0.979			0.951	
Flt Protected		0.997			0.999			0.959			0.982	
Satd. Flow (prot)	0	1703	0	0	1828	0	0	1749	0	0	1740	0
Flt Permitted		0.997			0.999			0.959			0.982	
Satd. Flow (perm)	0	1703	0	0	1828	0	0	1749	0	0	1740	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.83	0.83	0.83	0.67	0.67	0.67
Heavy Vehicles (%)	9%	9%	9%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	6	67	13	1	49	3	11	0	2	4	3	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	53	0	0	13	0	0	11	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.0% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak
10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↗↗	↗↗	↗		↘↘	↗↗
Volume (vph)	0	112	1623	71	14	61	1405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	717		659				802
Travel Time (s)	19.6		10.0				12.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	124	1803	79	16	68	1561
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	124	1803	79	0	84	1561
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	19.0	101.0	101.0	19.0	19.0	120.0
Total Split (%)	0.0%	15.8%	84.2%	84.2%	15.8%	15.8%	100.0%
Maximum Green (s)		12.0	94.0	94.0	12.0	12.0	113.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		14.0	96.0	96.0		14.0	120.0
Actuated g/C Ratio		0.12	0.80	0.80		0.12	1.00
v/c Ratio		0.38	0.64	0.06		0.21	0.44
Control Delay		52.8	4.2	1.9		46.8	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		52.8	4.2	1.9		46.8	0.4
LOS		D	A	A		D	A
Approach Delay			4.1				2.7
Approach LOS			A				A
Queue Length 50th (ft)		51	153	7		31	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak
 10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		85	118	13		57	0
Internal Link Dist (ft)	637		579				722
Turn Bay Length (ft)						300	
Base Capacity (vph)		325	2831	1266		401	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	0	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.38	0.64	0.06		0.21	0.44

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 100 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 5.1

Intersection LOS: A

Intersection Capacity Utilization 59.0%

ICU Level of Service B

Analysis Period (min) 15

! Phase conflict between lane groups.

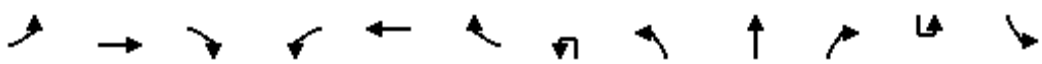
Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
101 s	19 s
 ø6	
120 s	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations							↰		↱↱		↰	
Volume (vph)	0	0	0	0	0	0	7	0	1696	0	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		74			78				1006			
Travel Time (s)		1.7			1.8				15.2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	8	0	1884	0	6	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	8	0	1884	0	6	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	101.0	0.0	19.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	0.0%	84.2%	0.0%	15.8%	0.0%
Maximum Green (s)							7.0		94.0		12.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		116.2		9.0	
Actuated g/C Ratio							0.08		0.97		0.08	
v/c Ratio							0.06		0.55		0.05	
Control Delay							56.4		0.7		50.0	
Queue Delay							0.0		0.0		0.0	
Total Delay							56.4		0.7		50.0	
LOS							E		A		D	
Approach Delay									1.0			
Approach LOS									A			
Queue Length 50th (ft)							6		0		4	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak
10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1423	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Fr		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1031	
Travel Time (s)	15.6	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	1581	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1581	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	106.0	0.0
Total Split (%)	88.3%	0.0%
Maximum Green (s)	99.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	116.2	
Actuated g/C Ratio	0.97	
v/c Ratio	0.46	
Control Delay	0.8	
Queue Delay	0.0	
Total Delay	0.8	
LOS	A	
Approach Delay	1.0	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m11		56		m8	
Internal Link Dist (ft)		1			1				926			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							133		3427		207	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.06		0.55		0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 1.0

Intersection LOS: A

Intersection Capacity Utilization 51.0%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	
ø1	ø2
19 s	101 s
	
ø5	ø6
14 s	106 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	80	
Internal Link Dist (ft)	951	
Turn Bay Length (ft)		
Base Capacity (vph)	3427	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.46	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	112	0	1942	0	81	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		100			80				766			
Travel Time (s)		2.3			1.8				11.6			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	124	0	2158	0	90	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	124	0	2158	0	90	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	21.0	0.0	103.0	0.0	17.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.5%	0.0%	85.8%	0.0%	14.2%	0.0%
Maximum Green (s)							14.0		96.0		10.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lead		Lag	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							14.3		98.0		12.0	
Actuated g/C Ratio							0.12		0.82		0.10	
v/c Ratio							0.58		0.75		0.51	
Control Delay							63.0		4.3		55.9	
Queue Delay							0.0		0.0		0.0	
Total Delay							63.0		4.4		55.9	
LOS							E		A		E	
Approach Delay									7.5			
Approach LOS									A			
Queue Length 50th (ft)							90		126		71	



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	1817	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	717	
Travel Time (s)	10.9	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2019	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2019	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	99.0	0.0
Total Split (%)	82.5%	0.0%
Maximum Green (s)	92.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	95.7	
Actuated g/C Ratio	0.80	
v/c Ratio	0.65	
Control Delay	1.7	
Queue Delay	0.2	
Total Delay	1.9	
LOS	A	
Approach Delay	4.2	
Approach LOS	A	
Queue Length 50th (ft)	23	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak
 10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m143		136		m96	
Internal Link Dist (ft)		20			1				686			
Turn Bay Length (ft)											250	
Base Capacity (vph)							236		2890		177	
Starvation Cap Reductn							0		19		0	
Spillback Cap Reductn							0		18		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.53		0.75		0.51	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 74 (62%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 6.0

Intersection LOS: A

Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø2	 ø1
103 s	17 s
 ø5	 ø6
21 s	99 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	25	
Internal Link Dist (ft)	637	
Turn Bay Length (ft)		
Base Capacity (vph)	3118	
Starvation Cap Reductn	395	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.74	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	0	0	162	26	1867	1677	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	195				906	1201	
Travel Time (s)	5.3				13.7	18.2	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	180	29	2074	1863	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	209	2074	1863	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	30.0	30.0	120.0	90.0	0.0
Total Split (%)	0.0%	0.0%	25.0%	25.0%	100.0%	75.0%	0.0%
Maximum Green (s)			23.0	23.0	113.0	83.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				20.7	120.0	89.3	
Actuated g/C Ratio				0.17	1.00	0.74	
v/c Ratio				0.69	0.59	0.71	
Control Delay				45.3	0.4	8.7	
Queue Delay				0.0	0.0	0.0	
Total Delay				45.3	0.4	8.7	
LOS				D	A	A	
Approach Delay					4.5	8.7	
Approach LOS					A	A	
Queue Length 50th (ft)				149	0	306	

Lanes, Volumes, Timings
 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2018 Mitigated Noon Peak
 10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m183	m0	335	
Internal Link Dist (ft)	115				826	1121	
Turn Bay Length (ft)				250			
Base Capacity (vph)				369	3539	2633	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	51	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.57	0.59	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 41 (34%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 6.4

Intersection LOS: A

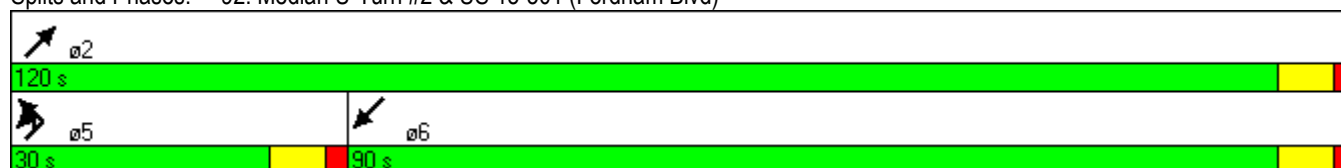
Intersection Capacity Utilization 65.1%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	126	14	419	7	10	18	5	513	1618	9	18	1518
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.98			0.98							
Frt			0.850		0.930				0.999			
Flt Protected		0.957			0.990			0.950			0.950	
Satd. Flow (prot)	0	1774	2773	0	1625	0	0	3416	3518	0	1778	3557
Flt Permitted		0.957			0.990			0.950			0.950	
Satd. Flow (perm)	0	1747	2773	0	1625	0	0	3416	3518	0	1778	3557
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	12					12						
Peak Hour Factor	0.92	0.92	0.92	0.75	0.75	0.75	0.98	0.98	0.98	0.98	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	137	15	455	9	13	24	5	523	1651	9	19	1565
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	152	455	0	46	0	0	528	1660	0	19	1565
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	42.0	42.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	19.0	19.0	30.0	42.0	42.0	0.0	30.0	30.0	94.0	0.0	15.0	79.0
Total Split (%)	11.2%	11.2%	17.6%	24.7%	24.7%	0.0%	17.6%	17.6%	55.3%	0.0%	8.8%	46.5%
Maximum Green (s)	12.4	12.4	23.3	35.3	35.3		23.3	23.3	87.9		8.5	72.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lane Group	SBR
Lane Configurations	
Volume (vph)	105
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1591
Flt Permitted	
Satd. Flow (perm)	1591
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.97
Heavy Vehicles (%)	2%
Adj. Flow (vph)	108
Shared Lane Traffic (%)	
Lane Group Flow (vph)	108
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	19.0
Total Split (%)	11.2%
Maximum Green (s)	12.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	1.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		23.3	65.2		10.7			36.9	114.7		9.4	81.8
Actuated g/C Ratio		0.14	0.38		0.06			0.22	0.67		0.06	0.48
v/c Ratio		0.63	0.43		0.45			0.71	0.70		0.19	0.91
Control Delay		81.1	40.0		90.0			67.8	21.7		62.5	31.5
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		81.1	40.0		90.0			67.8	21.7		62.5	31.5
LOS		F	D		F			E	C		E	C
Approach Delay		50.3			90.0				32.8			30.0
Approach LOS		D			F				C			C
Queue Length 50th (ft)		163	213		51			284	654		20	647
Queue Length 95th (ft)		242	265		80			356	838		m29	#1086
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		243	1064		354			742	2374		105	1711
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.63	0.43		0.13			0.71	0.70		0.18	0.91

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 103 (61%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 34.7

Intersection LOS: C

Intersection Capacity Utilization 101.3%

ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø4	ø3
94 s	15 s	42 s	19 s
			
ø5	ø6		
30 s	79 s		



Lane Group	SBR
Act Effect Green (s)	106.1
Actuated g/C Ratio	0.62
v/c Ratio	0.11
Control Delay	3.2
Queue Delay	0.0
Total Delay	3.2
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	16
Queue Length 95th (ft)	m31
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	993
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.11
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	4	0	0	147	2	2007	96	184	1758	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor									0.98	1.00		
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1611	1770	3539	1583	1770	3539	1583
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1611	1770	3539	1550	1769	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1003			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	1.00	1.00	0.50	1.00	1.00	0.70	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	0	0	8	0	0	210	2	2158	103	192	1831	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	8	0	0	210	2	2158	103	192	1831	21
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	29.0	14.0	91.0	91.0	29.0	106.0	106.0
Total Split (%)	0.0%	0.0%	11.7%	0.0%	0.0%	24.2%	11.7%	75.8%	75.8%	24.2%	88.3%	88.3%
Maximum Green (s)			7.0			22.0	7.0	84.0	84.0	22.0	99.0	99.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			21.1	9.0	88.9	88.9	21.1	112.4	112.4
Actuated g/C Ratio			0.08			0.18	0.08	0.74	0.74	0.18	0.94	0.94
v/c Ratio			0.07			0.74	0.02	0.82	0.09	0.62	0.55	0.01
Control Delay			53.0			62.6	41.5	7.5	3.1	54.1	2.3	1.1
Queue Delay			0.0			0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay			53.0			62.6	41.5	7.6	3.1	54.1	2.3	1.1
LOS			D			E	D	A	A	D	A	A
Approach Delay								7.4			7.1	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS								A				
Queue Length 50th (ft)			6			153	2	208	16	137	0	0
Queue Length 95th (ft)			13			176	m0	226	m13	213	217	5
Internal Link Dist (ft)	208				43			923			1513	
Turn Bay Length (ft)							150			150	200	150
Base Capacity (vph)			121			322	133	2621	1148	354	3315	1483
Starvation Cap Reductn			0			0	0	44	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.07			0.65	0.02	0.84	0.09	0.54	0.55	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 44 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 9.9

Intersection LOS: A

Intersection Capacity Utilization 74.0%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	0	0	15	0	0	51	101	11	2141	30	85	1660
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				801			1035
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	1.00	1.00	0.68	1.00	1.00	0.80	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	22	0	0	64	105	11	2230	31	89	1729
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	22	0	0	64	0	116	2230	31	89	1729
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	20.0	0.0	0.0	17.0	20.0	20.0	103.0	103.0	17.0	100.0
Total Split (%)	0.0%	0.0%	16.7%	0.0%	0.0%	14.2%	16.7%	16.7%	85.8%	85.8%	14.2%	83.3%
Maximum Green (s)			13.0			10.0	13.0	13.0	96.0	96.0	10.0	93.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			13.6			11.3		13.6	98.7	98.7	11.3	96.4
Actuated g/C Ratio			0.11			0.09		0.11	0.82	0.82	0.09	0.80
v/c Ratio			0.13			0.42		0.58	0.77	0.02	0.53	0.61
Control Delay			48.7			59.8		61.8	2.7	0.9	62.7	4.4
Queue Delay			0.0			0.0		0.0	0.1	0.0	0.0	0.0
Total Delay			48.7			59.8		61.8	2.8	0.9	62.7	4.4
LOS			D			E		E	A	A	E	A
Approach Delay									5.7			7.2
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	17
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	2%
Adj. Flow (vph)	18
Shared Lane Traffic (%)	
Lane Group Flow (vph)	18
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	100.0
Total Split (%)	83.3%
Maximum Green (s)	93.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	96.4
Actuated g/C Ratio	0.80
v/c Ratio	0.01
Control Delay	2.1
Queue Delay	0.0
Total Delay	2.1
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			15			47		89	111	2	66	235
Queue Length 95th (ft)			31			83		m123	120	m2	130	58
Internal Link Dist (ft)		24			5				721			955
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			192			161		221	2910	1302	177	2842
Starvation Cap Reductn			0			0		0	69	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.11			0.40		0.52	0.78	0.02	0.50	0.61

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 29 (24%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 7.3

Intersection LOS: A

Intersection Capacity Utilization 73.3%

ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)

	
ø1	ø2
17 s	103 s
	
ø5	ø6
20 s	100 s



Lane Group	SBR
Queue Length 50th (ft)	2
Queue Length 95th (ft)	m2
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1271
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.01
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	984	0	0	448	0	1615	19	0	1624	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	0	0	1158	0	0	533	0	1794	21	0	1692	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1158	0	0	533	0	1794	21	0	1692	106
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			13.0								20.0	
Total Split (s)	0.0	0.0	56.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64.0	0.0
Total Split (%)	0.0%	0.0%	46.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	53.3%	0.0%
Maximum Green (s)			50.9								58.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			51.0			120.0		120.0	120.0		59.0	120.0
Actuated g/C Ratio			0.42			1.00		1.00	1.00		0.49	1.00
v/c Ratio			1.00			0.34		0.51	0.01		0.97	0.07
Control Delay			60.4			0.6		0.4	0.0		40.5	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			60.4			0.6		0.4	0.0		40.5	0.1
LOS			E			A		A	A		D	A
Approach Delay								0.4			38.1	
Approach LOS								A			D	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			499			0		0	0		662	0
Queue Length 95th (ft)			#608			0		0	m0		#841	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1162			1580		3539	1583		1740	1568
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			1.00			0.34		0.51	0.01		0.97	0.07

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 50 (42%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 26.3

Intersection LOS: C

Intersection Capacity Utilization 87.6%

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.

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		 		 		
Volume (vph)	12	132	115	1	2340	161	2301	22	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.98							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1562	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					780		913		
Travel Time (s)					11.8		13.8		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.39	0.86	0.59	0.59	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	31	153	195	2	2543	175	2557	24	7
Shared Lane Traffic (%)									
Lane Group Flow (vph)	31	153	197	0	2543	175	2557	31	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0	25.0	
Total Split (s)	14.0	14.0	14.0	0.0	92.0	0.0	92.0	92.0	0.0
Total Split (%)	11.7%	11.7%	11.7%	0.0%	76.7%	0.0%	76.7%	76.7%	0.0%
Maximum Green (s)	7.0	7.0	7.0		85.0		85.0	85.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	2.0	5.0	5.0	4.0
Lead/Lag	Lag	Lead	Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	9.0	9.0		98.0	120.0	92.6	92.6	
Actuated g/C Ratio	0.08	0.08	0.08		0.82	1.00	0.77	0.77	
v/c Ratio	0.26	1.29	0.95		0.84	0.11	0.89	0.03	
Control Delay	58.1	221.8	106.7		4.4	0.1	8.1	1.8	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.3	0.0	0.5	0.0	
Total Delay	58.1	221.8	106.7		4.7	0.1	8.7	1.8	
LOS	E	F	F		A	A	A	A	
Approach Delay					4.4		8.6		
Approach LOS					A		A		
Queue Length 50th (ft)	23	~151	88		126	0	525	2	
Queue Length 95th (ft)	24	#270	85		155	m0	#723	m3	
Internal Link Dist (ft)					700		833		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	121	119	207		3045	1583	2875	1222	
Starvation Cap Reductn	0	0	0		113	0	84	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.26	1.29	0.95		0.87	0.11	0.92	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 74 (62%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.29

Intersection Signal Delay: 16.0

Intersection LOS: B

Intersection Capacity Utilization 87.8%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 02	 04	 03
92 s	14 s	14 s
 06		
92 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	660	0	157	14	0	22	0	1823	16	0	2054	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.999				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1770	0	1583	0	3966	0	0	3539	1583
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1593	1757	0	1583	0	*3811	0	0	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			703	
Travel Time (s)		7.4			14.0			8.8			10.7	
Confl. Peds. (#/hr)			5	5					1	1		
Peak Hour Factor	0.85	1.00	0.85	0.84	1.00	0.84	1.00	0.96	0.96	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	776	0	185	17	0	26	0	1899	17	0	2140	395
Shared Lane Traffic (%)												
Lane Group Flow (vph)	776	0	185	17	0	26	0	1916	0	0	2140	395
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				19.0			19.0	
Total Split (s)	35.0	0.0	0.0	35.0	0.0	0.0	0.0	85.0	0.0	0.0	85.0	0.0
Total Split (%)	29.2%	0.0%	0.0%	29.2%	0.0%	0.0%	0.0%	70.8%	0.0%	0.0%	70.8%	0.0%
Maximum Green (s)	28.0			28.0				78.0			78.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	-1.2	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	2.8	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	29.2		120.0	29.2		120.0		80.8			80.8	120.0
Actuated g/C Ratio	0.24		1.00	0.24		1.00		0.67			0.67	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.91		0.12	0.04		0.02		0.72			0.90	0.25
Control Delay	59.6		0.1	34.6		0.0		14.5			12.8	0.2
Queue Delay	0.5		0.0	0.0		0.0		0.0			1.9	0.0
Total Delay	60.1		0.1	34.6		0.0		14.5			14.7	0.2
LOS	E		A	C		A		B			B	A
Approach Delay								14.5			12.4	
Approach LOS								B			B	
Queue Length 50th (ft)	300		0	10		0		417			521	0
Queue Length 95th (ft)	349		0	27		0		491			632	m0
Internal Link Dist (ft)		302			435			504			623	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	876		1593	443		1583		2669			2381	1583
Starvation Cap Reductn	0		0	0		0		0			128	0
Spillback Cap Reductn	11		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.90		0.12	0.04		0.02		0.72			0.95	0.25

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 99 (83%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 83.9%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø3
85 s	35 s
 ø6	
85 s	

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2018 Mitigated PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1734	1907	448	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1927	2217	521	0	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1927	2217	521	0	22
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

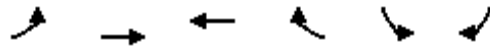
Intersection Capacity Utilization 46.8% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2018 Mitigated PM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2488	2418	62	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		224	547		229	
Travel Time (s)		3.4	8.3		6.2	
Peak Hour Factor	1.00	0.94	0.91	0.91	1.00	0.67
Adj. Flow (vph)	0	2647	2657	68	0	113
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2647	2657	68	0	113
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 58.1% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Mitigated PM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	31	108	2124	68	100	2031	140	165	27	108	117	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	250	
Storage Lanes		1		0	1		1	1		1	1	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00				0.95	0.99		0.96	0.97	0.98
Frt			0.995				0.850			0.850		0.874
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1770	5050	0	1770	5085	1583	1770	1863	1583	1770	1597
Flt Permitted		0.950			0.056			0.599			0.730	
Satd. Flow (perm)	0	1768	5050	0	104	5085	1511	1106	1863	1513	1317	1597
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			547			576			537			463
Travel Time (s)			8.3			8.7			14.6			12.6
Confl. Peds. (#/hr)		7		11	11		7	8		25	25	
Peak Hour Factor	0.92	0.94	0.94	0.94	0.89	0.89	0.89	0.65	0.65	0.65	0.89	0.89
Adj. Flow (vph)	34	115	2260	72	112	2282	157	254	42	166	131	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	149	2332	0	112	2282	157	254	42	166	131	135
Turn Type	Prot	Prot			pm+pt		Perm	Perm		pm+ov	Perm	
Protected Phases	5	5	2		1	6			8	1		4
Permitted Phases					6		6	8		8	4	
Detector Phase	5	5	2		1	6	6	8	8	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	13.0	27.0		13.0	26.0	26.0	41.0	41.0	13.0	39.0	39.0
Total Split (s)	22.0	22.0	89.0	0.0	14.0	81.0	81.0	47.0	47.0	14.0	47.0	47.0
Total Split (%)	14.7%	14.7%	59.3%	0.0%	9.3%	54.0%	54.0%	31.3%	31.3%	9.3%	31.3%	31.3%
Maximum Green (s)	16.4	16.4	83.4		8.6	75.1	75.1	40.6	40.6	8.6	40.5	40.5
Yellow Time (s)	3.0	3.0	3.8		3.0	4.1	4.1	3.1	3.1	3.0	3.2	3.2
All-Red Time (s)	2.6	2.6	1.8		2.4	1.8	1.8	3.3	3.3	2.4	3.3	3.3
Lost Time Adjust (s)	0.0	-0.6	-0.6	0.0	-0.4	-0.9	-0.9	-1.4	-1.4	-0.4	-1.5	-1.5
Total Lost Time (s)	5.6	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag			Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	C-Max	None	None	None	Min	Min
Walk Time (s)			7.0			7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)			12.0			13.0	13.0	27.0	27.0		25.0	25.0
Pedestrian Calls (#/hr)			0			0	0	0	0		0	0
Act Effect Green (s)		16.1	88.0		80.9	80.9	80.9	38.0	38.0	47.0	38.0	38.0
Actuated g/C Ratio		0.11	0.59		0.54	0.54	0.54	0.25	0.25	0.31	0.25	0.25
v/c Ratio		0.78	0.79		0.72	0.83	0.19	0.91	0.09	0.35	0.39	0.33
Control Delay		91.5	27.0		48.8	12.8	8.4	87.9	41.2	38.2	49.2	47.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	101
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Flt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	8
Peak Hour Factor	0.89
Adj. Flow (vph)	113
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2018 Mitigated PM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay		91.5	27.0		48.8	12.8	8.4	87.9	41.2	38.2	49.2	47.1
LOS		F	C		D	B	A	F	D	D	D	D
Approach Delay			30.9			14.1			65.8			48.1
Approach LOS			C			B			E			D
Queue Length 50th (ft)		143	653		54	322	22	235	31	114	104	105
Queue Length 95th (ft)		#247	726		m97	376	m40	227	45	121	165	166
Internal Link Dist (ft)			467			496			457			383
Turn Bay Length (ft)		300			250		150	150		150	250	
Base Capacity (vph)		203	2963		156	2741	815	310	522	478	369	447
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.73	0.79		0.72	0.83	0.19	0.82	0.08	0.35	0.36	0.30

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 118 (79%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 27.1

Intersection LOS: C

Intersection Capacity Utilization 90.1%

ICU Level of Service E

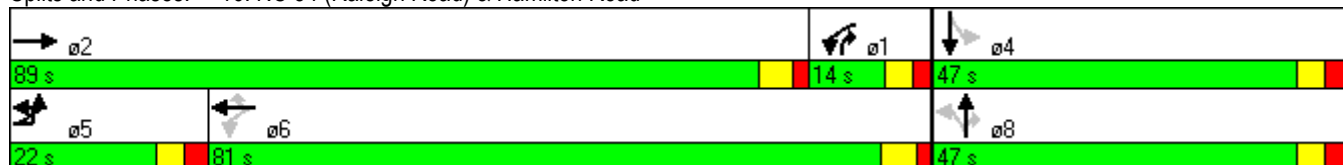
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	364	349	59	214	408	229	76	826	188	118	669	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		0.99		0.98		0.99				0.92
Frt		0.978				0.850		0.972				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1815	0	1770	1863	1583	1770	3421	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.269			0.097		
Satd. Flow (perm)	3406	1815	0	1757	1863	1551	501	3421	0	181	3539	1457
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	5		9	9		5	14		13	13		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	375	360	61	221	421	236	82	888	202	126	712	438
Shared Lane Traffic (%)												
Lane Group Flow (vph)	375	421	0	221	421	236	82	1090	0	126	712	438
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	23.0	43.0	0.0	26.0	46.0	15.0	15.0	56.0	0.0	15.0	56.0	23.0
Total Split (%)	16.4%	30.7%	0.0%	18.6%	32.9%	10.7%	10.7%	40.0%	0.0%	10.7%	40.0%	16.4%
Maximum Green (s)	17.1	37.1		20.4	40.4	9.1	8.8	50.3		9.1	50.6	17.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	19.7	35.5		19.9	35.6	45.2	63.9	55.1		65.4	55.8	75.6
Actuated g/C Ratio	0.14	0.25		0.14	0.25	0.32	0.46	0.39		0.47	0.40	0.54
v/c Ratio	0.77	0.92		0.88	0.89	0.47	0.27	0.81		0.65	0.50	0.54
Control Delay	69.7	75.9		88.3	65.1	23.0	22.3	44.6		38.9	34.2	17.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2018 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	69.7	75.9		88.3	65.1	23.0	22.3	44.6		38.9	34.2	17.5
LOS	E	E		F	E	C	C	D		D	C	B
Approach Delay		72.9			59.6			43.0			28.9	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)	168	366		183	388	110	41	485		64	264	172
Queue Length 95th (ft)	#255	#542		m#334	403	m155	73	582		#128	335	265
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	485	493		266	546	508	324	1345		199	1412	805
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.77	0.85		0.83	0.77	0.46	0.25	0.81		0.63	0.50	0.54

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 80 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 48.0

Intersection LOS: D

Intersection Capacity Utilization 86.8%

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.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
15 s	56 s	26 s	43 s
 ø5	 ø6	 ø8	 ø7
15 s	56 s	46 s	23 s

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2018 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	56	10	0	41	3	11	2	0	4	2	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		0.980			0.991						0.919	
Flt Protected		0.997						0.959			0.988	
Satd. Flow (prot)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Flt Permitted		0.997						0.959			0.988	
Satd. Flow (perm)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.65	0.65	0.65	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%
Adj. Flow (vph)	5	60	11	0	44	3	17	3	0	5	3	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	47	0	0	20	0	0	20	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	17.8%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Volume (vph)	0	185	1938	67	4	67	1624
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	697		659				801
Travel Time (s)	19.0		10.0				12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	206	2153	74	4	74	1804
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	206	2153	74	0	78	1804
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	20.0	100.0	100.0	20.0	20.0	120.0
Total Split (%)	0.0%	16.7%	83.3%	83.3%	16.7%	16.7%	100.0%
Maximum Green (s)		13.0	93.0	93.0	13.0	13.0	113.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		14.3	95.7	95.7		14.3	120.0
Actuated g/C Ratio		0.12	0.80	0.80		0.12	1.00
v/c Ratio		0.62	0.76	0.06		0.19	0.51
Control Delay		59.0	7.7	2.2		48.4	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		59.0	7.7	2.2		48.4	0.4
LOS		E	A	A		D	A
Approach Delay			7.5				2.4
Approach LOS			A				A
Queue Length 50th (ft)		86	390	9		29	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
 10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		132	389	16		m50	0
Internal Link Dist (ft)	617		579				721
Turn Bay Length (ft)						300	
Base Capacity (vph)		348	2824	1263		429	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	0	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.59	0.76	0.06		0.18	0.51

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 24 (20%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 7.8

Intersection LOS: A

Intersection Capacity Utilization 68.4%

ICU Level of Service C

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	5	0	2187	0	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		120			134				1035			
Travel Time (s)		2.7			3.0				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	6	0	2430	0	3	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	6	0	2430	0	3	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	97.0	0.0	23.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	0.0%	80.8%	0.0%	19.2%	0.0%
Maximum Green (s)							7.0		90.0		16.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		116.2		9.0	
Actuated g/C Ratio							0.08		0.97		0.08	
v/c Ratio							0.05		0.71		0.02	
Control Delay							46.4		1.9		48.3	
Queue Delay							0.0		0.0		0.0	
Total Delay							46.4		1.9		48.3	
LOS							D		A		D	
Approach Delay									2.0			
Approach LOS									A			
Queue Length 50th (ft)							4		7		2	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1575	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1003	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	1750	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1750	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	106.0	0.0
Total Split (%)	88.3%	0.0%
Maximum Green (s)	99.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	116.2	
Actuated g/C Ratio	0.97	
v/c Ratio	0.51	
Control Delay	0.9	
Queue Delay	0.0	
Total Delay	0.9	
LOS	A	
Approach Delay	1.0	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m6		203		m4	
Internal Link Dist (ft)		40			54				955			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							133		3427		266	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.05		0.71		0.01	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 24 (20%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 1.6

Intersection LOS: A

Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	
ø1	ø2
23 s	97 s
	
ø5	ø6
14 s	106 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	106	
Internal Link Dist (ft)	923	
Turn Bay Length (ft)		
Base Capacity (vph)	3427	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.51	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬆		⬆⬆		⬆	
Volume (vph)	0	0	0	0	0	0	123	0	2382	0	66	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		97			63				703			
Travel Time (s)		2.2			1.4				10.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	137	0	2647	0	73	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	137	0	2647	0	73	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	106.0	0.0	14.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	0.0%	88.3%	0.0%	11.7%	0.0%
Maximum Green (s)							13.0		99.0		7.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lead		Lag	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							14.1		104.8		9.0	
Actuated g/C Ratio							0.12		0.87		0.08	
v/c Ratio							0.66		0.86		0.55	
Control Delay							68.0		5.6		54.0	
Queue Delay							0.0		0.1		0.0	
Total Delay							68.0		5.7		54.0	
LOS							E		A		D	
Approach Delay									8.7			
Approach LOS									A			
Queue Length 50th (ft)							109		197		57	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
 10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2362	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	780	
Travel Time (s)	11.8	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2624	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2624	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	100.0	0.0
Total Split (%)	83.3%	0.0%
Maximum Green (s)	93.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	95.9	
Actuated g/C Ratio	0.80	
v/c Ratio	0.84	
Control Delay	4.0	
Queue Delay	0.3	
Total Delay	4.3	
LOS	A	
Approach Delay	5.6	
Approach LOS	A	
Queue Length 50th (ft)	84	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
 10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m147		212		m62	
Internal Link Dist (ft)		17			1				623			
Turn Bay Length (ft)											250	
Base Capacity (vph)							221		3091		133	
Starvation Cap Reductn							0		25		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.62		0.86		0.55	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 80 (67%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 7.2

Intersection LOS: A

Intersection Capacity Utilization 80.0%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø2	 ø1
106 s	14 s
 ø5	 ø6
20 s	100 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	m89	
Internal Link Dist (ft)	700	
Turn Bay Length (ft)		
Base Capacity (vph)	3127	
Starvation Cap Reductn	123	
Spillback Cap Reductn	46	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.87	
Intersection Summary		

Lanes, Volumes, Timings
92: Carmichael Access & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak

10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↑↑	↑↑	
Volume (vph)	0	0	90	23	2301	2388	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	221				913	1194	
Travel Time (s)	6.0				13.8	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	100	26	2557	2653	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	126	2557	2653	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	17.0	17.0	120.0	103.0	0.0
Total Split (%)	0.0%	0.0%	14.2%	14.2%	100.0%	85.8%	0.0%
Maximum Green (s)			10.0	10.0	113.0	96.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effct Green (s)				11.8	120.0	98.2	
Actuated g/C Ratio				0.10	1.00	0.82	
v/c Ratio				0.72	0.72	0.92	
Control Delay				60.0	0.6	8.7	
Queue Delay				0.0	0.0	0.3	
Total Delay				60.0	0.6	9.0	
LOS				E	A	A	
Approach Delay					3.4	9.0	
Approach LOS					A	A	
Queue Length 50th (ft)				94	0	390	

Lanes, Volumes, Timings
92: Carmichael Access & US 15-501 (Fordham Blvd)

2018 Mitigated PM Peak
10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m113	m0	m440	
Internal Link Dist (ft)	141				833	1114	
Turn Bay Length (ft)				250			
Base Capacity (vph)				177	3539	2896	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	29	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.71	0.72	0.93	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 52 (43%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 6.2

Intersection LOS: A

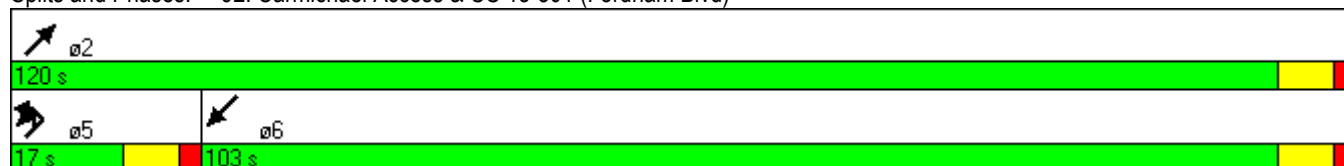
Intersection Capacity Utilization 80.6%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 92: Carmichael Access & US 15-501 (Fordham Blvd)



2023 Without Site Phase 2

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	63	28	221	75	51	81	1172	4	166	1313	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99							
Frt		0.954			0.940						0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1709	0	3208	1683	0	1744	3487	0	1702	3515	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1699	1709	0	3208	1683	0	1744	3487	0	1702	3515	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	32	74	33	235	80	54	86	1247	4	189	1492	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	107	0	235	134	0	86	1251	0	189	1508	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	20.0	20.0		33.0	33.0		20.0	80.0		18.0	68.0	
Total Split (s)	26.0	26.0	0.0	33.0	33.0	0.0	22.0	90.0	0.0	41.0	109.0	0.0
Total Split (%)	13.7%	13.7%	0.0%	17.4%	17.4%	0.0%	11.6%	47.4%	0.0%	21.6%	57.4%	0.0%
Maximum Green (s)	19.7	19.7		27.2	27.2		15.8	84.2		34.7	103.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	16.9	16.9		20.6	20.6		17.0	106.5		25.9	115.5	
Actuated g/C Ratio	0.09	0.09		0.11	0.11		0.09	0.56		0.14	0.61	
v/c Ratio	0.21	0.70		0.68	0.74		0.55	0.64		0.81	0.71	
Control Delay	82.0	107.2		90.9	104.3		78.4	19.0		104.7	29.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	82.0	107.2		90.9	104.3		78.4	19.0		104.7	29.2	
LOS	F	F		F	F		E	B		F	C	
Approach Delay		101.4			95.8			22.8			37.6	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	38	132		148	165		107	343		233	665	
Queue Length 95th (ft)	73	192		192	240		m151	663		309	827	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	188	189		473	248		156	1955		322	2136	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.57		0.50	0.54		0.55	0.64		0.59	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 10 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 40.6

Intersection LOS: D

Intersection Capacity Utilization 72.7%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

			
ø1	ø2	ø3	ø4
41 s	90 s	26 s	33 s
			
ø6	ø5		
109 s	22 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	51	76	118	263	27	85	139	1325	152	16	31	1349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.985				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1719	1810	1487	3433	1863	1583	1752	3452	0	0	1752	3505
Flt Permitted	0.950			0.950			0.107				0.090	
Satd. Flow (perm)	1719	1810	1487	3433	1863	1583	197	3452	0	0	166	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			405			800				1344
Travel Time (s)		8.2			11.0			12.1				20.4
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	61	90	140	292	30	94	156	1489	171	18	35	1516
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	90	140	292	30	94	156	1660	0	0	53	1516
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	20.0	20.0	30.0	14.0	20.0	15.0	30.0	135.0		15.0	15.0	115.0
Total Split (s)	20.0	20.0	30.0	20.0	20.0	15.0	30.0	135.0	0.0	15.0	15.0	120.0
Total Split (%)	10.5%	10.5%	15.8%	10.5%	10.5%	7.9%	15.8%	71.1%	0.0%	7.9%	7.9%	63.2%
Maximum Green (s)	13.0	13.0	23.0	13.0	13.0	8.0	23.0	128.0		8.0	8.0	113.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	22.0	13.4	25.4	16.6	10.8	18.3	142.1	130.7			137.2	127.9
Actuated g/C Ratio	0.12	0.07	0.13	0.09	0.06	0.10	0.75	0.69			0.72	0.67
v/c Ratio	0.31	0.71	0.70	0.97	0.28	0.61	0.63	0.70			0.27	0.64
Control Delay	84.4	114.4	78.1	127.4	92.0	78.6	32.0	12.7			3.3	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	84.4	114.4	78.1	127.4	92.0	78.6	32.0	12.7			3.3	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	92
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1535
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Peak Hour Factor	0.89
Heavy Vehicles (%)	3%
Adj. Flow (vph)	103
Shared Lane Traffic (%)	
Lane Group Flow (vph)	103
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	10.5%
Maximum Green (s)	13.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	149.9
Actuated g/C Ratio	0.79
v/c Ratio	0.08
Control Delay	1.9
Queue Delay	0.0
Total Delay	1.9

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
LOS	F	F	E	F	F	E	C	B			A	A
Approach Delay		90.7			113.8			14.3				6.6
Approach LOS		F			F			B				A
Queue Length 50th (ft)	72	111	143	~207	37	94	31	313			1	217
Queue Length 95th (ft)	121	168	189	#316	76	151	121	223			m6	168
Internal Link Dist (ft)		343			325			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	199	143	300	301	147	159	355	2374			204	2360
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.31	0.63	0.47	0.97	0.20	0.59	0.44	0.70			0.26	0.64

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 177 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 190

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 26.4

Intersection LOS: C

Intersection Capacity Utilization 75.6%

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.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø4	 ø3
15 s	135 s	20 s	20 s
 ø5	 ø6	 ø8	 ø7
30 s	120 s	20 s	20 s



Lane Group	SBR
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	18
Queue Length 95th (ft)	m25
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1215
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.08
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	25	16	45	58	17	54	1288	8	7	1371	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.941			0.966			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1762	0	1761	1790	0	1778	3553	0	1778	3557	1591
Flt Permitted	0.380			0.724			0.117			0.142		
Satd. Flow (perm)	711	1762	0	1342	1790	0	219	3553	0	266	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Peak Hour Factor	0.81	0.81	0.81	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88
Adj. Flow (vph)	90	31	20	55	71	21	58	1385	9	8	1558	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	51	0	55	92	0	58	1394	0	8	1558	174
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		33.0	33.0		15.0	90.0		15.0	80.0	80.0
Total Split (s)	15.0	52.0	0.0	37.0	37.0	0.0	15.0	123.0	0.0	15.0	123.0	123.0
Total Split (%)	7.9%	27.4%	0.0%	19.5%	19.5%	0.0%	7.9%	64.7%	0.0%	7.9%	64.7%	64.7%
Maximum Green (s)	8.7	45.6		30.6	30.6		8.9	116.9		9.4	116.9	116.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	27.6	27.4		15.7	15.7		144.3	144.3		134.4	134.4	134.4
Actuated g/C Ratio	0.15	0.14		0.08	0.08		0.76	0.76		0.71	0.71	0.71
v/c Ratio	0.57	0.20		0.50	0.62		0.23	0.52		0.03	0.62	0.15
Control Delay	84.6	70.0		97.5	101.7		5.3	4.3		4.4	7.6	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.2	0.0
Total Delay	84.6	70.0		97.5	101.7		5.3	4.3		4.4	7.8	4.9

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	E		F	F		A	A		A	A	A
Approach Delay		79.3			100.1			4.3			7.5	
Approach LOS		E			F			A			A	
Queue Length 50th (ft)	101	56		67	113		5	72		1	295	35
Queue Length 95th (ft)	141	89		108	161		m10	101		m3	m304	m66
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	160	436		226	301		248	2699		268	2516	1125
Starvation Cap Reductn	0	0		0	0		0	0		0	301	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.56	0.12		0.24	0.31		0.23	0.52		0.03	0.70	0.15

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 177 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 13.0

Intersection LOS: B

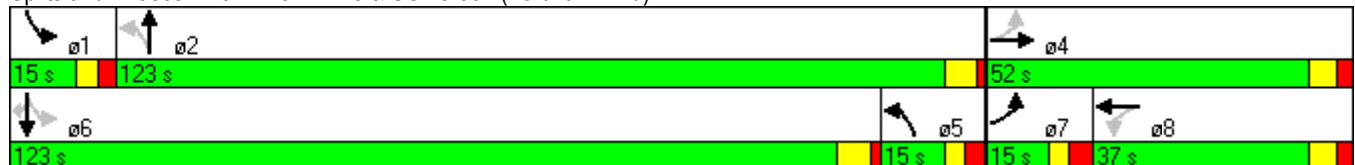
Intersection Capacity Utilization 63.9%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	50	3	306	8	8	14	5	313	1521	5	15	1523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.98			0.99							
Frt			0.850		0.937							
Flt Protected		0.955			0.987			0.950			0.950	
Satd. Flow (prot)	0	1703	2668	0	1508	0	0	3383	3487	0	1744	3489
Flt Permitted		0.955			0.987			0.950			0.950	
Satd. Flow (perm)	0	1678	2668	0	1508	0	0	3383	3487	0	1744	3489
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	10					10						
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	2%	3%	3%	3%	4%	4%
Adj. Flow (vph)	56	3	340	11	11	19	5	344	1671	5	17	1771
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	340	0	41	0	0	349	1676	0	17	1771
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	20.0	20.0	45.0	41.0	41.0		45.0	45.0	59.0		15.0	19.0
Total Split (s)	20.0	20.0	45.0	41.0	41.0	0.0	45.0	45.0	114.0	0.0	15.0	84.0
Total Split (%)	10.5%	10.5%	23.7%	21.6%	21.6%	0.0%	23.7%	23.7%	60.0%	0.0%	7.9%	44.2%
Maximum Green (s)	13.4	13.4	38.3	34.3	34.3		38.3	38.3	107.9		8.5	77.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

Lane Group	SBR
Lane Configurations	
Volume (vph)	72
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1561
Flt Permitted	
Satd. Flow (perm)	1561
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	4%
Adj. Flow (vph)	84
Shared Lane Traffic (%)	
Lane Group Flow (vph)	84
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	10.5%
Maximum Green (s)	13.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		11.7	42.1		11.0			25.4	146.0		9.4	124.6
Actuated g/C Ratio		0.06	0.22		0.06			0.13	0.77		0.05	0.66
v/c Ratio		0.56	0.58		0.47			0.77	0.63		0.20	0.77
Control Delay		106.2	69.2		103.1			91.1	13.5		72.5	13.2
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		106.2	69.2		103.1			91.1	13.5		72.5	13.2
LOS		F	E		F			F	B		E	B
Approach Delay		74.6			103.1				26.9			13.3
Approach LOS		E			F				C			B
Queue Length 50th (ft)		73	218		51			221	539		21	471
Queue Length 95th (ft)		128	262		77			272	726		m35	823
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		136	797		286			712	2680		92	2288
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.43	0.43		0.14			0.49	0.63		0.18	0.77

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 24 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 26.1

Intersection LOS: C

Intersection Capacity Utilization 90.8%

ICU Level of Service E

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø4	 ø3
114 s	15 s	41 s	20 s
 ø5	 ø6		
45 s	84 s		



Lane Group	SBR
Act Effect Green (s)	137.3
Actuated g/C Ratio	0.72
v/c Ratio	0.07
Control Delay	2.3
Queue Delay	0.0
Total Delay	2.3
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	7
Queue Length 95th (ft)	16
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1157
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.07
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	9	0	0	114	0	1720	19	63	1739	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected										0.950		
Satd. Flow (prot)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Flt Permitted										0.950		
Satd. Flow (perm)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1002			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.71	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	13	0	0	161	0	1849	20	73	2022	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	13	0	0	161	0	1849	20	73	2022	15
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	36.0	14.0	124.0	124.0	36.0	146.0	146.0
Total Split (%)	0.0%	0.0%	8.8%	0.0%	0.0%	22.5%	8.8%	77.5%	77.5%	22.5%	91.3%	91.3%
Maximum Green (s)			7.0			29.0	7.0	117.0	117.0	29.0	139.0	139.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			23.5		126.5	126.5	23.5	152.4	152.4
Actuated g/C Ratio			0.06			0.15		0.79	0.79	0.15	0.95	0.95
v/c Ratio			0.14			0.69		0.67	0.02	0.28	0.61	0.01
Control Delay			75.7			79.7		5.7	3.3	61.9	2.2	0.9
Queue Delay			0.0			0.0		0.1	0.0	0.0	0.0	0.0
Total Delay			75.7			79.7		5.8	3.3	61.9	2.2	0.9
LOS			E			E		A	A	E	A	A
Approach Delay								5.7			4.2	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			13			162		184	3	69	0	0
Queue Length 95th (ft)			29			179		227	m4	110	232	4
Internal Link Dist (ft)		208			43			922			1513	
Turn Bay Length (ft)									150	200		150
Base Capacity (vph)			91			306		2771	1239	339	3339	1494
Starvation Cap Reductn			0			0		122	0	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.14			0.53		0.70	0.02	0.22	0.61	0.01

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 102 (64%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 8.1

Intersection LOS: A

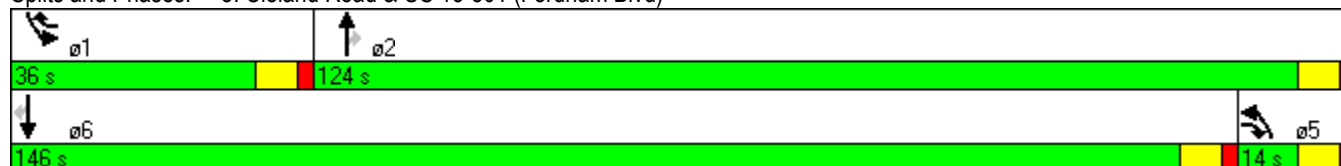
Intersection Capacity Utilization 62.9%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	0	0	25	0	0	53	42	14	1851	26	41	1620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				797			1036
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	0.69	0.69	0.69	0.80	0.80	0.80	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	36	0	0	66	46	15	2034	29	48	1884
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	36	0	0	66	0	61	2034	29	48	1884
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	19.0	0.0	0.0	21.0	19.0	19.0	139.0	139.0	21.0	141.0
Total Split (%)	0.0%	0.0%	11.9%	0.0%	0.0%	13.1%	11.9%	11.9%	86.9%	86.9%	13.1%	88.1%
Maximum Green (s)			12.0			14.0	12.0	12.0	132.0	132.0	14.0	134.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			12.2			13.3		12.2	136.7	136.7	13.3	141.6
Actuated g/C Ratio			0.08			0.08		0.08	0.85	0.85	0.08	0.88
v/c Ratio			0.29			0.49		0.46	0.68	0.02	0.33	0.61
Control Delay			75.3			81.9		82.9	2.8	1.3	71.2	3.2
Queue Delay			0.0			0.0		0.0	0.0	0.0	0.0	0.0
Total Delay			75.3			81.9		82.9	2.8	1.3	71.2	3.2
LOS			E			F		F	A	A	E	A
Approach Delay									5.1			4.9
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	6
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	3%
Adj. Flow (vph)	7
Shared Lane Traffic (%)	
Lane Group Flow (vph)	7
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	141.0
Total Split (%)	88.1%
Maximum Green (s)	134.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	141.6
Actuated g/C Ratio	0.88
v/c Ratio	0.01
Control Delay	1.8
Queue Delay	0.0
Total Delay	1.8
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			36			67		64	90	2	48	252
Queue Length 95th (ft)			57			105		m107	123	m5	m84	166
Internal Link Dist (ft)		24			5				717			956
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			141			161		153	2994	1339	175	3101
Starvation Cap Reductn			0			0		0	0	0	0	22
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.26			0.41		0.40	0.68	0.02	0.27	0.61

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 80 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 6.8

Intersection LOS: A

Intersection Capacity Utilization 65.3%

ICU Level of Service C

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m2
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1388
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.01
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	996	0	0	360	0	1483	29	0	1431	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	1172	0	0	429	0	1648	32	0	1491	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1172	0	0	429	0	1648	32	0	1491	200
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	80.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.7	0.0
Total Split (%)	0.0%	0.0%	50.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	49.8%	0.0%
Maximum Green (s)			75.2								73.9	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			1.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			72.3			160.0		160.0	160.0		77.7	160.0
Actuated g/C Ratio			0.45			1.00		1.00	1.00		0.49	1.00
v/c Ratio			0.95			0.27		0.47	0.02		0.88	0.13
Control Delay			36.2			0.2		0.3	0.0		42.2	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			36.2			0.2		0.3	0.0		42.2	0.1
LOS			D			A		A	A		D	A
Approach Delay								0.3			37.3	
Approach LOS								A			D	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			567			0		0	0		752	0
Queue Length 95th (ft)			576			m0		0	m0		871	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1286			1580		3505	1583		1701	1568
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			0.91			0.27		0.47	0.02		0.88	0.13

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 154 (96%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 21.3

Intersection LOS: C

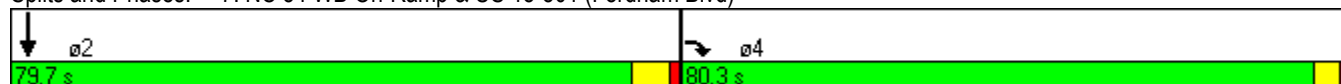
Intersection Capacity Utilization 82.7%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2023 Without Site Phase 2 AM Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations					 			 			
Volume (vph)	0	0	76	0	1437	0	0	2090	337	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	84	0	1597	0	0	2322	374	0	14
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	84	0	1597	0	0	2322	374	0	14
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak
10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations									
Volume (vph)	25	106	222	15	2843	254	1971	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					718		916		
Travel Time (s)					10.9		13.9		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.61	0.52	0.47	0.47	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	41	204	472	32	2961	265	2266	6	1
Shared Lane Traffic (%)									
Lane Group Flow (vph)	41	204	504	0	2961	265	2266	7	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0	25.0	
Total Split (s)	14.0	30.0	30.0	0.0	116.0	0.0	116.0	116.0	0.0
Total Split (%)	8.8%	18.8%	18.8%	0.0%	72.5%	0.0%	72.5%	72.5%	0.0%
Maximum Green (s)	7.0	23.0	23.0		109.0		109.0	109.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes								
Vehicle Extension (s)	3.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	27.8	27.8		118.2	160.0	111.0	111.0	
Actuated g/C Ratio	0.06	0.17	0.17		0.74	1.00	0.69	0.69	
v/c Ratio	0.45	0.74	1.05		1.08	0.17	0.88	0.01	
Control Delay	89.2	80.2	116.2		49.1	0.0	11.2	1.8	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		40.4	0.0	1.0	0.0	
Total Delay	89.2	80.2	116.2		89.6	0.0	12.2	1.8	
LOS	F	F	F		F	A	B	A	
Approach Delay					82.2		12.1		
Approach LOS					F		B		
Queue Length 50th (ft)	42	210	~355		~1572	0	648	1	
Queue Length 95th (ft)	58	164	183		m#945	m0	455	m1	
Internal Link Dist (ft)					638		836		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	91	276	479		2754	1583	2584	1098	
Starvation Cap Reductn	0	0	0		218	0	128	0	
Spillback Cap Reductn	0	0	0		0	0	11	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.45	0.74	1.05		1.17	0.17	0.92	0.01	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 1 (1%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 59.4

Intersection LOS: E

Intersection Capacity Utilization 93.8%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 Ø2	 Ø3	 Ø4
116 s	14 s	30 s
 Ø6		
116 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	287	0	39	17	0	51	0	2697	9	0	1299	1009
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99								
Frt			0.850			0.850		0.999				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3434	0	1584	1752	0	1568	0	4006	0	0	3438	1538
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1564	1742	0	1568	0	*3811	0	0	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			764	
Travel Time (s)		7.4			14.0			8.8			11.6	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.88	1.00	0.88	0.68	1.00	0.68	1.00	0.94	0.94	1.00	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	326	0	44	25	0	75	0	2869	10	0	1367	1062
Shared Lane Traffic (%)												
Lane Group Flow (vph)	326	0	44	25	0	75	0	2879	0	0	1367	1062
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	33.0			33.0				19.0			19.0	
Total Split (s)	33.0	0.0	0.0	33.0	0.0	0.0	0.0	127.0	0.0	0.0	127.0	0.0
Total Split (%)	20.6%	0.0%	0.0%	20.6%	0.0%	0.0%	0.0%	79.4%	0.0%	0.0%	79.4%	0.0%
Maximum Green (s)	26.0			26.0				120.0			120.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	20.6		160.0	20.6		160.0		129.4			129.4	160.0
Actuated g/C Ratio	0.13		1.00	0.13		1.00		0.81			0.81	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.74		0.03	0.11		0.05		0.89			0.49	0.69
Control Delay	77.2		0.0	60.9		0.1		15.8			2.2	3.5
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.2	0.0
Total Delay	77.2		0.0	60.9		0.1		15.8			2.4	3.5
LOS	E		A	E		A		B			A	A
Approach Delay								15.8			2.9	
Approach LOS								B			A	
Queue Length 50th (ft)	172		0	24		0		833			82	33
Queue Length 95th (ft)	214		0	40		0		1126			90	44
Internal Link Dist (ft)		302			435			504			684	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	601		1564	307		1568		3240			2780	1538
Starvation Cap Reductn	0		0	0		0		0			583	0
Spillback Cap Reductn	0		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.54		0.03	0.08		0.05		0.89			0.62	0.69

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 12 (8%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 68.8%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø3
127 s	33 s
 ø6	
127 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	188	34	541	416	501	34	60	109	391	148	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	175		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00		0.96		1.00	0.98	0.99	1.00	
Frt		0.977				0.850			0.850		0.993	
Flt Protected	0.950			0.950				0.982		0.950	0.979	
Satd. Flow (prot)	1517	3048	0	1752	1845	1672	0	1883	1482	1625	1948	0
Flt Permitted	0.500			0.446				0.982		0.950	0.979	
Satd. Flow (perm)	790	3048	0	819	1845	1613	0	1879	1456	1614	1942	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	7		3	3		7	6		3	6		6
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.79	0.79	0.79	0.88	0.88	0.88
Heavy Vehicles (%)	15%	15%	15%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	12	214	39	595	457	551	43	76	138	444	168	15
Shared Lane Traffic (%)										30%		
Lane Group Flow (vph)	12	253	0	595	457	551	0	119	138	311	316	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	33.0	33.0	0.0	35.0	68.0	37.0	25.0	25.0	35.0	37.0	37.0	0.0
Total Split (%)	25.4%	25.4%	0.0%	26.9%	52.3%	28.5%	19.2%	19.2%	26.9%	28.5%	28.5%	0.0%
Maximum Green (s)	25.7	25.7		28.2	60.7	30.3	18.3	18.3	28.2	30.3	30.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	28.0	28.0		63.0	63.0	93.3		21.7	51.7	30.3	30.3	
Actuated g/C Ratio	0.22	0.22		0.48	0.48	0.72		0.17	0.40	0.23	0.23	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.07	0.39		0.97	0.51	0.47		0.38	0.24	0.82	0.70	
Control Delay	42.2	45.7		58.6	25.5	7.3		53.1	24.9	65.3	54.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.2	45.7		58.6	25.5	7.3		53.1	24.9	65.3	54.2	
LOS	D	D		E	C	A		D	C	E	D	
Approach Delay		45.5			31.5			38.0			59.7	
Approach LOS		D			C			D			E	
Queue Length 50th (ft)	8	96		382	258	137		92	73	258	253	
Queue Length 95th (ft)	26	135		#546	357	191		133	104	#383	353	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			175					100	175		
Base Capacity (vph)	170	656		612	894	1193		314	585	400	480	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.07	0.39		0.97	0.51	0.46		0.38	0.24	0.78	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 39.9

Intersection LOS: D

Intersection Capacity Utilization 96.6%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
35 s	33 s	37 s	25 s
 ø6			
68 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	735	13	0	1343	996	0	0	337	0	0	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	799	14	0	1460	1083	0	0	366	0	0	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	799	14	0	1460	1083	0	0	366	0	0	209
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 65.0% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2023 Without Site Phase 2 AM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1079	2264	360	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1199	2633	419	0	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1199	2633	419	0	34
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.7%

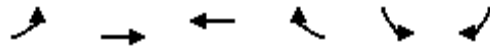
ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2023 Without Site Phase 2 AM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2277	2673	37	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		206	565		229	
Travel Time (s)		3.1	8.6		6.2	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2277	2905	40	0	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2277	2905	40	0	48
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 61.6% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	62	1929	202	67	2378	68	196	32	107	85	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	250	
Storage Lanes		1		0	1		1	1		1	1	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00				0.94	0.98		0.98	0.99	0.98
Frt			0.986				0.850			0.850		0.889
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1755	4944	0	1736	4988	1553	1736	1827	1553	1719	1572
Flt Permitted		0.950			0.048			0.637			0.725	
Satd. Flow (perm)	0	1753	4944	0	88	4988	1467	1145	1827	1521	1302	1572
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			565			576			537			463
Travel Time (s)			8.6			8.7			14.6			12.6
Confl. Peds. (#/hr)		9		6	6		9	13		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86
Heavy Vehicles (%)	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%
Adj. Flow (vph)	11	70	2192	230	75	2672	76	302	49	165	99	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	2422	0	75	2672	76	302	49	165	99	116
Turn Type	Prot	Prot			pm+pt		Perm	Perm		pm+ov	Perm	
Protected Phases	5	5	2		1	6			8	1		4
Permitted Phases					6		6	8		8	4	
Detector Phase	5	5	2		1	6	6	8	8	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	13.0	27.0		13.0	26.0	26.0	41.0	41.0	13.0	39.0	39.0
Total Split (s)	13.0	13.0	96.0	0.0	13.0	96.0	96.0	51.0	51.0	13.0	51.0	51.0
Total Split (%)	8.1%	8.1%	60.0%	0.0%	8.1%	60.0%	60.0%	31.9%	31.9%	8.1%	31.9%	31.9%
Maximum Green (s)	7.4	7.4	90.4		7.6	90.1	90.1	44.6	44.6	7.6	44.5	44.5
Yellow Time (s)	3.0	3.0	3.8		3.0	4.1	4.1	3.1	3.1	3.0	3.2	3.2
All-Red Time (s)	2.6	2.6	1.8		2.4	1.8	1.8	3.3	3.3	2.4	3.3	3.3
Lost Time Adjust (s)	0.0	-0.6	-0.6	0.0	-0.4	-0.9	-0.9	-1.4	-1.4	-0.4	-1.5	-1.5
Total Lost Time (s)	5.6	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag			Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	C-Max	None	None	None	None	None
Walk Time (s)			7.0			7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)			12.0			13.0	13.0	27.0	27.0		25.0	25.0
Pedestrian Calls (#/hr)			0			0	0	0	0		0	0
Act Effct Green (s)		8.6	92.5		92.0	92.0	92.0	44.5	44.5	52.5	44.5	44.5
Actuated g/C Ratio		0.05	0.58		0.58	0.58	0.58	0.28	0.28	0.33	0.28	0.28
v/c Ratio		0.86	0.85		0.56	0.93	0.09	0.95	0.10	0.33	0.27	0.27
Control Delay		127.1	34.1		47.3	23.4	13.6	95.0	42.7	39.9	46.9	46.4

Lane Group	SBR
Lane Configurations	
Volume (vph)	74
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	13
Peak Hour Factor	0.86
Heavy Vehicles (%)	5%
Adj. Flow (vph)	86
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		127.1	34.1		47.3	23.4	13.6	95.0	42.7	39.9	46.9	46.4
LOS		F	C		D	C	B	F	D	D	D	D
Approach Delay			37.1			23.8			72.4			46.6
Approach LOS			D			C			E			D
Queue Length 50th (ft)		85	734		27	599	19	308	38	122	80	94
Queue Length 95th (ft)		m#154	778		m48	321	m31	285	53	128	129	145
Internal Link Dist (ft)			485			496			457			383
Turn Bay Length (ft)		300			250		150	150		150	250	
Base Capacity (vph)		94	2860		133	2867	843	329	525	500	374	452
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.86	0.85		0.56	0.93	0.09	0.92	0.09	0.33	0.26	0.26

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 28 (18%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 34.3

Intersection LOS: C

Intersection Capacity Utilization 83.8%

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.

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

												
96 s	13 s	51 s	13 s	51 s	13 s	51 s	13 s	51 s	13 s	51 s	13 s	51 s
												
13 s	96 s	51 s	13 s	51 s	13 s	51 s	13 s	51 s	13 s	51 s	13 s	51 s



Lane Group	SBR
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	2072	41	105	2423	16	17	5	192	34	8	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99	0.99		0.99	
Frt		0.997			0.999				0.850		0.940	
Flt Protected	0.950			0.950				0.963			0.978	
Satd. Flow (prot)	1770	5065	0	1736	4981	0	0	1776	1568	0	1695	0
Flt Permitted	0.037			0.042				0.784			0.856	
Satd. Flow (perm)	69	5065	0	77	4981	0	0	1436	1547	0	1483	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	6		8	8		6	9		1	1		9
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	28	2204	44	117	2692	18	21	6	237	44	10	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	2248	0	117	2710	0	0	27	237	0	97	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	93.0	0.0	19.0	99.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	8.1%	58.1%	0.0%	11.9%	61.9%	0.0%	30.0%	30.0%	30.0%	30.0%	30.0%	0.0%
Maximum Green (s)	7.1	86.8		13.1	92.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	0.0	-0.9	-1.2	0.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	116.8	102.7		114.8	112.0			30.2	30.2		30.2	
Actuated g/C Ratio	0.73	0.64		0.72	0.70			0.19	0.19		0.19	
v/c Ratio	0.21	0.69		0.65	0.78			0.10	0.81		0.35	
Control Delay	9.5	5.9		54.0	7.1			51.1	82.5		58.0	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 Without Site Phase 2 AM Peak

10/18/2013

												
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	
Total Delay	9.5	5.9		54.0	7.1			51.1	82.5		58.0	
LOS	A	A		D	A			D	F		E	
Approach Delay		5.9			9.1			79.3			58.0	
Approach LOS		A			A			E			E	
Queue Length 50th (ft)	3	98		64	239			24	240		89	
Queue Length 95th (ft)	m4	291		m108	m574			45	282		117	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	135	3251		209	3487			386	416		399	
Starvation Cap Reductn	0	0		0	48			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.21	0.69		0.56	0.79			0.07	0.57		0.24	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 46 (29%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 12.0

Intersection LOS: B

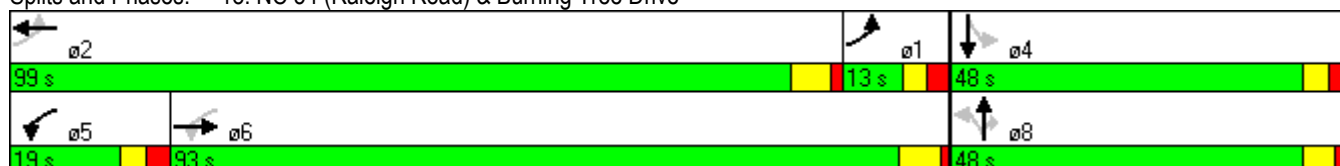
Intersection Capacity Utilization 82.4%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	222	1993	137	127	2463	27	27	0	6	10	14	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.94			0.97						
Frt			0.850			0.850		0.850			0.864	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1724	5036	1568	1736	4988	1553	1770	1583	0	1736	1578	0
Flt Permitted	0.035			0.062			0.302			0.752		
Satd. Flow (perm)	64	5036	1478	113	4988	1511	563	1583	0	1374	1578	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	8		10	10		8						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.73	0.73	0.73	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	239	2143	147	137	2648	29	37	0	8	11	15	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	2143	147	137	2648	29	37	8	0	11	156	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	28.0	28.0	14.0	19.0	19.0	14.0	14.0		15.0	15.0	
Total Split (s)	21.0	119.0	119.0	20.0	91.0	91.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	13.1%	74.4%	74.4%	12.5%	56.9%	56.9%	13.1%	13.1%	0.0%	13.1%	13.1%	0.0%
Maximum Green (s)	14.7	112.7	112.7	13.7	84.7	84.7	14.2	14.2		13.7	13.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	-1.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	129.0	118.1	118.1	129.0	113.0	113.0	16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.81	0.74	0.74	0.81	0.71	0.71	0.10	0.10		0.10	0.10	
v/c Ratio	1.10	0.58	0.13	0.68	0.75	0.03	0.66	0.05		0.08	0.99	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	17%
Maximum Green (s)	23.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	117.8	12.0	8.9	41.0	7.1	5.4	117.3	66.2		67.0	138.1	
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	117.8	12.0	8.9	41.0	7.1	5.4	117.3	66.2		67.0	138.1	
LOS	F	B	A	D	A	A	F	E		E	F	
Approach Delay	21.9			8.8			108.2			133.4		
Approach LOS	C			A			F			F		
Queue Length 50th (ft)	~234	319	47	73	160	4	38	8		11	166	
Queue Length 95th (ft)	#422	426	m90	m112	232	m7	#71	21		32	#323	
Internal Link Dist (ft)	767			1857			371			455		
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	218	3716	1090	246	3523	1067	56	158		137	158	
Starvation Cap Reductn	0	290	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	65	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.10	0.63	0.13	0.56	0.77	0.03	0.66	0.05		0.08	0.99	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 19 (12%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 91.4%

ICU Level of Service F

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
20 s	119 s	21 s
 ø5	 ø10	 ø6
21 s	27 s	91 s
 ø8		
21 s		

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	1709	185	717	2416	164	84	17	58	62	27	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor			0.98	1.00				1.00		1.00		
Frt			0.850			0.850		0.977	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.974		0.950		
Satd. Flow (prot)	3434	5086	1584	3383	5011	1560	1427	1365	1276	3451	1872	1591
Flt Permitted	0.950			0.950			0.950	0.974		0.950		
Satd. Flow (perm)	3434	5086	1546	3378	5011	1560	1427	1365	1276	3440	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)			7	7					1	1		
Peak Hour Factor	0.86	0.86	0.86	0.94	0.94	0.94	0.78	0.78	0.78	0.79	0.79	0.79
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	19%	19%	19%	3%	3%	3%
Adj. Flow (vph)	143	1987	215	763	2570	174	108	22	74	78	34	154
Shared Lane Traffic (%)							35%		15%			
Lane Group Flow (vph)	143	1987	215	763	2570	174	70	71	63	78	34	154
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	77.0	18.0	46.0	107.0	19.0	18.0	18.0	64.0	19.0	19.0	35.0
Total Split (%)	10.0%	48.1%	11.3%	28.8%	66.9%	11.9%	11.3%	11.3%	40.0%	11.9%	11.9%	21.9%
Maximum Green (s)	8.8	70.4	10.9	38.9	100.5	11.7	10.9	10.9		11.7	11.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	0.0	-2.3	-2.3	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.1	5.0	5.0	7.3
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	10.6	72.6	85.3	41.0	102.9	121.7	12.7	12.7	49.5	13.7	13.7	19.8
Actuated g/C Ratio	0.07	0.45	0.53	0.26	0.64	0.76	0.08	0.08	0.31	0.09	0.09	0.12
v/c Ratio	0.63	0.86	0.26	0.88	0.80	0.15	0.62	0.66	0.16	0.26	0.21	0.78

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	72.8	38.3	16.2	41.7	6.1	3.4	94.4	98.5	26.8	70.7	71.4	77.5
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	38.3	16.2	41.7	6.3	3.4	94.4	98.5	26.8	70.7	71.4	77.5
LOS	E	D	B	D	A	A	F	F	C	E	E	E
Approach Delay	38.3			13.9			74.9			74.7		
Approach LOS	D			B			E			E		
Queue Length 50th (ft)	79	492	102	408	271	32	75	80	37	40	34	128
Queue Length 95th (ft)	115	572	181	m354	m230	m32	116	125	61	60	62	170
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	236	2307	829	867	3224	1189	116	111	397	302	164	203
Starvation Cap Reductn	0	0	0	0	171	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	0.61	0.86	0.26	0.88	0.84	0.15	0.60	0.64	0.16	0.26	0.21	0.76

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 148 (93%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 27.5

Intersection LOS: C

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø3	 ø4
77 s	46 s	19 s	18 s
 ø5	 ø6		
16 s	107 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	9	1655	148	34	2545	201	699	106	71	156	30	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.975			0.978	
Flt Protected	0.950			0.950			0.950	0.971		0.950	0.973	
Satd. Flow (prot)	1761	4448	1575	1761	5061	1576	1656	1651	0	1664	1667	0
Flt Permitted	0.050			0.054			0.950	0.971		0.950	0.973	
Satd. Flow (perm)	93	4448	1524	100	5061	1576	1656	1651	0	1664	1667	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	10	1780	159	36	2679	212	736	112	75	188	36	18
Shared Lane Traffic (%)							37%			36%		
Lane Group Flow (vph)	10	1780	159	36	2679	212	464	459	0	120	122	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	80.0	44.0	16.0	80.0	20.0	44.0	44.0	0.0	20.0	20.0	0.0
Total Split (%)	10.0%	50.0%	27.5%	10.0%	50.0%	12.5%	27.5%	27.5%	0.0%	12.5%	12.5%	0.0%
Maximum Green (s)	9.2	72.5	36.8	9.0	72.5	12.8	36.8	36.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	89.0	78.2	117.7	87.0	85.5	105.0	39.5	39.5		14.5	14.5	
Actuated g/C Ratio	0.56	0.49	0.74	0.54	0.53	0.66	0.25	0.25		0.09	0.09	
v/c Ratio	0.07	0.82	0.14	0.22	0.99	0.21	1.13	1.13		0.79	0.81	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Without Site Phase 2 AM Peak
10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.4	5.5	0.8	35.3	51.5	12.4	139.4	137.2		104.3	106.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	2.4	5.5	0.8	35.3	51.5	12.4	139.4	137.2		104.3	106.1	
LOS	A	A	A	D	D	B	F	F		F	F	
Approach Delay	5.1			48.4			138.3			105.2		
Approach LOS	A			D			F			F		
Queue Length 50th (ft)	0	57	4	16	912	73	~597	~588		131	133	
Queue Length 95th (ft)	m1	63	m5	34	#1233	142	#837	#825		#209	#216	
Internal Link Dist (ft)	929			334			420			673		
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	167	2174	1133	169	2704	1039	409	407		156	156	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.06	0.82	0.14	0.21	0.99	0.20	1.13	1.13		0.77	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

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

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 50.5

Intersection LOS: D

Intersection Capacity Utilization 91.8%

ICU Level of Service F

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ 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.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2				 ø1		 ø3		 ø4	
80 s				16 s		20 s		44 s	
 ø5				 ø6					
16 s		80 s							

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	406	396	65	155	260	92	55	455	103	82	651	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.98		1.00		1.00		0.95
Frt		0.979				0.850		0.972				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	1801	0	1719	1810	1538	1703	3299	0	1703	3406	1524
Flt Permitted	0.950			0.950			0.268			0.299		
Satd. Flow (perm)	3379	1801	0	1714	1810	1511	480	3299	0	535	3406	1444
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	3		4	4		3	7		4	4		7
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Adj. Flow (vph)	441	430	71	167	280	99	59	484	110	88	700	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	441	501	0	167	280	99	59	594	0	88	700	290
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	32.0	61.0	0.0	28.0	57.0	15.0	15.0	46.0	0.0	15.0	46.0	32.0
Total Split (%)	21.3%	40.7%	0.0%	18.7%	38.0%	10.0%	10.0%	30.7%	0.0%	10.0%	30.7%	21.3%
Maximum Green (s)	26.1	55.1		22.4	51.4	9.1	8.8	40.3		9.1	40.6	26.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	37.2	47.1		18.8	28.7	38.3	63.3	54.5		66.0	58.0	95.2
Actuated g/C Ratio	0.25	0.31		0.13	0.19	0.26	0.42	0.36		0.44	0.39	0.63
v/c Ratio	0.52	0.89		0.78	0.81	0.26	0.22	0.50		0.28	0.53	0.31
Control Delay	50.6	66.4		83.5	66.7	21.4	28.6	41.3		28.9	40.6	9.3

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Without Site Phase 2 AM Peak
10/18/2013

												
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
Total Delay	50.6	66.4		83.5	66.7	21.4	28.6	41.3		28.9	40.6	9.3
LOS	D	E		F	E	C	C	D		C	D	A
Approach Delay		59.0			63.6			40.1			31.2	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)	190	463		149	247	42	32	241		49	288	81
Queue Length 95th (ft)	240	568		m244	315	m60	71	341		99	407	149
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	843	672		264	627	395	288	1199		317	1317	936
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.52	0.75		0.63	0.45	0.25	0.20	0.50		0.28	0.53	0.31

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 19 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 46.7

Intersection LOS: D

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
15 s	46 s	28 s	61 s
 ø5	 ø6	 ø8	 ø7
15 s	46 s	57 s	32 s

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	288	7	6	315	46	15	3	8	30	3	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			1.00	0.99
Frt		0.996			0.981			0.959				0.850
Flt Protected	0.950			0.950				0.972			0.957	
Satd. Flow (prot)	1719	3422	0	1752	3426	0	0	1727	0	0	1732	1538
Flt Permitted	0.461			0.550				0.799			0.717	
Satd. Flow (perm)	831	3422	0	1009	3426	0	0	1419	0	0	1291	1519
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	4		4	4		4	1		6	6		1
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.60	0.60	0.60	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	210	327	8	7	350	51	25	5	13	35	4	280
Shared Lane Traffic (%)												
Lane Group Flow (vph)	210	335	0	7	401	0	0	43	0	0	39	280
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	18.0	46.0	0.0	28.0	28.0	0.0	29.0	29.0	0.0	29.0	29.0	18.0
Total Split (%)	24.0%	61.3%	0.0%	37.3%	37.3%	0.0%	38.7%	38.7%	0.0%	38.7%	38.7%	24.0%
Maximum Green (s)	12.9	40.9		22.8	22.8		23.3	23.3		23.2	23.2	12.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	62.0	64.0		44.4	44.4			8.0			8.1	17.6
Actuated g/C Ratio	0.83	0.85		0.59	0.59			0.11			0.11	0.23
v/c Ratio	0.25	0.11		0.01	0.20			0.28			0.28	0.78
Control Delay	1.3	0.7		10.2	9.0			35.7			36.2	39.4
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	1.3	0.7		10.2	9.0			35.7			36.2	39.4
LOS	A	A		B	A			D			D	D

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		0.9			9.0			35.7			39.0	
Approach LOS		A			A			D			D	
Queue Length 50th (ft)	8	6		1	41			19			17	114
Queue Length 95th (ft)	m27	20		8	86			31			42	142
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	856	2922		598	2029			454			413	392
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.25	0.11		0.01	0.20			0.09			0.09	0.71

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 13.8

Intersection LOS: B

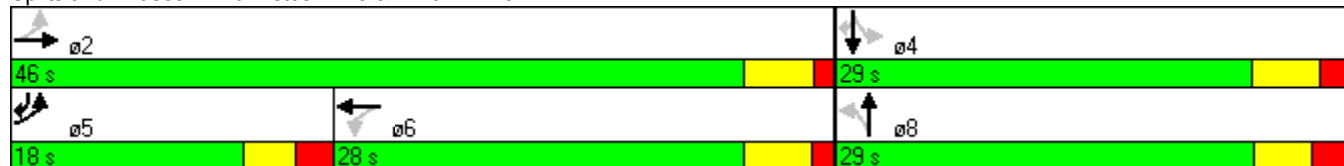
Intersection Capacity Utilization 49.8%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2023 Without Site Phase 2 AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	74	5	2	106	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1812	0	0	1825	1770	0
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1812	0	0	1825	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.82	0.82	0.77	0.77	0.45	0.45
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	90	6	3	138	20	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	96	0	0	141	20	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	17.2%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2023 Without Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	65	6	1	44	1	14	1	0	0	2	0
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			0.998							
Flt Protected		0.999			0.999			0.956				
Satd. Flow (prot)	0	1771	0	0	1857	0	0	1781	0	0	1863	0
Flt Permitted		0.999			0.999			0.956				
Satd. Flow (perm)	0	1771	0	0	1857	0	0	1781	0	0	1863	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.83	0.83	0.83	0.79	0.79	0.79	0.65	0.65	0.65	0.50	0.50	0.50
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	78	7	1	56	1	22	2	0	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	58	0	0	24	0	0	4	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.4%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↗↗	↗↗	↗		↘↘	↗↗
Volume (vph)	0	82	1685	112	12	66	1575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	30		45				45
Link Distance (ft)	449		664				797
Travel Time (s)	10.2		10.1				12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	91	1872	124	13	73	1750
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	91	1872	124	0	86	1750
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	19.0	141.0	141.0	19.0	19.0	160.0
Total Split (%)	0.0%	11.9%	88.1%	88.1%	11.9%	11.9%	100.0%
Maximum Green (s)		12.0	134.0	134.0	12.0	12.0	153.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		14.0	136.0	136.0		14.0	160.0
Actuated g/C Ratio		0.09	0.85	0.85		0.09	1.00
v/c Ratio		0.37	0.62	0.09		0.29	0.49
Control Delay		73.6	2.1	1.0		71.5	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		73.6	2.1	1.0		71.5	0.4
LOS		E	A	A		E	A
Approach Delay			2.1				3.7
Approach LOS			A				A
Queue Length 50th (ft)		52	45	6		45	0

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak
10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		86	141	17		m75	0
Internal Link Dist (ft)	369		584				717
Turn Bay Length (ft)						300	
Base Capacity (vph)		244	3008	1346		300	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	0	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.37	0.62	0.09		0.29	0.49

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 74 (46%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 4.5

Intersection LOS: A

Intersection Capacity Utilization 60.7%

ICU Level of Service B

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)





Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	2103	1437	1274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	667		536		1192	
Travel Time (s)	15.2		8.1		18.1	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2103	1597	1416
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2103	1597	1416
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 82.2% ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings
60: NC 54 EB Off Ramp &

2023 Without Site Phase 2 AM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1274	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			667	476	
Travel Time (s)	4.7			15.2	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1416	0	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1416	0	84
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	70.4%			ICU Level of Service C		
Analysis Period (min)	15					

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	10	0	1894	0	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		59			59				1036			
Travel Time (s)		1.3			1.3				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	11	0	2104	0	9	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	11	0	2104	0	9	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	139.0	0.0	21.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%	0.0%	86.9%	0.0%	13.1%	0.0%
Maximum Green (s)							7.0		132.0		14.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		156.0		9.2	
Actuated g/C Ratio							0.06		0.98		0.06	
v/c Ratio							0.11		0.61		0.09	
Control Delay							76.9		0.8		81.5	
Queue Delay							0.0		0.0		0.0	
Total Delay							76.9		0.8		81.5	
LOS							E		A		F	
Approach Delay									1.2			
Approach LOS									A			
Queue Length 50th (ft)							11		0		9	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1740	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1002	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	1933	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1933	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	146.0	0.0
Total Split (%)	91.3%	0.0%
Maximum Green (s)	139.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	152.4	
Actuated g/C Ratio	0.95	
v/c Ratio	0.57	
Control Delay	0.6	
Queue Delay	0.0	
Total Delay	0.6	
LOS	A	
Approach Delay	1.0	
Approach LOS	A	
Queue Length 50th (ft)	0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m18		77		m17	
Internal Link Dist (ft)		1			1				956			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							100		3451		177	
Starvation Cap Reductn							0		5		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.11		0.61		0.05	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 88 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 1.1

Intersection LOS: A

Intersection Capacity Utilization 56.5%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	ø1		ø2
21 s		139 s	
	ø5		ø6
14 s		146 s	



Lane Group	SBT	SBR
Queue Length 95th (ft)	2	
Internal Link Dist (ft)	922	
Turn Bay Length (ft)		
Base Capacity (vph)	3371	
Starvation Cap Reductn	26	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.58	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬇		⬆⬆		⬇	
Volume (vph)	0	0	0	0	0	0	242	0	2793	0	186	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		130			117				764			
Travel Time (s)		3.0			2.7				11.6			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	269	0	3103	0	207	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	269	0	3103	0	207	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	41.0	0.0	138.0	0.0	22.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.6%	0.0%	86.3%	0.0%	13.8%	0.0%
Maximum Green (s)							34.0		131.0		15.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							30.6		133.0		17.0	
Actuated g/C Ratio							0.19		0.83		0.11	
v/c Ratio							0.80		1.05		1.10	
Control Delay							72.8		41.4		140.8	
Queue Delay							0.0		0.0		0.0	
Total Delay							72.8		41.4		140.8	
LOS							E		D		F	
Approach Delay									43.9			
Approach LOS									D			
Queue Length 50th (ft)							279		~1867		~247	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2032	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	718	
Travel Time (s)	10.9	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2258	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2258	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	119.0	0.0
Total Split (%)	74.4%	0.0%
Maximum Green (s)	112.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	119.4	
Actuated g/C Ratio	0.75	
v/c Ratio	0.77	
Control Delay	7.1	
Queue Delay	0.5	
Total Delay	7.6	
LOS	A	
Approach Delay	18.8	
Approach LOS	B	
Queue Length 50th (ft)	355	



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m324		#1951		m#296	
Internal Link Dist (ft)		50			37				684			
Turn Bay Length (ft)											250	
Base Capacity (vph)							398		2942		188	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.68		1.05		1.10	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 8 (5%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 33.3

Intersection LOS: C

Intersection Capacity Utilization 95.8%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

ø1	ø2
22 s	138 s
ø5	ø6
41 s	119 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	m490	
Internal Link Dist (ft)	638	
Turn Bay Length (ft)		
Base Capacity (vph)	2919	
Starvation Cap Reductn	265	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.85	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↕	↕	
Volume (vph)	0	0	93	111	2710	2103	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Flt							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	128				916	1192	
Travel Time (s)	3.5				13.9	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	103	123	3011	2337	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	226	3011	2337	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	23.0	23.0	
Total Split (s)	0.0	0.0	34.0	34.0	160.0	126.0	0.0
Total Split (%)	0.0%	0.0%	21.3%	21.3%	100.0%	78.8%	0.0%
Maximum Green (s)			27.0	27.0	153.0	119.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				25.9	160.0	124.1	
Actuated g/C Ratio				0.16	1.00	0.78	
v/c Ratio				0.79	0.85	0.85	
Control Delay				56.7	4.3	11.4	
Queue Delay				0.0	0.0	0.2	
Total Delay				56.7	4.3	11.5	
LOS				E	A	B	
Approach Delay					7.9	11.5	
Approach LOS					A	B	
Queue Length 50th (ft)				232	427	598	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Without Site Phase 2 AM Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m220	m1	758	
Internal Link Dist (ft)	48				836	1112	
Turn Bay Length (ft)				250			
Base Capacity (vph)				321	3539	2746	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	49	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.70	0.85	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 138 (86%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 9.5

Intersection LOS: A

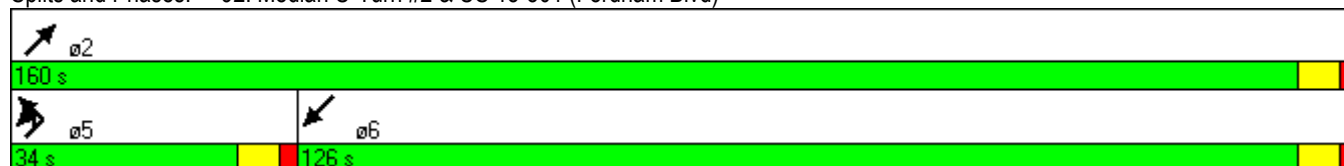
Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2023 Without Site Phase 2 AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1003	76	0	2624	0	1274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			206	476	
Travel Time (s)	1.4			3.1	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1194	90	0	2916	0	1313
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1194	90	0	2916	0	1313
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	113.3%			ICU Level of Service H		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Volume (vph)	95	117	77	269	89	57	173	1116	4	149	1013	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99				0.99							
Frt		0.940			0.942						0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1684	0	3270	1716	0	1744	3487	0	1686	3475	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1691	1684	0	3270	1716	0	1744	3487	0	1686	3475	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	109	134	89	299	99	63	188	1213	4	159	1078	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	223	0	299	162	0	188	1217	0	159	1104	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		18.0	68.0	
Total Split (s)	36.0	36.0	0.0	35.0	35.0	0.0	31.0	81.0	0.0	28.0	78.0	0.0
Total Split (%)	20.0%	20.0%	0.0%	19.4%	19.4%	0.0%	17.2%	45.0%	0.0%	15.6%	43.3%	0.0%
Maximum Green (s)	29.7	29.7		29.2	29.2		24.8	75.2		21.7	72.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.0	3.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	28.5	28.5		23.4	23.4		26.0	85.9		22.2	82.1	
Actuated g/C Ratio	0.16	0.16		0.13	0.13		0.14	0.48		0.12	0.46	
v/c Ratio	0.40	0.84		0.70	0.73		0.75	0.73		0.76	0.70	
Control Delay	72.2	98.4		83.8	93.3		68.9	24.2		98.8	43.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	72.2	98.4		83.8	93.3		68.9	24.2		98.8	43.2	
LOS	E	F		F	F		E	C		F	D	
Approach Delay		89.8			87.2			30.2			50.2	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	116	255		177	187		212	302		183	556	
Queue Length 95th (ft)	178	348		223	266		#323	580		#292	687	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	293	290		545	286		252	1664		224	1585	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.37	0.77		0.55	0.57		0.75	0.73		0.71	0.70	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 79 (44%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 160

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 50.8

Intersection LOS: D

Intersection Capacity Utilization 74.4%

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: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
28 s	81 s	36 s	35 s
 ø6	 ø5		
78 s	31 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	157	81	309	275	37	79	273	1160	220	11	31	1038
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Frt			0.850			0.850		0.976				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1752	3421	0	0	1752	3505
Flt Permitted	0.950			0.950			0.120				0.068	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	221	3421	0	0	125	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			451			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Peak Hour Factor	0.81	0.81	0.81	0.90	0.90	0.90	0.95	0.95	0.95	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	194	100	381	306	41	88	287	1221	232	11	32	1081
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	100	381	306	41	88	287	1453	0	0	43	1081
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	15.0	14.0	19.0		15.0	15.0	19.0
Total Split (s)	37.0	24.0	51.0	30.0	17.0	16.0	51.0	110.0	0.0	16.0	16.0	75.0
Total Split (%)	20.6%	13.3%	28.3%	16.7%	9.4%	8.9%	28.3%	61.1%	0.0%	8.9%	8.9%	41.7%
Maximum Green (s)	30.0	17.0	44.0	23.0	10.0	9.0	44.0	103.0		9.0	9.0	68.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	2.0	2.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	30.0	15.5	61.2	22.5	10.8	23.7	127.0	111.3			87.0	76.3
Actuated g/C Ratio	0.17	0.09	0.34	0.12	0.06	0.13	0.71	0.62			0.48	0.42
v/c Ratio	0.66	0.62	0.73	0.71	0.37	0.42	0.53	0.69			0.27	0.73
Control Delay	81.9	95.7	40.1	85.2	90.3	76.6	39.6	17.8			31.9	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4			0.0	0.0
Total Delay	81.9	95.7	40.1	85.2	90.3	76.6	39.6	18.1			31.9	20.0
LOS	F	F	D	F	F	E	D	B			C	C
Approach Delay		60.4			84.0			21.7				17.5

Lane Group	SBR
Lane Configurations	
Volume (vph)	218
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	3%
Adj. Flow (vph)	227
Shared Lane Traffic (%)	
Lane Group Flow (vph)	227
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	37.0
Total Split (%)	20.6%
Maximum Green (s)	30.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	None
Act Effct Green (s)	111.3
Actuated g/C Ratio	0.62
v/c Ratio	0.23
Control Delay	2.8
Queue Delay	0.0
Total Delay	2.8
LOS	A
Approach Delay	

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach LOS	E			F			C			B		
Queue Length 50th (ft)	221	116	277	181	47	95	186	662			13	533
Queue Length 95th (ft)	274	164	302	236	93	157	m287	m542			m20	480
Internal Link Dist (ft)	343			371			720			1264		
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	318	197	523	477	124	211	548	2116			160	1487
Starvation Cap Reductn	0	0	0	0	0	0	0	214			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.61	0.51	0.73	0.64	0.33	0.42	0.52	0.76			0.27	0.73

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 70 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 33.0

Intersection LOS: C

Intersection Capacity Utilization 76.1%

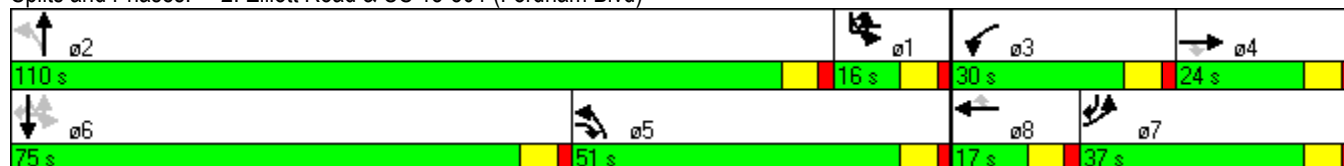
ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Approach LOS	
Queue Length 50th (ft)	22
Queue Length 95th (ft)	m29
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	961
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.24
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

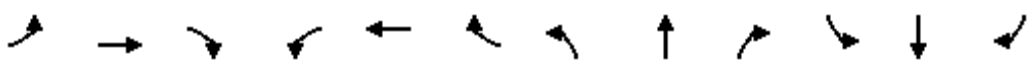
2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	59	41	32	56	16	64	1398	29	33	1358	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.97
Frt		0.938			0.967			0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1740	0	1761	1792	0	1744	3477	0	1744	3489	1561
Flt Permitted	0.390			0.681			0.128			0.077		
Satd. Flow (perm)	730	1740	0	1251	1792	0	235	3477	0	141	3489	1520
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			5	5			1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.93	0.93	0.93	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	321	70	49	41	71	20	69	1503	31	34	1400	330
Shared Lane Traffic (%)												
Lane Group Flow (vph)	321	119	0	41	91	0	69	1534	0	34	1400	330
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	20.0	32.4		30.0	30.0		15.0	104.0		15.0	104.0	104.0
Total Split (s)	31.0	61.0	0.0	30.0	30.0	0.0	15.0	104.0	0.0	15.0	104.0	104.0
Total Split (%)	17.2%	33.9%	0.0%	16.7%	16.7%	0.0%	8.3%	57.8%	0.0%	8.3%	57.8%	57.8%
Maximum Green (s)	24.7	54.6		23.6	23.6		9.0	97.9		9.4	97.9	97.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.0	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.0	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	46.0	46.0		15.0	15.0		113.8	113.8		109.0	109.0	109.0
Actuated g/C Ratio	0.26	0.26		0.08	0.08		0.63	0.63		0.61	0.61	0.61
v/c Ratio	0.95	0.27		0.39	0.61		0.30	0.70		0.22	0.66	0.36

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	98.3	54.4		87.8	96.1		16.4	17.1		11.0	13.8	11.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1		0.0	0.3	0.0
Total Delay	98.3	54.4		87.8	96.1		16.4	17.2		11.0	14.1	11.3
LOS	F	D		F	F		B	B		B	B	B
Approach Delay	86.5			93.5			17.2			13.5		
Approach LOS	F			F			B			B		
Queue Length 50th (ft)	348	114		47	106		21	252		9	318	139
Queue Length 95th (ft)	#444	157		79	146		m35	586		m15	363	176
Internal Link Dist (ft)	500			548			408			720		
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	338	541		174	249		232	2198		174	2113	920
Starvation Cap Reductn	0	0		0	0		0	0		0	200	0
Spillback Cap Reductn	0	0		0	0		0	93		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.95	0.22		0.24	0.37		0.30	0.73		0.20	0.73	0.36

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 63 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 25.8

Intersection LOS: C

Intersection Capacity Utilization 79.5%

ICU Level of Service D

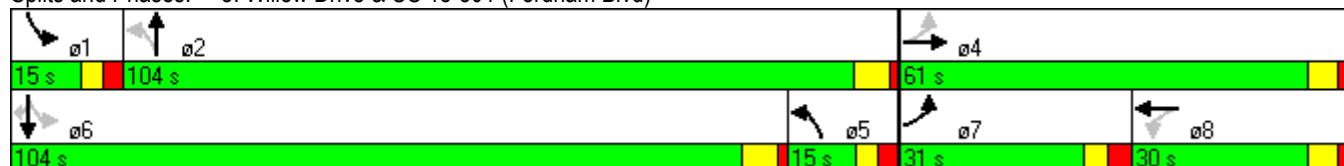
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	131	7	413	5	6	7	7	480	1315	8	16	1269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99			0.99				1.00		1.00	
Frt			0.850		0.949				0.999			
Flt Protected		0.955			0.986			0.950			0.950	
Satd. Flow (prot)	0	1753	2746	0	1647	0	0	3383	3483	0	1761	3522
Flt Permitted		0.955			0.986			0.950			0.950	
Satd. Flow (perm)	0	1735	2746	0	1647	0	0	3383	3483	0	1759	3522
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	7					7				1	1	
Peak Hour Factor	0.85	0.85	0.85	0.75	0.75	0.75	0.96	0.96	0.96	0.96	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	154	8	486	7	8	9	7	500	1370	8	18	1395
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	162	486	0	24	0	0	507	1378	0	18	1395
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	41.0	41.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	24.0	24.0	34.0	41.0	41.0	0.0	34.0	34.0	100.0	0.0	15.0	81.0
Total Split (%)	13.3%	13.3%	18.9%	22.8%	22.8%	0.0%	18.9%	18.9%	55.6%	0.0%	8.3%	45.0%
Maximum Green (s)	17.4	17.4	27.3	34.3	34.3		27.3	27.3	93.9		8.5	74.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	3.0	1.0	1.0		3.0	3.0	6.0		3.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

Lane Group	SBR
Lane Configurations	
Volume (vph)	130
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1576
Flt Permitted	
Satd. Flow (perm)	1576
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	3%
Adj. Flow (vph)	143
Shared Lane Traffic (%)	
Lane Group Flow (vph)	143
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	24.0
Total Split (%)	13.3%
Maximum Green (s)	17.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		18.4	57.2		9.2			36.8	133.9		9.4	101.0
Actuated g/C Ratio		0.10	0.32		0.05			0.20	0.74		0.05	0.56
v/c Ratio		0.91	0.56		0.28			0.73	0.53		0.20	0.71
Control Delay		124.5	46.3		90.6			73.3	12.7		59.8	10.6
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		124.5	46.3		90.6			73.3	12.7		59.8	10.6
LOS		F	D		F			E	B		E	B
Approach Delay		65.9			90.6				29.0			10.6
Approach LOS		E			F				C			B
Queue Length 50th (ft)		192	231		28			292	431		22	412
Queue Length 95th (ft)		#307	247		52			345	511		m31	584
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		185	873		329			692	2591		98	1977
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.88	0.56		0.07			0.73	0.53		0.18	0.71

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 99 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 28.2

Intersection LOS: C

Intersection Capacity Utilization 90.6%

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.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø3	ø4
100 s	15 s	24 s	41 s
			
ø5	ø6		
34 s	81 s		

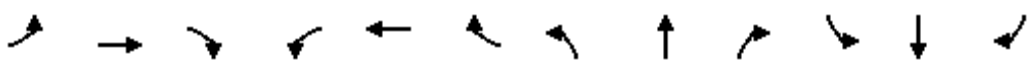


Lane Group	SBR
Act Effect Green (s)	124.4
Actuated g/C Ratio	0.69
v/c Ratio	0.13
Control Delay	3.9
Queue Delay	0.0
Total Delay	3.9
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	32
Queue Length 95th (ft)	58
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1095
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.13
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	11	0	0	77	5	1710	9	74	1583	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1031			1593	
Travel Time (s)		7.9			3.4			15.6			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.77	0.98	0.98	0.98	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	16	0	0	100	5	1745	9	86	1841	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	16	0	0	100	5	1745	9	86	1841	21
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	15.0	0.0	0.0	22.0	15.0	98.0	98.0	22.0	105.0	105.0
Total Split (%)	0.0%	0.0%	12.5%	0.0%	0.0%	18.3%	12.5%	81.7%	81.7%	18.3%	87.5%	87.5%
Maximum Green (s)			8.0			15.0	8.0	91.0	91.0	15.0	98.0	98.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)			9.4			14.2	9.4	95.8	95.8	14.2	112.0	112.0
Actuated g/C Ratio			0.08			0.12	0.08	0.80	0.80	0.12	0.93	0.93
v/c Ratio			0.13			0.53	0.04	0.62	0.01	0.41	0.56	0.01
Control Delay			53.7			59.5	45.2	2.7	1.3	54.4	2.5	1.3
Queue Delay			0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay			53.7			59.5	45.2	2.7	1.3	54.4	2.5	1.3
LOS			D			E	D	A	A	D	A	A
Approach Delay								2.8			4.8	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			12			74	4	88	1	62	0	0
Queue Length 95th (ft)			27			108	m7	26	m1	107	217	5
Internal Link Dist (ft)		208			43			951			1513	
Turn Bay Length (ft)							150		150	200		150
Base Capacity (vph)			134			226	146	2798	1252	248	3271	1464
Starvation Cap Reductn			0			0	0	0	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.12			0.44	0.03	0.62	0.01	0.35	0.56	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 79 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 5.5

Intersection LOS: A

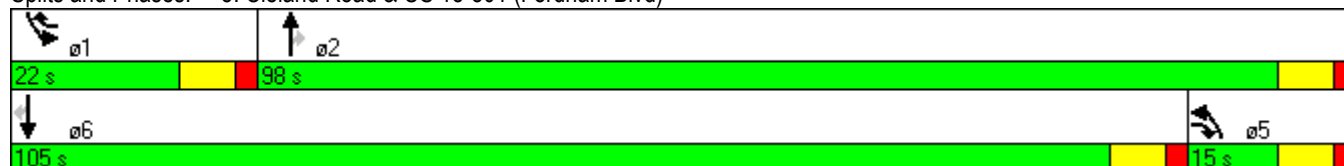
Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Volume (vph)	0	0	20	0	0	66	56	10	1742	18	43	1534
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				802			1006
Travel Time (s)		2.8			2.3				12.2			15.2
Peak Hour Factor	0.53	0.53	0.53	0.61	0.61	0.61	0.95	0.95	0.95	0.95	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	38	0	0	108	59	11	1834	19	47	1667
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	38	0	0	108	0	70	1834	19	47	1667
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	18.0	0.0	0.0	24.0	18.0	18.0	96.0	96.0	24.0	102.0
Total Split (%)	0.0%	0.0%	15.0%	0.0%	0.0%	20.0%	15.0%	15.0%	80.0%	80.0%	20.0%	85.0%
Maximum Green (s)			11.0			17.0	11.0	11.0	89.0	89.0	17.0	95.0
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)	0.0	0.0	2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	9.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			7.5			15.0		11.5	95.0	95.0	15.0	102.3
Actuated g/C Ratio			0.06			0.12		0.10	0.79	0.79	0.12	0.85
v/c Ratio			0.38			0.54		0.42	0.66	0.02	0.21	0.56
Control Delay			64.0			58.7		58.4	4.3	2.1	44.2	3.8
Queue Delay			0.0			0.0		0.0	0.1	0.0	0.0	0.0
Total Delay			64.0			58.7		58.4	4.3	2.1	44.2	3.8
LOS			E			E		E	A	A	D	A
Approach Delay									6.3			4.9
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	3%
Adj. Flow (vph)	5
Shared Lane Traffic (%)	
Lane Group Flow (vph)	5
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	102.0
Total Split (%)	85.0%
Maximum Green (s)	95.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	102.3
Actuated g/C Ratio	0.85
v/c Ratio	0.00
Control Delay	2.2
Queue Delay	0.0
Total Delay	2.2
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			29			79		54	94	2	33	187
Queue Length 95th (ft)			38			88		m85	248	m3	m63	175
Internal Link Dist (ft)		24			5				722			926
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			121			253		190	2774	1241	277	2987
Starvation Cap Reductn			0			0		0	101	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.31			0.43		0.37	0.69	0.02	0.17	0.56

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 58 (48%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 7.7

Intersection LOS: A

Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m1
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1336
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.00
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	703	0	0	435	0	1214	25	0	1386	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	827	0	0	518	0	1349	28	0	1444	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	827	0	0	518	0	1349	28	0	1444	170
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	53.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.5	0.0
Total Split (%)	0.0%	0.0%	44.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.4%	0.0%
Maximum Green (s)			48.4								60.7	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			42.2			120.0		120.0	120.0		67.8	120.0
Actuated g/C Ratio			0.35			1.00		1.00	1.00		0.56	1.00
v/c Ratio			0.86			0.33		0.38	0.02		0.73	0.11
Control Delay			45.9			0.6		0.3	0.0		19.0	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			45.9			0.6		0.3	0.0		19.0	0.1
LOS			D			A		A	A		B	A
Approach Delay								0.3			17.0	
Approach LOS								A			B	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			332			0		0	0		441	0
Queue Length 95th (ft)			360			0		0	m0		407	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1105			1580		3505	1583		1981	1568
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			0.75			0.33		0.38	0.02		0.73	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 88 (73%), Referenced to phase 2:SBT and 6:, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 15.2

Intersection LOS: B

Intersection Capacity Utilization 71.2%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	110	0	1130	0	0	1754	336	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	122	0	1256	0	0	1949	373	0	34
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	122	0	1256	0	0	1949	373	0	34
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 58.5% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations									
Volume (vph)	31	215	99	3	2015	197	1891	21	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1566	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					776		906		
Travel Time (s)					11.8		13.7		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.70	0.77	0.72	0.72	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	44	279	138	4	2239	219	1991	22	11
Shared Lane Traffic (%)									
Lane Group Flow (vph)	44	279	142	0	2239	219	1991	33	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0	25.0	
Total Split (s)	14.0	31.0	31.0	0.0	75.0	0.0	75.0	75.0	0.0
Total Split (%)	11.7%	25.8%	25.8%	0.0%	62.5%	0.0%	62.5%	62.5%	0.0%
Maximum Green (s)	7.0	24.0	24.0		68.0		68.0	68.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lag						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	24.5	24.5		81.5	120.0	74.3	74.3	
Actuated g/C Ratio	0.08	0.20	0.20		0.68	1.00	0.62	0.62	
v/c Ratio	0.36	0.86	0.25		0.88	0.14	0.86	0.03	
Control Delay	61.8	71.2	40.8		10.8	0.1	14.5	8.2	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.5	0.0	0.1	0.0	
Total Delay	61.8	71.2	40.8		11.2	0.1	14.6	8.2	
LOS	E	E	D		B	A	B	A	
Approach Delay					10.2		14.5		
Approach LOS					B		B		
Queue Length 50th (ft)	33	207	52		158	0	177	6	
Queue Length 95th (ft)	56	255	66		523	m0	655	m11	
Internal Link Dist (ft)					696		826		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	121	344	598		2535	1583	2308	981	
Starvation Cap Reductn	0	0	0		65	0	25	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.36	0.81	0.24		0.91	0.14	0.87	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 107 (89%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 16.8

Intersection LOS: B

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø2	 ø3	 ø4
75 s	14 s	31 s
 ø6		
75 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	635	0	106	15	0	21	0	1530	18	0	1431	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.998				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1752	0	1568	0	3886	0	0	3471	1553
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1592	1735	0	1568	0	*3811	0	0	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			707	
Travel Time (s)		7.4			14.0			8.8			10.7	
Confl. Peds. (#/hr)			7	7					4	4		
Peak Hour Factor	0.86	1.00	0.86	0.77	1.00	0.77	1.00	0.86	0.86	1.00	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	738	0	123	19	0	27	0	1779	21	0	1573	620
Shared Lane Traffic (%)												
Lane Group Flow (vph)	738	0	123	19	0	27	0	1800	0	0	1573	620
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.4			32.4				19.0			19.0	
Total Split (s)	42.0	0.0	0.0	42.0	0.0	0.0	0.0	78.0	0.0	0.0	78.0	0.0
Total Split (%)	35.0%	0.0%	0.0%	35.0%	0.0%	0.0%	0.0%	65.0%	0.0%	0.0%	65.0%	0.0%
Maximum Green (s)	35.0			35.0				71.0			71.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	30.9		120.0	30.9		120.0		79.1			79.1	120.0
Actuated g/C Ratio	0.26		1.00	0.26		1.00		0.66			0.66	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.82		0.08	0.04		0.02		0.70			0.69	0.40
Control Delay	49.7		0.1	31.3		0.0		15.6			4.5	0.6
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.2	0.0
Total Delay	49.7		0.1	31.3		0.0		15.6			4.7	0.6
LOS	D		A	C		A		B			A	A
Approach Delay								15.6			3.5	
Approach LOS								B			A	
Queue Length 50th (ft)	277		0	11		0		388			88	0
Queue Length 95th (ft)	306		0	25		0		492			115	0
Internal Link Dist (ft)		302			435			504			627	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	1080		1592	540		1568		2561			2288	1553
Starvation Cap Reductn	0		0	0		0		0			157	0
Spillback Cap Reductn	0		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.68		0.08	0.04		0.02		0.70			0.74	0.40

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 6 (5%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 14.9

Intersection LOS: B

Intersection Capacity Utilization 66.0%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø3
78 s	42 s
 ø6	
78 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	239	35	214	312	344	38	111	122	333	98	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.95	0.99		0.99		0.93		1.00	0.98	1.00	1.00	
Frt		0.981				0.850			0.850		0.989	
Flt Protected	0.950			0.950				0.987		0.950	0.976	
Satd. Flow (prot)	1646	3322	0	1752	1845	1672	0	1965	1538	1625	1932	0
Flt Permitted	0.562			0.371				0.987		0.950	0.976	
Satd. Flow (perm)	928	3322	0	680	1845	1549	0	1960	1513	1623	1932	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	25		5	5		25	10		1	1		10
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.82	0.82	0.82	0.93	0.93	0.93
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	31	299	44	225	328	362	46	135	149	358	105	17
Shared Lane Traffic (%)										33%		
Lane Group Flow (vph)	31	343	0	225	328	362	0	181	149	240	240	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	23.0	57.0	41.0	32.0	32.0	23.0	41.0	41.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	17.7%	43.8%	31.5%	24.6%	24.6%	17.7%	31.5%	31.5%	0.0%
Maximum Green (s)	26.7	26.7		16.2	49.7	34.3	25.3	25.3	16.2	34.3	34.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-1.8	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.5	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effct Green (s)	30.3	30.3		52.0	51.5	79.5		35.5	52.2	27.5	27.5	
Actuated g/C Ratio	0.23	0.23		0.40	0.40	0.61		0.27	0.40	0.21	0.21	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.14	0.44		0.55	0.45	0.37		0.34	0.24	0.70	0.59	
Control Delay	42.7	45.2		32.5	31.3	11.1		42.1	25.4	57.6	51.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.7	45.2		32.5	31.3	11.1		42.1	25.4	57.6	51.1	
LOS	D	D		C	C	B		D	C	E	D	
Approach Delay		45.0			23.6			34.5			54.4	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	21	132		129	201	126		123	76	197	192	
Queue Length 95th (ft)	45	158		196	288	142		188	124	273	263	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	216	774		420	731	1083		537	626	450	535	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.14	0.44		0.54	0.45	0.33		0.34	0.24	0.53	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 36.2

Intersection LOS: D

Intersection Capacity Utilization 65.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
23 s	34 s	41 s	32 s
 ø6			
57 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	0	751	31	0	734	703	0	0	336	0	0	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	816	34	0	798	764	0	0	365	0	0	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	816	34	0	798	764	0	0	365	0	0	177
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

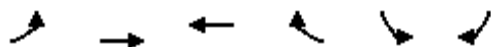
Control Type: Unsignalized

Intersection Capacity Utilization 48.2% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2023 Without Site Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1075	1419	435	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	0.90	0.90	0.86	0.86	0.90	0.85
Adj. Flow (vph)	0	1194	1650	506	0	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1194	1650	506	0	29
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

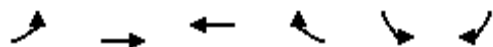
Control Type: Unsignalized

Intersection Capacity Utilization 37.4% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2023 Without Site Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1821	1758	45	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	4940	4988	1553	0	1315
Flt Permitted						
Satd. Flow (perm)	0	4940	4988	1553	0	1315
Link Speed (mph)		45	45		25	
Link Distance (ft)		218	553		229	
Travel Time (s)		3.3	8.4		6.2	
Peak Hour Factor	1.00	0.97	0.95	0.95	1.00	0.44
Heavy Vehicles (%)	5%	5%	4%	4%	25%	25%
Adj. Flow (vph)	0	1877	1851	47	0	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1877	1851	47	0	111
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 44.0% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	34	81	1514	41	105	1553	95	161	16	90	113	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	250	
Storage Lanes		1		0	1		1	1		1	1	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00				0.98	0.99		0.98	0.99	0.98
Frt			0.996				0.850			0.850		0.867
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1745	4963	0	1752	5036	1568	1752	1845	1568	1736	1557
Flt Permitted		0.950			0.091			0.526			0.746	
Satd. Flow (perm)	0	1745	4963	0	168	5036	1531	965	1845	1537	1352	1557
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			553			576			537			463
Travel Time (s)			8.4			8.7			14.6			12.6
Confl. Peds. (#/hr)		1		3	3		1	5		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82
Heavy Vehicles (%)	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%	4%	4%
Adj. Flow (vph)	37	92	1720	47	114	1688	103	185	18	103	138	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	129	1767	0	114	1688	103	185	18	103	138	156
Turn Type	Prot	Prot			pm+pt		Perm	Perm		pm+ov	Perm	
Protected Phases	5	5	2		1	6			8	1		4
Permitted Phases					6		6	8		8	4	
Detector Phase	5	5	2		1	6	6	8	8	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	13.0	28.0		29.0	26.0	26.0	41.0	41.0	29.0	39.0	39.0
Total Split (s)	24.0	24.0	73.0	0.0	29.0	78.0	78.0	48.0	48.0	29.0	48.0	48.0
Total Split (%)	16.0%	16.0%	48.7%	0.0%	19.3%	52.0%	52.0%	32.0%	32.0%	19.3%	32.0%	32.0%
Maximum Green (s)	18.4	18.4	67.4		23.6	72.1	72.1	41.6	41.6	23.6	41.5	41.5
Yellow Time (s)	3.0	3.0	3.8		3.0	4.1	4.1	3.1	3.1	3.0	3.2	3.2
All-Red Time (s)	2.6	2.6	1.8		2.4	1.8	1.8	3.3	3.3	2.4	3.3	3.3
Lost Time Adjust (s)	0.0	-0.6	-0.6	0.0	-0.4	-0.9	-0.9	-1.4	-1.4	-0.4	-1.5	-1.5
Total Lost Time (s)	5.6	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Vehicle Extension (s)	1.0	1.0	3.0		1.0	3.0	3.0	1.0	1.0	1.0	1.0	1.0
Recall Mode	None	None	C-Max		None	C-Max	C-Max	None	None	None	None	None
Walk Time (s)			7.0			7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)			12.0			13.0	13.0	27.0	27.0		25.0	25.0
Pedestrian Calls (#/hr)			0			0	0	0	0		0	0
Act Effct Green (s)		14.7	93.6		99.3	89.1	89.1	31.2	31.2	41.4	31.2	31.2
Actuated g/C Ratio		0.10	0.62		0.66	0.59	0.59	0.21	0.21	0.28	0.21	0.21
v/c Ratio		0.75	0.57		0.52	0.56	0.11	0.92	0.05	0.24	0.49	0.48
Control Delay		91.3	19.0		36.1	8.8	7.6	103.1	43.1	37.1	56.6	55.6

Lane Group	SBR
Lane Configurations	
Volume (vph)	113
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Peak Hour Factor	0.82
Heavy Vehicles (%)	4%
Adj. Flow (vph)	138
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		91.3	19.0		36.1	8.8	7.6	103.1	43.1	37.1	56.6	55.6
LOS		F	B		D	A	A	F	D	D	E	E
Approach Delay			24.0			10.3			77.3			56.1
Approach LOS			C			B			E			E
Queue Length 50th (ft)		125	347		30	128	21	179	14	75	120	136
Queue Length 95th (ft)		189	504		104	112	28	246	32	101	156	172
Internal Link Dist (ft)			473			496			457			383
Turn Bay Length (ft)		300			250		150	150		150	250	
Base Capacity (vph)		221	3097		375	2992	910	277	529	570	388	446
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.58	0.57		0.30	0.56	0.11	0.67	0.03	0.18	0.36	0.35

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 63 (42%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 73.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

 ø1	 ø2	 ø4
29 s	73 s	48 s
 ø5	 ø6	 ø8
24 s	78 s	48 s



Lane Group	SBR
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	1721	46	81	1706	15	32	6	144	26	9	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.996			0.999				0.850		0.933	
Flt Protected	0.950			0.950				0.959			0.982	
Satd. Flow (prot)	1736	4964	0	1752	5029	0	0	1752	1553	0	1530	0
Flt Permitted	0.096			0.062				0.691			0.870	
Satd. Flow (perm)	175	4964	0	114	5029	0	0	1260	1553	0	1355	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	5		3	3		5	2					2
Peak Hour Factor	0.85	0.85	0.85	0.96	0.96	0.96	0.83	0.83	0.83	0.74	0.74	0.74
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Adj. Flow (vph)	45	2025	54	84	1777	16	39	7	173	35	12	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	2079	0	84	1793	0	0	46	173	0	93	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	86.0	0.0	15.0	88.0	0.0	49.0	49.0	49.0	49.0	49.0	0.0
Total Split (%)	8.7%	57.3%	0.0%	10.0%	58.7%	0.0%	32.7%	32.7%	32.7%	32.7%	32.7%	0.0%
Maximum Green (s)	7.1	79.8		9.1	81.8		42.8	42.8	42.8	42.7	42.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	113.5	103.1		112.5	107.1			22.5	22.5		22.5	
Actuated g/C Ratio	0.76	0.69		0.75	0.71			0.15	0.15		0.15	
v/c Ratio	0.21	0.61		0.44	0.50			0.24	0.74		0.46	
Control Delay	6.5	7.7		28.3	6.0			57.1	79.3		64.1	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 Without Site Noon Peak
10/18/2013

												
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	
Total Delay	6.5	7.7		28.3	6.0			57.1	79.3		64.1	
LOS	A	A		C	A			E	E		E	
Approach Delay		7.7			7.0			74.6			64.1	
Approach LOS		A			A			E			E	
Queue Length 50th (ft)	7	157		16	252			40	164		84	
Queue Length 95th (ft)	m14	163		m53	176			71	215		110	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	216	3411		203	3592			370	456		397	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.21	0.61		0.41	0.50			0.12	0.38		0.23	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 67 (45%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 12.0

Intersection LOS: B

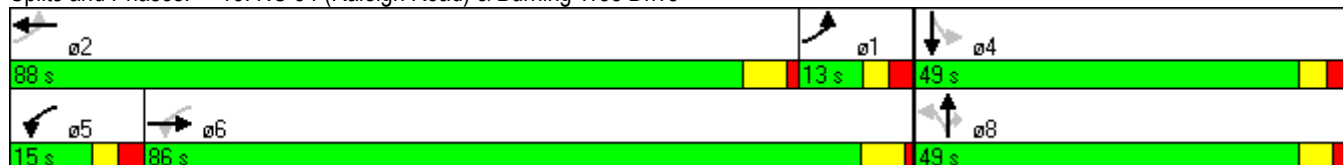
Intersection Capacity Utilization 64.8%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	172	1514	32	16	1534	17	46	7	33	16	6	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98		0.99		1.00		
Frt			0.850			0.850		0.876			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	4988	1553	1736	4988	1553	1770	1610	0	1736	1562	0
Flt Permitted	0.110			0.128			0.358			0.713		
Satd. Flow (perm)	198	4988	1553	234	4988	1514	667	1610	0	1297	1562	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	4					4			3	3		
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.59	0.59	0.59	0.86	0.86	0.86
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	179	1577	33	17	1615	18	78	12	56	19	7	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	179	1577	33	17	1615	18	78	68	0	19	195	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	44.0	44.0	14.0	44.0	44.0	14.0	14.0		15.0	15.0	
Total Split (s)	25.0	102.0	102.0	14.0	64.0	64.0	34.0	34.0	0.0	34.0	34.0	0.0
Total Split (%)	16.7%	68.0%	68.0%	9.3%	42.7%	42.7%	22.7%	22.7%	0.0%	22.7%	22.7%	0.0%
Maximum Green (s)	18.7	95.7	95.7	7.7	57.7	57.7	27.2	27.2		26.7	26.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lag	Lead	Lead	Lag								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	111.3	110.7	110.7	114.3	95.2	95.2	23.7	23.7		23.7	23.7	
Actuated g/C Ratio	0.74	0.74	0.74	0.76	0.63	0.63	0.16	0.16		0.16	0.16	
v/c Ratio	0.58	0.43	0.03	0.06	0.51	0.02	0.74	0.27		0.09	0.79	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	18%
Maximum Green (s)	23.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	22.0	14.6	11.5	3.2	7.5	6.6	97.1	56.7		52.5	82.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.0	14.6	11.5	3.2	7.5	6.6	97.1	56.7		52.5	82.6	
LOS	C	B	B	A	A	A	F	E		D	F	
Approach Delay	15.3			7.4			78.3			80.0		
Approach LOS	B			A			E			E		
Queue Length 50th (ft)	86	217	9	2	131	3	73	59		16	185	
Queue Length 95th (ft)	180	492	m29	m4	134	m6	81	66		38	255	
Internal Link Dist (ft)	767			1857			371			455		
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	359	3682	1147	268	3165	961	129	311		251	302	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.50	0.43	0.03	0.06	0.51	0.02	0.60	0.22		0.08	0.65	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 37 (25%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 17.9
 Intersection LOS: B
 Intersection Capacity Utilization 72.0%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø2	 ø1	 ø4
102 s	14 s	34 s
 ø10	 ø5	 ø6
27 s	25 s	64 s
		 ø8
		34 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	129	1390	71	74	1300	75	70	35	121	141	26	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00		0.99	1.00	1.00				
Frt			0.850			0.850		0.925	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.996		0.950		
Satd. Flow (prot)	3401	5037	1568	3350	4963	1545	1648	1531	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.996		0.950		
Satd. Flow (perm)	3399	5037	1520	3337	4963	1524	1645	1531	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	1		12	12		1	1					1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.65	0.65	0.65	0.83	0.83	0.83
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	139	1495	76	77	1354	78	108	54	186	170	31	208
Shared Lane Traffic (%)							10%		35%			
Lane Group Flow (vph)	139	1495	76	77	1354	78	97	130	121	170	31	208
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	42.0	15.0	15.0	42.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	18.0	72.0	31.0	17.0	71.0	30.0	31.0	31.0	48.0	30.0	30.0	48.0
Total Split (%)	12.0%	48.0%	20.7%	11.3%	47.3%	20.0%	20.7%	20.7%	32.0%	20.0%	20.0%	32.0%
Maximum Green (s)	10.8	65.4	23.9	9.9	64.5	22.7	23.9	23.9		22.7	22.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effect Green (s)	13.0	85.3	103.7	12.0	84.3	98.6	18.4	18.4	35.4	14.3	14.3	27.3
Actuated g/C Ratio	0.09	0.57	0.69	0.08	0.56	0.66	0.12	0.12	0.24	0.10	0.10	0.18
v/c Ratio	0.47	0.52	0.07	0.29	0.49	0.08	0.48	0.69	0.35	0.51	0.17	0.71

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	72.9	16.8	2.3	66.4	11.8	4.3	68.0	81.1	49.4	69.2	62.4	53.2
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	72.9	16.8	2.3	66.4	11.8	4.3	68.0	81.1	49.4	69.2	62.4	53.2
LOS	E	B	A	E	B	A	E	F	D	E	E	D
Approach Delay	20.7			14.2			66.4			60.5		
Approach LOS	C			B			E			E		
Queue Length 50th (ft)	68	268	13	37	123	18	94	136	105	84	29	149
Queue Length 95th (ft)	112	129	6	71	236	20	105	142	111	107	56	165
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	295	2864	1136	268	2789	1053	286	265	423	581	315	407
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	0.47	0.52	0.07	0.29	0.49	0.07	0.34	0.49	0.29	0.29	0.10	0.51

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 8 (5%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 26.3

Intersection LOS: C

Intersection Capacity Utilization 56.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø4	 ø3
72 s	17 s	31 s	30 s
 ø6	 ø5		
71 s	18 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

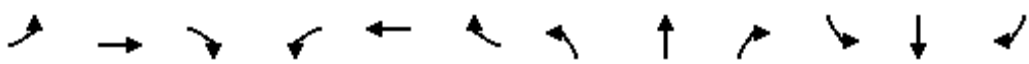
2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	1433	236	41	1276	113	173	55	60	100	44	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96				1.00	1.00			1.00	
Frt			0.850			0.850		0.936			0.971	
Flt Protected	0.950			0.950			0.950	0.991		0.950	0.988	
Satd. Flow (prot)	1727	4363	1545	1761	5061	1576	1656	1617	0	1648	1660	0
Flt Permitted	0.152			0.082			0.950	0.991		0.950	0.988	
Satd. Flow (perm)	276	4363	1490	152	5061	1576	1654	1617	0	1648	1660	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	12	1524	251	43	1343	119	188	60	65	111	49	17
Shared Lane Traffic (%)							15%			20%		
Lane Group Flow (vph)	12	1524	251	43	1343	119	160	153	0	89	88	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	27.0	15.0	14.0	29.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	14.0	80.0	33.0	14.0	80.0	23.0	33.0	33.0	0.0	23.0	23.0	0.0
Total Split (%)	9.3%	53.3%	22.0%	9.3%	53.3%	15.3%	22.0%	22.0%	0.0%	15.3%	15.3%	0.0%
Maximum Green (s)	7.2	72.5	25.8	7.0	72.5	15.8	25.8	25.8		15.8	15.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	1.8	5.0	5.0	1.8
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	96.7	87.5	109.5	94.7	92.6	111.8	22.1	22.1		14.3	14.3	
Actuated g/C Ratio	0.64	0.58	0.73	0.63	0.62	0.75	0.15	0.15		0.10	0.10	
v/c Ratio	0.04	0.60	0.23	0.22	0.43	0.10	0.66	0.64		0.57	0.56	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	3.7	6.2	2.3	13.9	17.6	7.3	72.6	72.0		78.4	77.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	3.7	6.2	2.3	13.9	17.6	7.3	72.6	72.0		78.4	77.7	
LOS	A	A	A	B	B	A	E	E		E	E	
Approach Delay	5.7			16.7			72.3			78.1		
Approach LOS	A			B			E			E		
Queue Length 50th (ft)	1	130	28	14	216	24	156	149		89	88	
Queue Length 95th (ft)	m3	150	36	35	365	67	233	225		150	149	
Internal Link Dist (ft)	929			334			420			673		
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	270	2544	1157	192	3124	1164	309	302		198	199	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.60	0.22	0.22	0.43	0.10	0.52	0.51		0.45	0.44	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 2 (1%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 57.1%

ICU Level of Service B

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø1	 ø2	 ø4	 ø3
14 s	80 s	33 s	23 s
 ø6	 ø5		
80 s	14 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	295	33	211	316	253	52	626	182	144	506	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.97	0.99	0.99				0.96
Frt		0.985				0.850		0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	1814	0	1719	1810	1538	1736	3333	0	1752	3505	1568
Flt Permitted	0.950			0.950			0.404			0.179		
Satd. Flow (perm)	3182	1814	0	1714	1810	1498	732	3333	0	330	3505	1501
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	8		3	3		8	5		10	10		5
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Parking (#/hr)	0											
Adj. Flow (vph)	373	335	38	234	351	281	54	652	190	155	544	287
Shared Lane Traffic (%)												
Lane Group Flow (vph)	373	373	0	234	351	281	54	842	0	155	544	287
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	29.0	44.0	0.0	33.0	48.0	19.0	15.0	54.0	0.0	19.0	58.0	29.0
Total Split (%)	19.3%	29.3%	0.0%	22.0%	32.0%	12.7%	10.0%	36.0%	0.0%	12.7%	38.7%	19.3%
Maximum Green (s)	23.1	38.1		27.4	42.4	13.1	8.8	48.3		13.1	52.6	23.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	24.8	34.7		24.2	34.1	46.6	67.1	58.6		75.7	65.3	90.1
Actuated g/C Ratio	0.17	0.23		0.16	0.23	0.31	0.45	0.39		0.50	0.44	0.60
v/c Ratio	0.70	0.89		0.84	0.85	0.60	0.14	0.65		0.54	0.36	0.31

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	66.4	78.6		83.1	66.9	28.3	22.8	42.1		29.4	31.6	11.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	66.4	78.6		83.1	66.9	28.3	22.8	42.1		29.4	31.6	11.1
LOS	E	E		F	E	C	C	D		C	C	B
Approach Delay		72.5			58.8			41.0			25.3	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)	175	351		211	302	134	27	369		84	197	94
Queue Length 95th (ft)	234	457		m330	375	177	57	473		140	268	165
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	554	472		321	519	484	402	1303		300	1525	922
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.67	0.79		0.73	0.68	0.58	0.13	0.65		0.52	0.36	0.31

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 11 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 47.7

Intersection LOS: D

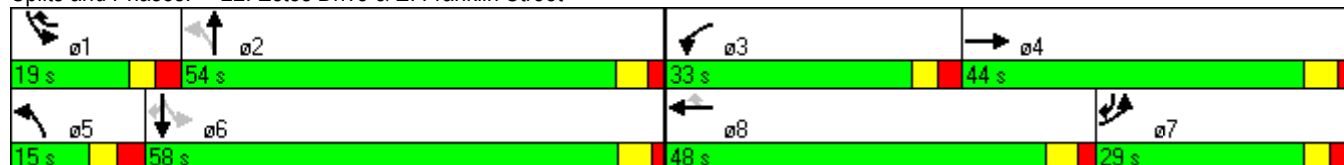
Intersection Capacity Utilization 80.4%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



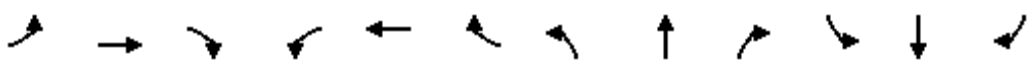
Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	226	364	6	5	375	48	8	5	7	81	10	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.998			0.983			0.951				0.850
Flt Protected	0.950			0.950				0.980			0.957	
Satd. Flow (prot)	1719	3430	0	1736	3398	0	0	1657	0	0	1732	1538
Flt Permitted	0.418			0.502				0.844			0.733	
Satd. Flow (perm)	751	3430	0	910	3398	0	0	1426	0	0	1315	1518
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		6	6		8	2		10	10		2
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	5%	5%	5%
Adj. Flow (vph)	263	423	7	5	412	53	9	5	8	84	10	358
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	430	0	5	465	0	0	22	0	0	94	358
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	20.0	46.0	0.0	26.0	26.0	0.0	29.0	29.0	0.0	29.0	29.0	20.0
Total Split (%)	26.7%	61.3%	0.0%	34.7%	34.7%	0.0%	38.7%	38.7%	0.0%	38.7%	38.7%	26.7%
Maximum Green (s)	14.9	40.9		20.8	20.8		23.3	23.3		23.2	23.2	14.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	57.4	58.4		38.9	38.9			10.2			10.2	22.1
Actuated g/C Ratio	0.77	0.78		0.52	0.52			0.14			0.14	0.29
v/c Ratio	0.35	0.16		0.01	0.26			0.11			0.53	0.79
Control Delay	2.9	1.9		13.0	12.4			28.2			40.3	34.2
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	2.9	1.9		13.0	12.4			28.2			40.3	34.2
LOS	A	A		B	B			C			D	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		2.3			12.4			28.2			35.5	
Approach LOS		A			B			C			D	
Queue Length 50th (ft)	15	12		1	61			9			42	136
Queue Length 95th (ft)	m64	47		8	115			27			81	178
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	773	2670		472	1762			456			421	490
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.34	0.16		0.01	0.26			0.05			0.22	0.73

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 14.7

Intersection LOS: B

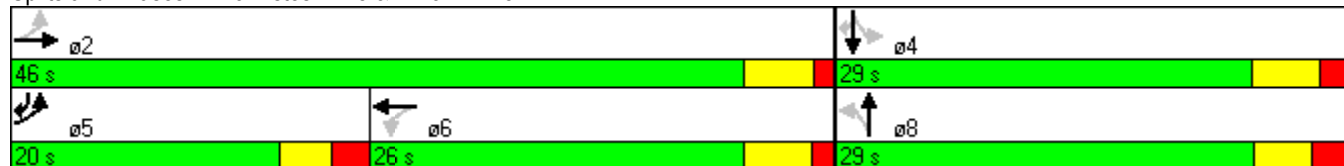
Intersection Capacity Utilization 57.8%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2023 Without Site Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	73	7	2	56	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1805	0	0	1823	1770	0
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1805	0	0	1823	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.79	0.79	0.71	0.71	0.46	0.46
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	92	9	3	79	4	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	0	82	4	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.6%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	44	9	1	35	2	9	0	2	3	2	3
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			0.992			0.979			0.951	
Flt Protected		0.996			0.999			0.959			0.982	
Satd. Flow (prot)	0	1700	0	0	1828	0	0	1749	0	0	1740	0
Flt Permitted		0.996			0.999			0.959			0.982	
Satd. Flow (perm)	0	1700	0	0	1828	0	0	1749	0	0	1740	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.83	0.83	0.83	0.67	0.67	0.67
Heavy Vehicles (%)	9%	9%	9%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	7	63	13	1	47	3	11	0	2	4	3	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	51	0	0	13	0	0	11	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	15.3%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Volume (vph)	0	112	1729	71	15	61	1496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	717		659				802
Travel Time (s)	19.6		10.0				12.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	124	1921	79	17	68	1662
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	124	1921	79	0	85	1662
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	17.0	103.0	103.0	17.0	17.0	120.0
Total Split (%)	0.0%	14.2%	85.8%	85.8%	14.2%	14.2%	100.0%
Maximum Green (s)		10.0	96.0	96.0	10.0	10.0	113.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		12.0	98.0	98.0		12.0	120.0
Actuated g/C Ratio		0.10	0.82	0.82		0.10	1.00
v/c Ratio		0.44	0.66	0.06		0.25	0.47
Control Delay		56.4	3.4	1.4		47.9	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		56.4	3.4	1.4		47.9	0.4
LOS		E	A	A		D	A
Approach Delay			3.3				2.7
Approach LOS			A				A
Queue Length 50th (ft)		52	125	6		31	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
 10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		87	132	11		57	0
Internal Link Dist (ft)	637		579				722
Turn Bay Length (ft)						300	
Base Capacity (vph)		279	2890	1293		343	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	0	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.44	0.66	0.06		0.25	0.47

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 4.7

Intersection LOS: A

Intersection Capacity Utilization 62.0%

ICU Level of Service B

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
103 s	17 s
 ø6	
120 s	



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations				←←	←←	←
Volume (vph)	0	0	0	1785	1130	856
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	666		536		1201	
Travel Time (s)	15.1		8.1		18.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1983	1256	951
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1983	1256	951
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 65.8% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
46: NC 54 EB Off Ramp &

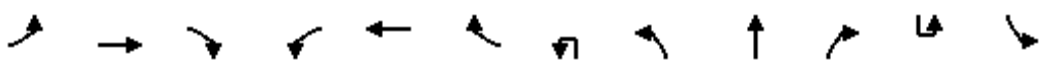
2023 Without Site Noon Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	856	0	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			666	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	951	0	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	951	0	122
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	48.4%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations							⬇		⬆⬆		⬇	
Volume (vph)	0	0	0	0	0	0	8	0	1800	0	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		74			78				1006			
Travel Time (s)		1.7			1.8				15.2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	9	0	2000	0	7	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	9	0	2000	0	7	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	101.0	0.0	19.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	0.0%	84.2%	0.0%	15.8%	0.0%
Maximum Green (s)							7.0		94.0		12.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		116.2		9.0	
Actuated g/C Ratio							0.08		0.97		0.08	
v/c Ratio							0.07		0.58		0.05	
Control Delay							55.4		0.8		50.0	
Queue Delay							0.0		0.0		0.0	
Total Delay							55.4		0.8		50.0	
LOS							E		A		D	
Approach Delay									1.1			
Approach LOS									A			
Queue Length 50th (ft)							7		1		5	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1588	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1031	
Travel Time (s)	15.6	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	1764	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1764	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	106.0	0.0
Total Split (%)	88.3%	0.0%
Maximum Green (s)	99.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	116.2	
Actuated g/C Ratio	0.97	
v/c Ratio	0.51	
Control Delay	0.9	
Queue Delay	0.0	
Total Delay	0.9	
LOS	A	
Approach Delay	1.1	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m11		67		m9	
Internal Link Dist (ft)		1			1				926			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							133		3426		207	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.07		0.58		0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 64 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 1.1

Intersection LOS: A

Intersection Capacity Utilization 53.9%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	
ø1	ø2
19 s	101 s
	
ø5	ø6
14 s	106 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	89	
Internal Link Dist (ft)	951	
Turn Bay Length (ft)		
Base Capacity (vph)	3427	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.51	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	119	0	2067	0	88	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		128			94				707			
Travel Time (s)		2.9			2.1				10.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	132	0	2297	0	98	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	132	0	2297	0	98	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	21.0	0.0	102.0	0.0	18.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.5%	0.0%	85.0%	0.0%	15.0%	0.0%
Maximum Green (s)							14.0		95.0		11.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							14.6		97.9		12.1	
Actuated g/C Ratio							0.12		0.82		0.10	
v/c Ratio							0.61		0.80		0.55	
Control Delay							63.5		6.0		61.8	
Queue Delay							0.0		0.0		0.0	
Total Delay							63.5		6.0		61.8	
LOS							E		A		E	
Approach Delay									9.2			
Approach LOS									A			
Queue Length 50th (ft)							99		344		77	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	1933	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	776	
Travel Time (s)	11.8	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2148	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2148	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	99.0	0.0
Total Split (%)	82.5%	0.0%
Maximum Green (s)	92.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	95.4	
Actuated g/C Ratio	0.80	
v/c Ratio	0.69	
Control Delay	1.8	
Queue Delay	0.3	
Total Delay	2.1	
LOS	A	
Approach Delay	4.7	
Approach LOS	A	
Queue Length 50th (ft)	54	

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m147		354		m94	
Internal Link Dist (ft)		48			14				627			
Turn Bay Length (ft)											250	
Base Capacity (vph)							236		2888		192	
Starvation Cap Reductn							0		19		0	
Spillback Cap Reductn							0		28		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.56		0.80		0.51	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 107 (89%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 7.0

Intersection LOS: A

Intersection Capacity Utilization 71.3%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø1	 ø2
18 s	102 s
 ø5	 ø6
21 s	99 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	58	
Internal Link Dist (ft)	696	
Turn Bay Length (ft)		
Base Capacity (vph)	3111	
Starvation Cap Reductn	350	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.78	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
10/18/2013

Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	0	0	174	29	1986	1785	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Frt							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	195				906	1201	
Travel Time (s)	5.3				13.7	18.2	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	193	32	2207	1983	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	225	2207	1983	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	30.0	30.0	120.0	90.0	0.0
Total Split (%)	0.0%	0.0%	25.0%	25.0%	100.0%	75.0%	0.0%
Maximum Green (s)			23.0	23.0	113.0	83.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effct Green (s)				21.5	120.0	88.5	
Actuated g/C Ratio				0.18	1.00	0.74	
v/c Ratio				0.71	0.62	0.76	
Control Delay				52.0	0.4	9.0	
Queue Delay				0.0	0.0	0.0	
Total Delay				52.0	0.4	9.0	
LOS				D	A	A	
Approach Delay					5.2	9.0	
Approach LOS					A	A	
Queue Length 50th (ft)				179	0	333	
Queue Length 95th (ft)				m205	0	362	
Internal Link Dist (ft)	115				826	1121	
Turn Bay Length (ft)							

Lanes, Volumes, Timings
 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Without Site Noon Peak
 10/18/2013

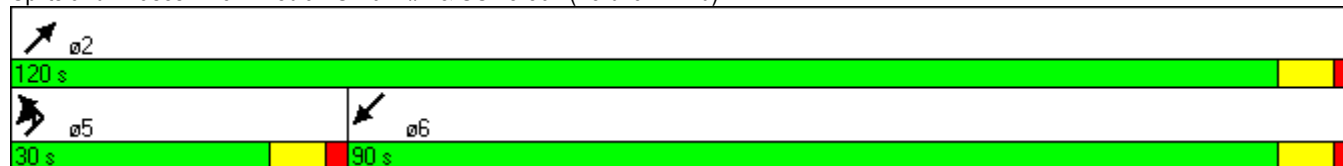


Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Base Capacity (vph)				369	3539	2611	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	0	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.61	0.62	0.76	

Intersection Summary

Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 103 (86%), Referenced to phase 2:NET and 6:SWT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 6.9	Intersection LOS: A
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2023 Without Site Noon Peak

10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	965	110	0	1854	0	856
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			218	476	
Travel Time (s)	1.4			3.3	9.3	
Peak Hour Factor	0.84	0.84	0.90	0.90	0.90	0.97
Adj. Flow (vph)	1149	131	0	2060	0	882
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1149	131	0	2060	0	882
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 86.3%	ICU Level of Service E					
Analysis Period (min) 15						

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Volume (vph)	96	131	78	316	103	63	164	1393	3	131	1258	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97				0.98							
Frt		0.944			0.943						0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1691	0	3302	1718	0	1761	3522	0	1719	3550	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1657	1691	0	3302	1718	0	1761	3522	0	1719	3550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	17					17						
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	102	139	83	333	108	66	173	1466	3	139	1338	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	222	0	333	174	0	173	1469	0	139	1356	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		15.0	68.0	
Total Split (s)	33.0	33.0	0.0	35.0	35.0	0.0	27.0	89.0	0.0	23.0	85.0	0.0
Total Split (%)	18.3%	18.3%	0.0%	19.4%	19.4%	0.0%	15.0%	49.4%	0.0%	12.8%	47.2%	0.0%
Maximum Green (s)	26.7	26.7		29.2	29.2		20.8	83.2		16.7	79.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	26.5	26.5		23.8	23.8		22.0	91.6		18.1	87.7	
Actuated g/C Ratio	0.15	0.15		0.13	0.13		0.12	0.51		0.10	0.49	
v/c Ratio	0.41	0.89		0.76	0.77		0.80	0.82		0.80	0.78	
Control Delay	74.4	109.2		86.9	96.6		77.1	26.4		109.4	43.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	74.4	109.2		86.9	96.6		77.1	26.4		109.4	43.4	
LOS	E	F		F	F		E	C		F	D	
Approach Delay		98.3			90.2			31.7			49.5	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	110	259		199	202		193	525		161	701	
Queue Length 95th (ft)	177	#410		247	284		m243	845		#286	855	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	265	263		550	286		215	1793		183	1731	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.38	0.84		0.61	0.61		0.80	0.82		0.76	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 58 (32%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 51.3

Intersection LOS: D

Intersection Capacity Utilization 83.7%

ICU Level of Service E

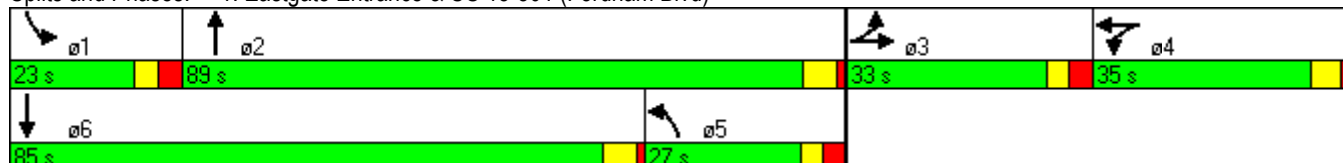
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	161	86	287	289	46	72	228	1531	290	14	31	1369
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.976				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1770	3454	0	0	1770	3539
Flt Permitted	0.950			0.950			0.061				0.044	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	114	3454	0	0	82	3539
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45				45
Link Distance (ft)		423			542			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Confl. Peds. (#/hr)							3					
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	169	91	302	321	51	80	243	1629	309	15	34	1488
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	91	302	321	51	80	243	1938	0	0	49	1488
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	19.0		14.0	14.0	19.0
Total Split (s)	30.0	19.0	38.0	27.0	16.0	14.0	38.0	120.0	0.0	14.0	14.0	96.0
Total Split (%)	16.7%	10.6%	21.1%	15.0%	8.9%	7.8%	21.1%	66.7%	0.0%	7.8%	7.8%	53.3%
Maximum Green (s)	23.0	12.0	31.0	20.0	9.0	7.0	31.0	113.0		7.0	7.0	89.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	24.9	12.6	45.6	21.3	11.9	19.1	131.0	117.0			102.0	93.0
Actuated g/C Ratio	0.14	0.07	0.25	0.12	0.07	0.11	0.73	0.65			0.57	0.52
v/c Ratio	0.69	0.69	0.78	0.79	0.41	0.48	0.63	0.86			0.37	0.81
Control Delay	90.1	108.3	55.0	91.5	91.3	63.4	53.3	15.2			33.5	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7			0.0	0.1
Total Delay	90.1	108.3	55.0	91.5	91.3	63.4	53.3	15.9			33.5	14.8
LOS	F	F	E	F	F	E	D	B			C	B

Lane Group	SBR
Lane Configurations	
Volume (vph)	215
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1548
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	3
Peak Hour Factor	0.92
Adj. Flow (vph)	234
Shared Lane Traffic (%)	
Lane Group Flow (vph)	234
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	16.7%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	117.9
Actuated g/C Ratio	0.66
v/c Ratio	0.23
Control Delay	3.9
Queue Delay	0.0
Total Delay	3.9
LOS	A

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach Delay		74.2			86.5			20.1				13.9
Approach LOS		E			F			C				B
Queue Length 50th (ft)	197	106	248	192	58	70	213	1024			11	282
Queue Length 95th (ft)	286	#175	342	252	112	118	m295	514			m31	361
Internal Link Dist (ft)		343			462			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	261	145	388	420	127	168	386	2246			131	1829
Starvation Cap Reductn	0	0	0	0	0	0	0	93			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	23
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.65	0.63	0.78	0.76	0.40	0.48	0.63	0.90			0.37	0.82

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 33 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 30.0

Intersection LOS: C

Intersection Capacity Utilization 88.8%

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.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø3	 ø4
120 s	14 s	27 s	19 s
 ø6	 ø5	 ø7	 ø8
96 s	38 s	30 s	16 s



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	30
Queue Length 95th (ft)	m40
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1034
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.23
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	194	67	31	50	63	26	44	1652	49	48	1618	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.96
Frt		0.953			0.956			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1773	0	1744	1755	0	1778	3541	0	1778	3557	1591
Flt Permitted	0.360			0.684			0.068			0.046		
Satd. Flow (perm)	674	1773	0	1247	1755	0	127	3541	0	86	3557	1529
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			4	4			3		1	1		3
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	226	78	36	57	72	30	48	1815	54	51	1721	280
Shared Lane Traffic (%)												
Lane Group Flow (vph)	226	114	0	57	102	0	48	1869	0	51	1721	280
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		14.0	14.0		15.0	19.0		15.0	19.0	19.0
Total Split (s)	24.0	33.0	0.0	24.0	24.0	0.0	15.0	117.0	0.0	15.0	117.0	117.0
Total Split (%)	13.3%	18.3%	0.0%	13.3%	13.3%	0.0%	8.3%	65.0%	0.0%	8.3%	65.0%	65.0%
Maximum Green (s)	17.7	26.6		17.6	17.6		8.9	110.9		9.4	110.9	110.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	0.0	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	6.4	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		2									2	2
Act Effct Green (s)	41.1	41.1		14.3	15.7		126.5	118.0		126.4	118.0	118.0
Actuated g/C Ratio	0.23	0.23		0.08	0.09		0.70	0.66		0.70	0.66	0.66
v/c Ratio	0.81	0.28		0.58	0.67		0.29	0.81		0.37	0.74	0.28

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	83.1	58.7		101.7	100.1		9.5	15.0		28.6	12.4	8.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.6		0.0	0.6	0.0
Total Delay	83.1	58.7		101.7	100.1		9.5	15.6		28.6	13.0	8.7
LOS	F	E		F	F		A	B		C	B	A
Approach Delay		74.9			100.7			15.4			12.8	
Approach LOS		E			F			B			B	
Queue Length 50th (ft)	237	112		66	119		8	270		14	334	91
Queue Length 95th (ft)	#333	167		117	183		m11	m282		m17	436	m117
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	280	427		122	185		182	2321		155	2332	1002
Starvation Cap Reductn	0	0		0	0		0	0		0	246	0
Spillback Cap Reductn	0	0		0	0		0	156		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.81	0.27		0.47	0.55		0.26	0.86		0.33	0.83	0.28

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 26 (14%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 21.8

Intersection LOS: C

Intersection Capacity Utilization 73.5%

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.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)

117 s	15 s	33 s
117 s	15 s	24 s
		24 s

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	137	15	446	8	10	19	5	546	1720	8	19	1614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.98			0.98							
Frt			0.850		0.931				0.999			
Flt Protected		0.957			0.989			0.950			0.950	
Satd. Flow (prot)	0	1774	2773	0	1625	0	0	3416	3518	0	1778	3557
Flt Permitted		0.957			0.989			0.950			0.950	
Satd. Flow (perm)	0	1745	2773	0	1625	0	0	3416	3518	0	1778	3557
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	12					12						
Peak Hour Factor	0.92	0.92	0.92	0.75	0.75	0.75	0.98	0.98	0.98	0.98	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	16	485	11	13	25	5	557	1755	8	20	1664
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	165	485	0	49	0	0	562	1763	0	20	1664
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	42.0	42.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	21.0	21.0	32.0	42.0	42.0	0.0	32.0	32.0	102.0	0.0	15.0	85.0
Total Split (%)	11.7%	11.7%	17.8%	23.3%	23.3%	0.0%	17.8%	17.8%	56.7%	0.0%	8.3%	47.2%
Maximum Green (s)	14.4	14.4	25.3	35.3	35.3		25.3	25.3	95.9		8.5	78.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

Lane Group	SBR
Lane Configurations	
Volume (vph)	112
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1591
Flt Permitted	
Satd. Flow (perm)	1591
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.97
Heavy Vehicles (%)	2%
Adj. Flow (vph)	115
Shared Lane Traffic (%)	
Lane Group Flow (vph)	115
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	21.0
Total Split (%)	11.7%
Maximum Green (s)	14.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	1.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		16.0	59.9		11.2			42.9	131.6		9.4	92.7
Actuated g/C Ratio		0.09	0.33		0.06			0.24	0.73		0.05	0.52
v/c Ratio		1.04	0.53		0.49			0.69	0.69		0.22	0.91
Control Delay		158.6	42.7		96.9			67.9	17.0		60.2	22.8
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		158.6	42.7		96.9			67.9	17.0		60.2	22.8
LOS		F	D		F			E	B		E	C
Approach Delay		72.1			96.9				29.3			21.9
Approach LOS		E			F				C			C
Queue Length 50th (ft)		~211	223		57			320	655		22	710
Queue Length 95th (ft)		#377	260		87			385	800		m32	#1181
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		158	922		334			814	2571		99	1832
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		1.04	0.53		0.15			0.69	0.69		0.20	0.91

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 69 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 33.0

Intersection LOS: C

Intersection Capacity Utilization 105.9%

ICU Level of Service G

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.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø3	ø4
102 s	15 s	21 s	42 s
			
ø5	ø6		
32 s	85 s		



Lane Group	SBR
Act Effect Green (s)	113.7
Actuated g/C Ratio	0.63
v/c Ratio	0.11
Control Delay	2.1
Queue Delay	0.0
Total Delay	2.1
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	7
Queue Length 95th (ft)	m15
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1005
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.11
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	4	0	0	157	2	2133	103	196	1869	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor									0.98	1.00		
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1611	1770	3539	1583	1770	3539	1583
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1611	1770	3539	1550	1769	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1003			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	1.00	1.00	0.50	1.00	1.00	0.70	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	0	0	8	0	0	224	2	2294	111	204	1947	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	8	0	0	224	2	2294	111	204	1947	23
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	33.0	14.0	127.0	127.0	33.0	146.0	146.0
Total Split (%)	0.0%	0.0%	8.8%	0.0%	0.0%	20.6%	8.8%	79.4%	79.4%	20.6%	91.3%	91.3%
Maximum Green (s)			7.0			26.0	7.0	120.0	120.0	26.0	139.0	139.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			26.4	9.0	123.6	123.6	26.4	152.4	152.4
Actuated g/C Ratio			0.06			0.16	0.06	0.77	0.77	0.16	0.95	0.95
v/c Ratio			0.09			0.85	0.02	0.84	0.09	0.70	0.58	0.02
Control Delay			74.0			91.1	61.5	8.0	3.2	76.3	2.0	0.9
Queue Delay			0.0			0.0	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay			74.0			91.1	61.5	8.4	3.2	76.3	2.0	0.9
LOS			E			F	E	A	A	E	A	A
Approach Delay								8.2			8.9	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

														
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Approach LOS								A						
Queue Length 50th (ft)				8				228	2	450	16	202	0	0
Queue Length 95th (ft)				15				246	m3	393	m13	296	236	5
Internal Link Dist (ft)				208				43				923	1513	
Turn Bay Length (ft)							150				150	200	150	
Base Capacity (vph)				91				282	100	2735	1198	310	3371	1508
Starvation Cap Reductn				0				0	0	116	0	0	0	0
Spillback Cap Reductn				0				0	0	0	0	0	0	0
Storage Cap Reductn				0				0	0	0	0	0	0	0
Reduced v/c Ratio				0.09				0.79	0.02	0.88	0.09	0.66	0.58	0.02

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 65 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 78.2%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Volume (vph)	0	0	16	0	0	55	101	11	2270	32	90	1764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				801			1035
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	1.00	1.00	0.68	1.00	1.00	0.80	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	24	0	0	69	105	11	2365	33	94	1838
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	24	0	0	69	0	116	2365	33	94	1838
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	23.0	0.0	0.0	21.0	23.0	23.0	139.0	139.0	21.0	137.0
Total Split (%)	0.0%	0.0%	14.4%	0.0%	0.0%	13.1%	14.4%	14.4%	86.9%	86.9%	13.1%	85.6%
Maximum Green (s)			16.0			14.0	16.0	16.0	132.0	132.0	14.0	130.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			18.0			14.4		18.0	135.6	135.6	14.4	132.0
Actuated g/C Ratio			0.11			0.09		0.11	0.85	0.85	0.09	0.82
v/c Ratio			0.14			0.48		0.58	0.79	0.02	0.59	0.63
Control Delay			66.3			79.8		69.1	4.9	1.9	80.2	5.9
Queue Delay			0.0			0.0		0.0	0.1	0.0	0.0	0.1
Total Delay			66.3			79.8		69.1	5.1	1.9	80.2	6.0
LOS			E			E		E	A	A	F	A
Approach Delay									8.0			9.5
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	18
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	2%
Adj. Flow (vph)	19
Shared Lane Traffic (%)	
Lane Group Flow (vph)	19
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	137.0
Total Split (%)	85.6%
Maximum Green (s)	130.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	132.0
Actuated g/C Ratio	0.82
v/c Ratio	0.01
Control Delay	2.5
Queue Delay	0.0
Total Delay	2.5
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			23			69		117	246	4	95	307
Queue Length 95th (ft)			41			110		m155	353	m6	161	352
Internal Link Dist (ft)		24			5				721			955
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			173			161		199	2999	1342	177	2920
Starvation Cap Reductn			0			0		0	95	0	0	138
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.14			0.43		0.58	0.81	0.02	0.53	0.66

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 40 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 10.1

Intersection LOS: B

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	3
Queue Length 95th (ft)	m5
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1306
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.01
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1047	0	0	475	0	1718	21	0	1724	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	0	0	1232	0	0	565	0	1909	23	0	1796	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1232	0	0	565	0	1909	23	0	1796	112
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			4.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85.0	0.0
Total Split (%)	0.0%	0.0%	46.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	53.1%	0.0%
Maximum Green (s)			69.9								79.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Walk Time (s)			5.0									
Flash Dont Walk (s)			11.0									
Pedestrian Calls (#/hr)			0									
Act Effect Green (s)			70.0			160.0		160.0	160.0		80.0	160.0
Actuated g/C Ratio			0.44			1.00		1.00	1.00		0.50	1.00
v/c Ratio			1.03			0.36		0.54	0.01		1.01	0.07
Control Delay			58.1			0.4		0.4	0.0		57.9	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.7	0.0
Total Delay			58.1			0.4		0.4	0.0		58.6	0.1

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS			E			A		A	A		E	A
Approach Delay								0.4			55.2	
Approach LOS								A			E	
Queue Length 50th (ft)			~775			0		0	0		~712	0
Queue Length 95th (ft)			#830			0		0	m0		#1162	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1196			1580		3539	1583		1770	1568
Starvation Cap Reductn			0			0		0	0		4	0
Spillback Cap Reductn			0			0		0	0		0	0
Storage Cap Reductn			0			0		0	0		0	0
Reduced v/c Ratio			1.03			0.36		0.54	0.01		1.02	0.07

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 157 (98%), Referenced to phase 2:SBT and 6:, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 31.6

Intersection LOS: C

Intersection Capacity Utilization 92.6%

ICU Level of Service F

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.

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2023 Without Site PM Peak
10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	243	0	1495	0	0	2433	337	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	270	0	1661	0	0	2703	374	0	72
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	270	0	1661	0	0	2703	374	0	72
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 78.0% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		 		 		
Volume (vph)	12	141	123	1	2491	172	2449	24	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.98							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1562	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					779		913		
Travel Time (s)					11.8		13.8		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.39	0.86	0.59	0.59	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	31	164	208	2	2708	187	2721	27	8
Shared Lane Traffic (%)									
Lane Group Flow (vph)	31	164	210	0	2708	187	2721	35	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0	25.0	
Total Split (s)	14.0	18.0	18.0	0.0	128.0	0.0	128.0	128.0	0.0
Total Split (%)	8.8%	11.3%	11.3%	0.0%	80.0%	0.0%	80.0%	80.0%	0.0%
Maximum Green (s)	7.0	11.0	11.0		121.0		121.0	121.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lead	Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	13.0	13.0		133.0	160.0	125.8	125.8	
Actuated g/C Ratio	0.06	0.08	0.08		0.83	1.00	0.79	0.79	
v/c Ratio	0.34	1.27	0.94		0.87	0.12	0.93	0.03	
Control Delay	83.3	224.1	117.4		5.1	0.1	10.5	2.3	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		1.1	0.0	3.1	0.0	
Total Delay	83.3	224.1	117.4		6.2	0.1	13.6	2.3	
LOS	F	F	F		A	A	B	A	
Approach Delay					5.8		13.4		
Approach LOS					A		B		
Queue Length 50th (ft)	32	~216	126		159	0	816	3	
Queue Length 95th (ft)	30	#352	114		299	m0	877	m4	
Internal Link Dist (ft)					699		833		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	91	129	224		3100	1583	2929	1245	
Starvation Cap Reductn	0	0	0		183	0	142	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.34	1.27	0.94		0.93	0.12	0.98	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 3 (2%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.27

Intersection Signal Delay: 19.4

Intersection LOS: B

Intersection Capacity Utilization 91.9%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø2	 ø4	 ø3
128 s	18 s	14 s
 ø6		
128 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	703	0	168	15	0	24	0	1941	18	0	2187	402
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.999				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1770	0	1583	0	3966	0	0	3539	1583
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1593	1753	0	1583	0	*3811	0	0	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			703	
Travel Time (s)		7.4			14.0			8.8			10.7	
Confl. Peds. (#/hr)			5	5					1	1		
Peak Hour Factor	0.85	1.00	0.85	0.84	1.00	0.84	1.00	0.96	0.96	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	827	0	198	18	0	29	0	2022	19	0	2278	419
Shared Lane Traffic (%)												
Lane Group Flow (vph)	827	0	198	18	0	29	0	2041	0	0	2278	419
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	33.0			33.0				19.0			19.0	
Total Split (s)	46.0	0.0	0.0	46.0	0.0	0.0	0.0	114.0	0.0	0.0	114.0	0.0
Total Split (%)	28.8%	0.0%	0.0%	28.8%	0.0%	0.0%	0.0%	71.3%	0.0%	0.0%	71.3%	0.0%
Maximum Green (s)	39.0			39.0				107.0			107.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effct Green (s)	40.2		160.0	40.2		160.0		109.8			109.8	160.0
Actuated g/C Ratio	0.25		1.00	0.25		1.00		0.69			0.69	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.94		0.12	0.04		0.02		0.75			0.94	0.26
Control Delay	77.4		0.2	45.2		0.0		18.6			20.4	0.2
Queue Delay	1.2		0.0	0.0		0.0		0.0			11.5	0.0
Total Delay	78.6		0.2	45.2		0.0		18.6			32.0	0.2
LOS	E		A	D		A		B			C	A
Approach Delay								18.6			27.0	
Approach LOS								B			C	
Queue Length 50th (ft)	438		0	14		0		626			1043	0
Queue Length 95th (ft)	485		0	35		0		702			1093	m0
Internal Link Dist (ft)		302			435			504			623	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	897		1593	454		1583		2722			2429	1583
Starvation Cap Reductn	0		0	0		0		0			186	0
Spillback Cap Reductn	15		0	0		0		11			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.94		0.12	0.04		0.02		0.75			1.02	0.26

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 35 (22%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 30.4

Intersection LOS: C

Intersection Capacity Utilization 88.8%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

	
114 s	46 s
	
114 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	541	40	218	354	543	23	164	278	557	153	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.96	1.00		0.99		0.93		1.00	0.98		0.99	
Frt		0.990				0.850			0.850		0.988	
Flt Protected	0.950			0.950				0.994		0.950	0.975	
Satd. Flow (prot)	1662	3389	0	1770	1863	1689	0	2037	1583	1625	1920	0
Flt Permitted	0.536			0.117				0.994		0.950	0.975	
Satd. Flow (perm)	902	3389	0	217	1863	1575	0	2028	1559	1625	1920	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	22		12	12		22	49					49
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	45	629	47	234	381	584	26	189	320	599	165	32
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	45	676	0	234	381	584	0	215	320	395	401	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	17.0	17.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	24.0	58.0	45.0	27.0	27.0	24.0	45.0	45.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	18.5%	44.6%	34.6%	20.8%	20.8%	18.5%	34.6%	34.6%	0.0%
Maximum Green (s)	26.7	26.7		17.2	50.7	38.3	20.3	20.3	17.2	38.3	38.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	30.4	30.4		53.0	53.0	90.7		24.3	41.8	37.7	37.7	
Actuated g/C Ratio	0.23	0.23		0.41	0.41	0.70		0.19	0.32	0.29	0.29	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.21	0.85		0.79	0.50	0.52		0.57	0.63	0.84	0.72	
Control Delay	44.5	59.5		49.9	31.5	9.0		55.6	41.1	59.5	49.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	44.5	59.5		49.9	31.5	9.0		55.6	41.1	59.5	49.2	
LOS	D	E		D	C	A		E	D	E	D	
Approach Delay		58.5			24.1			46.9			54.3	
Approach LOS		E			C			D			D	
Queue Length 50th (ft)	31	293		138	236	162		170	217	321	311	
Queue Length 95th (ft)	65	#365		#249	333	224		247	303	#478	434	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	211	793		315	760	1162		380	522	500	591	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.21	0.85		0.74	0.50	0.50		0.57	0.61	0.79	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 42.9

Intersection LOS: D

Intersection Capacity Utilization 83.6%

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: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
24 s	34 s	45 s	27 s
 ø6			
58 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	0	1520	66	0	1005	1047	0	0	337	0	0	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	1652	72	0	1092	1138	0	0	366	0	0	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1652	72	0	1092	1138	0	0	366	0	0	117
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

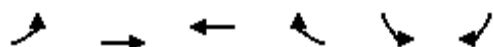
Control Type: Unsignalized

Intersection Capacity Utilization 69.6% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2023 Without Site PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1840	2030	475	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	2044	2360	552	0	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2044	2360	552	0	25
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 49.2%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2023 Without Site PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2644	2571	62	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		224	547		229	
Travel Time (s)		3.4	8.3		6.2	
Peak Hour Factor	1.00	0.94	0.91	0.91	1.00	0.67
Adj. Flow (vph)	0	2813	2825	68	0	113
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2813	2825	68	0	113
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	61.0%
Analysis Period (min)	15
	ICU Level of Service B

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	31	108	2264	73	106	2163	140	176	27	115	117	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	250	
Storage Lanes		1		0	1		1	1		1	1	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00				0.95	0.99		0.95	0.97	0.98
Frt			0.995				0.850			0.850		0.874
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1770	5049	0	1770	5085	1583	1770	1863	1583	1770	1596
Flt Permitted		0.950			0.053			0.598			0.730	
Satd. Flow (perm)	0	1768	5049	0	99	5085	1508	1104	1863	1510	1315	1596
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			547			576			537			463
Travel Time (s)			8.3			8.7			14.6			12.6
Confl. Peds. (#/hr)		7		11	11		7	8		25	25	
Peak Hour Factor	0.92	0.94	0.94	0.94	0.89	0.89	0.89	0.65	0.65	0.65	0.89	0.89
Adj. Flow (vph)	34	115	2409	78	119	2430	157	271	42	177	131	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	149	2487	0	119	2430	157	271	42	177	131	135
Turn Type	Prot	Prot			pm+pt		Perm	Perm		pm+ov	Perm	
Protected Phases	5	5	2		1	6			8	1		4
Permitted Phases					6		6	8		8	4	
Detector Phase	5	5	2		1	6	6	8	8	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	13.0	27.0		13.0	26.0	26.0	41.0	41.0	13.0	39.0	39.0
Total Split (s)	22.0	22.0	94.0	0.0	16.0	88.0	88.0	50.0	50.0	16.0	50.0	50.0
Total Split (%)	13.8%	13.8%	58.8%	0.0%	10.0%	55.0%	55.0%	31.3%	31.3%	10.0%	31.3%	31.3%
Maximum Green (s)	16.4	16.4	88.4		10.6	82.1	82.1	43.6	43.6	10.6	43.5	43.5
Yellow Time (s)	3.0	3.0	3.8		3.0	4.1	4.1	3.1	3.1	3.0	3.2	3.2
All-Red Time (s)	2.6	2.6	1.8		2.4	1.8	1.8	3.3	3.3	2.4	3.3	3.3
Lost Time Adjust (s)	0.0	-0.6	-0.6	0.0	-0.4	-0.9	-0.9	-1.4	-1.4	-0.4	-1.5	-1.5
Total Lost Time (s)	5.6	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag			Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	C-Max	None	None	None	None	None
Walk Time (s)			7.0			7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)			12.0			13.0	13.0	27.0	27.0		25.0	25.0
Pedestrian Calls (#/hr)			0			0	0	0	0		0	0
Act Effct Green (s)		16.4	91.8		86.4	86.4	86.4	42.2	42.2	53.2	42.2	42.2
Actuated g/C Ratio		0.10	0.57		0.54	0.54	0.54	0.26	0.26	0.33	0.26	0.26
v/c Ratio		0.82	0.86		0.71	0.88	0.19	0.93	0.09	0.35	0.38	0.32
Control Delay		99.7	34.1		48.7	15.3	9.2	94.3	43.4	38.9	50.9	48.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	101
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	8
Peak Hour Factor	0.89
Adj. Flow (vph)	113
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay		99.7	34.1		48.7	15.3	9.2	94.3	43.4	38.9	50.9	48.9
LOS		F	C		D	B	A	F	D	D	D	D
Approach Delay			37.8			16.4			69.9			49.9
Approach LOS			D			B			E			D
Queue Length 50th (ft)		156	790		67	276	27	272	33	129	110	112
Queue Length 95th (ft)		m#249	861		m102	530	m41	256	47	134	174	174
Internal Link Dist (ft)			467			496			457			383
Turn Bay Length (ft)		300			250		150	150		150	250	
Base Capacity (vph)		189	2898		168	2747	815	311	524	507	370	449
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.79	0.86		0.71	0.88	0.19	0.87	0.08	0.35	0.35	0.30

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 41 (26%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 31.4

Intersection LOS: C

Intersection Capacity Utilization 93.0%

ICU Level of Service F

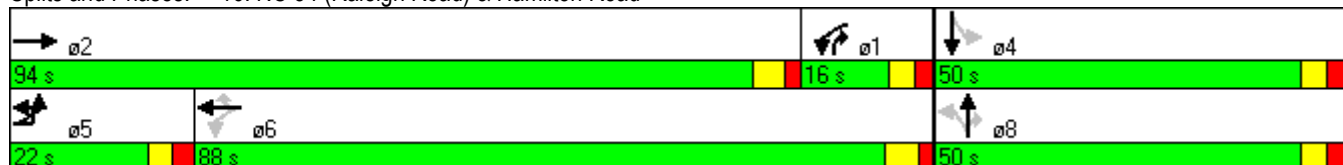
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	2487	31	169	2381	55	31	14	194	30	35	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.998			0.997				0.850		0.944	
Flt Protected	0.950			0.950				0.967			0.987	
Satd. Flow (prot)	1770	5070	0	1770	5063	0	0	1801	1583	0	1719	0
Flt Permitted	0.037			0.042				0.697			0.904	
Satd. Flow (perm)	69	5070	0	78	5063	0	0	1291	1583	0	1575	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	14		18	18		14	9					9
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.86	0.86	0.86	0.83	0.83	0.83
Adj. Flow (vph)	75	2618	33	190	2675	62	36	16	226	36	42	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	2651	0	190	2737	0	0	52	226	0	133	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	94.0	0.0	18.0	99.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	8.1%	58.8%	0.0%	11.3%	61.9%	0.0%	30.0%	30.0%	30.0%	30.0%	30.0%	0.0%
Maximum Green (s)	7.1	87.8		12.1	92.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes			Yes								
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	116.4	96.3		116.4	108.4			28.6	28.6		28.6	
Actuated g/C Ratio	0.73	0.60		0.73	0.68			0.18	0.18		0.18	
v/c Ratio	0.56	0.87		0.70	0.80			0.23	0.80		0.47	
Control Delay	32.6	11.4		77.2	7.1			56.2	82.8		63.2	
Queue Delay	0.0	0.0		0.0	0.1			0.0	0.0		0.0	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	32.6	11.4		77.2	7.1			56.2	82.8		63.2	
LOS	C	B		E	A			E	F		E	
Approach Delay		11.9			11.7			77.8			63.2	
Approach LOS		B			B			E			E	
Queue Length 50th (ft)	32	160		159	187			47	230		127	
Queue Length 95th (ft)	m43	418		m208	m192			81	293		169	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	135	3052		270	3431			347	425		423	
Starvation Cap Reductn	0	0		0	48			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.56	0.87		0.70	0.81			0.15	0.53		0.31	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 42 (26%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 16.0

Intersection LOS: B

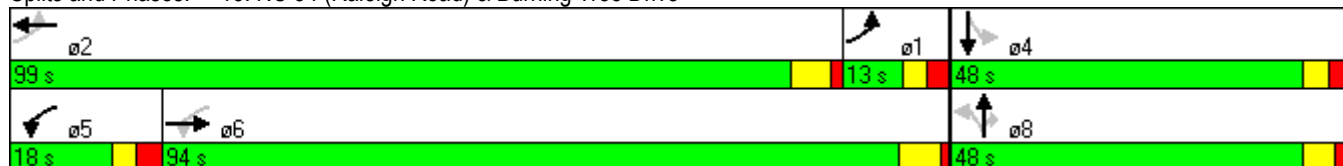
Intersection Capacity Utilization 89.0%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	195	2450	41	13	2283	26	119	13	116	16	0	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.90			0.96						
Frt			0.850			0.850		0.865			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1741	5085	1583	1770	5085	1583	1770	1611	0	1770	1583	0
Flt Permitted	0.042			0.038			0.362			0.519		
Satd. Flow (perm)	77	5085	1422	71	5085	1527	674	1611	0	967	1583	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	15		22	22		15						
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.80	0.80	0.80	0.93	0.93	0.93
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	201	2526	42	14	2403	27	149	16	145	17	0	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	2526	42	14	2403	27	149	161	0	17	240	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	44.0	44.0	16.0	44.0	44.0	18.0	18.0		18.0	18.0	
Total Split (s)	19.0	104.0	104.0	16.0	81.0	81.0	40.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	11.9%	65.0%	65.0%	10.0%	50.6%	50.6%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%
Maximum Green (s)	12.7	97.7	97.7	9.7	74.7	74.7	33.2	33.2		32.7	32.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	110.0	109.7	109.7	113.0	96.0	96.0	35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.69	0.69	0.69	0.71	0.60	0.60	0.22	0.22		0.22	0.22	
v/c Ratio	1.01	0.72	0.04	0.10	0.79	0.03	1.01	0.46		0.08	0.69	
Control Delay	100.5	15.4	12.3	3.2	7.2	4.2	137.8	59.2		51.1	69.3	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	13%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	100.5	15.6	12.3	3.2	7.2	4.2	137.8	59.2		51.1	69.3	
LOS	F	B	B	A	A	A	F	E		D	E	
Approach Delay		21.7			7.1			97.0			68.1	
Approach LOS		C			A			F			E	
Queue Length 50th (ft)	~189	347	12	1	115	3	~160	148		14	234	
Queue Length 95th (ft)	m#251	444	m21	m1	123	m4	#263	197		38	338	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	199	3486	975	168	3051	916	147	352		212	346	
Starvation Cap Reductn	0	202	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	7	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.01	0.77	0.04	0.08	0.79	0.03	1.01	0.46		0.08	0.69	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 36 (23%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 92.0%

ICU Level of Service F

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
16 s	104 s	40 s
 ø5	 ø10	 ø6
19 s	20 s	81 s
		 ø8
		40 s

Lane Group	ø10
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	2369	88	63	2005	104	134	19	486	176	10	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.95	1.00		0.98	0.99	1.00				
Frt			0.850			0.850		0.869	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (prot)	3467	5136	1599	3416	5060	1575	1648	1440	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (perm)	3466	5136	1513	3408	5060	1547	1640	1439	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	4		25	25		4	4					4
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	143	2494	93	69	2203	114	158	22	572	205	12	212
Shared Lane Traffic (%)							10%		47%			
Lane Group Flow (vph)	143	2494	93	69	2203	114	142	307	303	205	12	212
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	85.0	41.0	16.0	85.0	18.0	41.0	41.0	57.0	18.0	18.0	34.0
Total Split (%)	10.0%	53.1%	25.6%	10.0%	53.1%	11.3%	25.6%	25.6%	35.6%	11.3%	11.3%	21.3%
Maximum Green (s)	8.8	78.4	33.9	8.9	78.5	10.7	33.9	33.9		10.7	10.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	11.1	80.5	116.0	11.0	80.4	93.4	35.5	35.5	46.5	13.0	13.0	24.1
Actuated g/C Ratio	0.07	0.50	0.72	0.07	0.50	0.58	0.22	0.22	0.29	0.08	0.08	0.15
v/c Ratio	0.59	0.96	0.08	0.29	0.87	0.13	0.39	0.96	0.71	0.72	0.08	0.88

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	63.8	53.6	5.6	57.8	24.5	6.1	56.5	102.2	53.2	86.9	69.4	73.9
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	63.8	53.6	5.6	57.8	24.5	6.1	56.5	102.2	53.2	86.9	69.4	73.9
LOS	E	D	A	E	C	A	E	F	D	F	E	E
Approach Delay	52.5			24.6			73.8			80.0		
Approach LOS	D			C			E			E		
Queue Length 50th (ft)	77	690	13	36	768	25	133	351	234	109	12	143
Queue Length 95th (ft)	m110	#885	m44	m53	281	m34	196	#512	306	149	34	#223
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300		200	300		200	450		250			
Base Capacity (vph)	241	2585	1121	235	2543	905	371	324	433	283	154	242
Starvation Cap Reductn	0	0	0	0	2	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	0.96	0.08	0.29	0.87	0.13	0.38	0.95	0.70	0.72	0.08	0.88

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 152 (95%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 46.3

Intersection LOS: D

Intersection Capacity Utilization 85.1%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

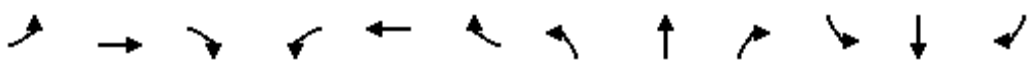
Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

			
ø2	ø1	ø3	ø4
85 s	16 s	18 s	41 s
			
ø5	ø6		
16 s	85 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	2199	837	163	1899	196	279	67	43	127	89	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96			0.98						
Frt			0.850			0.850		0.967			0.986	
Flt Protected	0.950			0.950			0.950	0.979		0.950	0.994	
Satd. Flow (prot)	1761	4448	1575	1778	5111	1591	1673	1667	0	1664	1717	0
Flt Permitted	0.053			0.050			0.950	0.979		0.950	0.994	
Satd. Flow (perm)	98	4448	1505	94	5111	1553	1673	1667	0	1664	1717	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)	1		6	6		1						
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	7	2291	872	173	2020	209	310	74	48	144	101	12
Shared Lane Traffic (%)							30%			12%		
Lane Group Flow (vph)	7	2291	872	173	2020	209	217	215	0	127	130	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	91.0	32.0	17.0	92.0	20.0	32.0	32.0	0.0	20.0	20.0	0.0
Total Split (%)	10.0%	56.9%	20.0%	10.6%	57.5%	12.5%	20.0%	20.0%	0.0%	12.5%	12.5%	0.0%
Maximum Green (s)	9.2	83.5	24.8	10.0	84.5	12.8	24.8	24.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	102.0	86.0	113.3	98.0	100.2	114.9	27.3	27.3		14.7	14.7	
Actuated g/C Ratio	0.64	0.54	0.71	0.61	0.63	0.72	0.17	0.17		0.09	0.09	
v/c Ratio	0.05	0.96	0.81	0.94	0.63	0.19	0.76	0.76		0.83	0.82	
Control Delay	5.9	20.6	7.0	108.6	20.2	6.8	81.0	80.7		109.4	107.4	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Without Site PM Peak

10/18/2013

												
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	
Total Delay	5.9	20.6	7.0	108.6	20.2	6.8	81.0	80.7		109.4	107.4	
LOS	A	C	A	F	C	A	F	F		F	F	
Approach Delay		16.8			25.4			80.8			108.4	
Approach LOS		B			C			F			F	
Queue Length 50th (ft)	2	546	120	127	433	52	231	229		140	143	
Queue Length 95th (ft)	m2	m741	m146	#284	604	110	#360	#354		#253	#256	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	177	2391	1078	184	3202	1122	285	284		156	161	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.96	0.81	0.94	0.63	0.19	0.76	0.76		0.81	0.81	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 159 (99%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 28.3

Intersection LOS: C

Intersection Capacity Utilization 81.5%

ICU Level of Service D

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2	 ø1	 ø3	 ø4
91 s	17 s	20 s	32 s
 ø5	 ø6		
16 s	92 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	371	63	228	434	244	81	880	200	125	713	439
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		0.99		0.98		0.99				0.91
Frt		0.978				0.850		0.972				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1814	0	1770	1863	1583	1770	3419	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.192			0.110		
Satd. Flow (perm)	3402	1814	0	1755	1863	1549	358	3419	0	205	3539	1436
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	5		9	9		5	14		13	13		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	400	382	65	235	447	252	87	946	215	133	759	467
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	447	0	235	447	252	87	1161	0	133	759	467
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	28.0	52.0	0.0	31.0	55.0	17.0	15.0	70.0	0.0	17.0	72.0	28.0
Total Split (%)	16.5%	30.6%	0.0%	18.2%	32.4%	10.0%	8.8%	41.2%	0.0%	10.0%	42.4%	16.5%
Maximum Green (s)	22.1	46.1		25.4	49.4	11.1	8.8	64.3		11.1	66.6	22.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	22.4	44.6		24.8	47.1	59.1	68.6	68.6		71.2	71.2	93.6
Actuated g/C Ratio	0.13	0.26		0.15	0.28	0.35	0.40	0.40		0.42	0.42	0.55
v/c Ratio	0.88	0.94		0.91	0.87	0.47	0.39	0.84		0.68	0.51	0.58
Control Delay	93.8	89.2		98.4	68.2	26.8	38.6	53.3		76.8	38.9	26.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	93.8	89.2		98.4	68.2	26.8	38.6	53.3		76.8	38.9	26.7
LOS	F	F		F	E	C	D	D		E	D	C
Approach Delay		91.4			64.6			52.3			38.4	
Approach LOS		F			E			D			D	
Queue Length 50th (ft)	228	482		268	466	146	63	636		97	342	317
Queue Length 95th (ft)	#313	#681		#405	498	201	106	737		#159	410	425
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	464	502		271	548	540	227	1379		196	1483	816
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.86	0.89		0.87	0.82	0.47	0.38	0.84		0.68	0.51	0.57

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 70 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 58.2

Intersection LOS: E

Intersection Capacity Utilization 90.8%

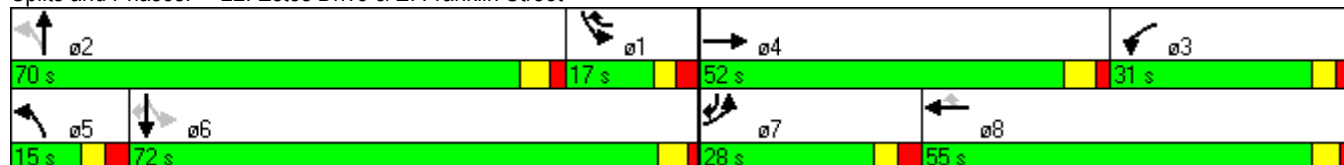
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	255	431	9	6	483	60	14	9	14	97	11	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.983			0.949				0.850
Flt Protected	0.950			0.950				0.981			0.957	
Satd. Flow (prot)	1770	3527	0	1770	3464	0	0	1718	0	0	1765	1568
Flt Permitted	0.335			0.486				0.841			0.757	
Satd. Flow (perm)	621	3527	0	892	3464	0	0	1473	0	0	1382	1548
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		11	11		8	1		11	11		1
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.69	0.69	0.69	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	268	454	9	7	555	69	20	13	20	102	12	394
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	463	0	7	624	0	0	53	0	0	114	394
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	24.0	56.0	0.0	32.0	32.0	0.0	29.0	29.0	0.0	29.0	29.0	24.0
Total Split (%)	28.2%	65.9%	0.0%	37.6%	37.6%	0.0%	34.1%	34.1%	0.0%	34.1%	34.1%	28.2%
Maximum Green (s)	18.9	50.9		26.8	26.8		23.3	23.3		23.2	23.2	18.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	65.5	66.5		44.5	44.5			12.1			12.1	26.5
Actuated g/C Ratio	0.77	0.78		0.52	0.52			0.14			0.14	0.31
v/c Ratio	0.39	0.17		0.01	0.34			0.25			0.58	0.81
Control Delay	4.0	2.5		14.3	14.3			33.8			45.1	36.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	4.0	2.5		14.3	14.3			33.8			45.1	36.9
LOS	A	A		B	B			C			D	D

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 Without Site PM Peak
10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		3.0			14.3			33.8			38.8	
Approach LOS		A			B			C			D	
Queue Length 50th (ft)	31	28		2	99			26			58	173
Queue Length 95th (ft)	m49	m43		10	166			41			103	218
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	735	2758		467	1812			416			390	542
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.36	0.17		0.01	0.34			0.13			0.29	0.73

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 13 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 61.0%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2023 Without Site PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	278	18	1	143	11	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.949	
Flt Protected					0.970	
Satd. Flow (prot)	1848	0	0	1863	1715	0
Flt Permitted					0.970	
Satd. Flow (perm)	1848	0	0	1863	1715	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Confl. Peds. (#/hr)						11
Peak Hour Factor	0.62	0.62	0.62	0.62	0.85	0.85
Adj. Flow (vph)	448	29	2	231	13	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	477	0	0	233	21	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.8%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	56	10	0	41	3	11	2	0	4	2	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		0.980			0.991						0.919	
Flt Protected		0.997						0.959			0.988	
Satd. Flow (prot)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Flt Permitted		0.997						0.959			0.988	
Satd. Flow (perm)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.65	0.65	0.65	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%
Adj. Flow (vph)	5	60	11	0	44	3	17	3	0	5	3	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	47	0	0	20	0	0	20	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	17.8%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Volume (vph)	0	185	2065	67	5	67	1730
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	697		659				801
Travel Time (s)	19.0		10.0				12.1
Peak Hour Factor	1.00	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	206	2294	74	6	74	1922
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	206	2294	74	0	80	1922
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	24.0	136.0	136.0	24.0	24.0	160.0
Total Split (%)	0.0%	15.0%	85.0%	85.0%	15.0%	15.0%	100.0%
Maximum Green (s)		17.0	129.0	129.0	17.0	17.0	153.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		17.6	132.4	132.4		17.6	160.0
Actuated g/C Ratio		0.11	0.83	0.83		0.11	1.00
v/c Ratio		0.67	0.78	0.06		0.21	0.54
Control Delay		79.5	4.3	1.5		60.7	0.5
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		79.5	4.3	1.5		60.7	0.5
LOS		E	A	A		E	A
Approach Delay			4.2				2.9
Approach LOS			A				A
Queue Length 50th (ft)		118	177	6		34	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
 10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		169	197	12		m58	0
Internal Link Dist (ft)	617		579				721
Turn Bay Length (ft)						300	
Base Capacity (vph)		331	2928	1310		408	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	0	0		0	87
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.62	0.78	0.06		0.20	0.56

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 66 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 7.0

Intersection LOS: A

Intersection Capacity Utilization 71.9%

ICU Level of Service C

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2023 Without Site PM Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	2499	1495	1047
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	666		536		1194	
Travel Time (s)	15.1		8.1		18.1	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2499	1661	1163
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2499	1661	1163
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 90.8% ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings
46: NC 54 EB Off Ramp &

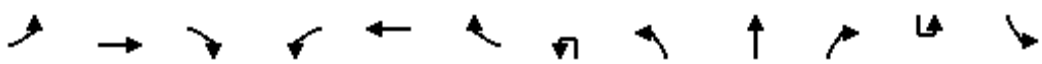
2023 Without Site PM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1047	0	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			666	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1163	0	270
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1163	0	270
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	58.4%			ICU Level of Service B		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations							↰		↱↱		↰	
Volume (vph)	0	0	0	0	0	0	6	0	2319	0	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		120			134				1035			
Travel Time (s)		2.7			3.0				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	7	0	2577	0	3	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	7	0	2577	0	3	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	131.0	0.0	29.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%	0.0%	81.9%	0.0%	18.1%	0.0%
Maximum Green (s)							7.0		124.0		22.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		156.2		9.0	
Actuated g/C Ratio							0.06		0.98		0.06	
v/c Ratio							0.07		0.75		0.03	
Control Delay							71.8		1.3		78.7	
Queue Delay							0.0		0.0		0.0	
Total Delay							71.8		1.3		78.7	
LOS							E		A		E	
Approach Delay									1.5			
Approach LOS									A			
Queue Length 50th (ft)							7		12		3	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1870	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1003	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2078	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2078	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	146.0	0.0
Total Split (%)	91.3%	0.0%
Maximum Green (s)	139.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	156.2	
Actuated g/C Ratio	0.98	
v/c Ratio	0.60	
Control Delay	0.8	
Queue Delay	0.0	
Total Delay	0.8	
LOS	A	
Approach Delay	0.9	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m10		83		m6	
Internal Link Dist (ft)		40			54				955			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							100		3455		266	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		4		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.07		0.75		0.01	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 60 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 1.3

Intersection LOS: A

Intersection Capacity Utilization 68.3%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	
ø1	ø2
29 s	131 s
	
ø5	ø6
14 s	146 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	24	
Internal Link Dist (ft)	923	
Turn Bay Length (ft)		
Base Capacity (vph)	3455	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.60	
Intersection Summary		

Lanes, Volumes, Timings
66: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↔	↔	
Volume (vph)	0	0	97	25	2542	2499	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	221				913	1194	
Travel Time (s)	6.0				13.8	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	108	28	2824	2777	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	136	2824	2777	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	21.0	21.0	160.0	139.0	0.0
Total Split (%)	0.0%	0.0%	13.1%	13.1%	100.0%	86.9%	0.0%
Maximum Green (s)			14.0	14.0	153.0	132.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				15.6	160.0	134.4	
Actuated g/C Ratio				0.10	1.00	0.84	
v/c Ratio				0.79	0.80	0.93	
Control Delay				79.3	1.3	9.6	
Queue Delay				0.0	0.0	1.4	
Total Delay				79.3	1.3	11.1	
LOS				E	A	B	
Approach Delay					4.9	11.1	
Approach LOS					A	B	
Queue Length 50th (ft)				141	2	580	

Lanes, Volumes, Timings
66: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m162	m0	m551	
Internal Link Dist (ft)	141				833	1114	
Turn Bay Length (ft)				250			
Base Capacity (vph)				177	3539	2973	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	85	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.77	0.80	0.96	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 145 (91%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 7.9

Intersection LOS: A

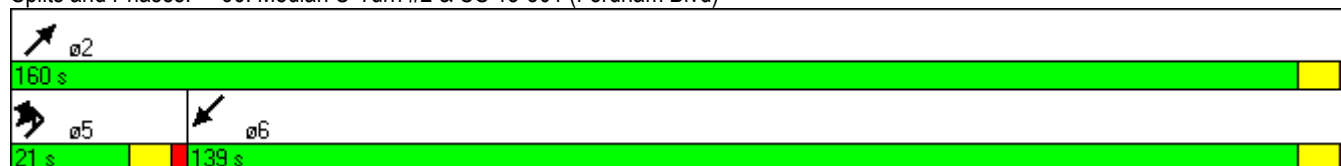
Intersection Capacity Utilization 84.2%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 66: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬆		⬆⬆		⬆	
Volume (vph)	0	0	0	0	0	0	131	0	2537	0	70	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		116			88				703			
Travel Time (s)		2.6			2.0				10.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	146	0	2819	0	78	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	146	0	2819	0	78	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	23.0	0.0	145.0	0.0	15.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.4%	0.0%	90.6%	0.0%	9.4%	0.0%
Maximum Green (s)							16.0		138.0		8.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							17.3		140.0		10.0	
Actuated g/C Ratio							0.11		0.88		0.06	
v/c Ratio							0.76		0.91		0.70	
Control Delay							93.6		8.8		82.2	
Queue Delay							0.0		0.2		0.0	
Total Delay							93.6		9.0		82.2	
LOS							F		A		F	
Approach Delay									13.2			
Approach LOS									B			
Queue Length 50th (ft)							158		593		82	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak

10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2514	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	779	
Travel Time (s)	11.8	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2793	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2793	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	137.0	0.0
Total Split (%)	85.6%	0.0%
Maximum Green (s)	130.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	132.7	
Actuated g/C Ratio	0.83	
v/c Ratio	0.86	
Control Delay	3.2	
Queue Delay	1.0	
Total Delay	4.1	
LOS	A	
Approach Delay	6.3	
Approach LOS	A	
Queue Length 50th (ft)	119	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 Without Site PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m202		544		m88	
Internal Link Dist (ft)		36			8				623			
Turn Bay Length (ft)											250	
Base Capacity (vph)							199		3097		111	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		33		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.73		0.92		0.70	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 6 (4%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 9.8

Intersection LOS: A

Intersection Capacity Utilization 84.3%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

	ø1		ø2
15 s		145 s	
	ø5		ø6
23 s		137 s	



Lane Group	SWT	SWR
Queue Length 95th (ft)	122	
Internal Link Dist (ft)	699	
Turn Bay Length (ft)		
Base Capacity (vph)	3245	
Starvation Cap Reductn	147	
Spillback Cap Reductn	215	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.92	
Intersection Summary		

Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2023 Without Site PM Peak

10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑↑		↗
Volume (vph)	1597	243	0	2505	0	1047
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			224	476	
Travel Time (s)	1.4			3.4	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1901	289	0	2783	0	1079
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1901	289	0	2783	0	1079
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	115.6%			ICU Level of Service H		
Analysis Period (min)	15					

2023 With Site Phase 2

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	63	34	221	75	51	83	1206	4	166	1408	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99							
Frt		0.947			0.940						0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1697	0	3208	1683	0	1744	3487	0	1702	3519	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1699	1697	0	3208	1683	0	1744	3487	0	1702	3519	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	32	74	40	235	80	54	88	1283	4	189	1600	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	114	0	235	134	0	88	1287	0	189	1616	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	20.0	20.0		33.0	33.0		20.0	80.0		18.0	68.0	
Total Split (s)	26.0	26.0	0.0	33.0	33.0	0.0	22.0	90.0	0.0	41.0	109.0	0.0
Total Split (%)	13.7%	13.7%	0.0%	17.4%	17.4%	0.0%	11.6%	47.4%	0.0%	21.6%	57.4%	0.0%
Maximum Green (s)	19.7	19.7		27.2	27.2		15.8	84.2		34.7	103.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	17.6	17.6		20.6	20.6		17.0	105.9		25.9	114.9	
Actuated g/C Ratio	0.09	0.09		0.11	0.11		0.09	0.56		0.14	0.60	
v/c Ratio	0.20	0.73		0.68	0.74		0.56	0.66		0.81	0.76	
Control Delay	81.2	108.8		90.9	104.3		78.7	20.0		104.7	31.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	81.2	108.8		90.9	104.3		78.7	20.0		104.7	31.8	
LOS	F	F		F	F		E	B		F	C	
Approach Delay		102.8			95.8			23.7			39.4	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	38	141		148	165		109	381		233	762	
Queue Length 95th (ft)	73	203		192	240		m151	711		309	931	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	188	188		473	248		156	1944		322	2127	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.61		0.50	0.54		0.56	0.66		0.59	0.76	

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 10 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 41.7

Intersection LOS: D

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
41 s	90 s	26 s	33 s
 ø6	 ø5		
109 s	22 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	51	76	124	276	27	85	141	1361	156	16	31	1449
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.985				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1719	1810	1487	3433	1863	1583	1752	3452	0	0	1752	3505
Flt Permitted	0.950			0.950			0.082				0.084	
Satd. Flow (perm)	1719	1810	1487	3433	1863	1583	151	3452	0	0	155	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			405			800				1344
Travel Time (s)		8.2			11.0			12.1				20.4
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	61	90	148	307	30	94	158	1529	175	18	35	1628
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	90	148	307	30	94	158	1704	0	0	53	1628
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	20.0	20.0	30.0	14.0	20.0	15.0	30.0	135.0		15.0	15.0	115.0
Total Split (s)	20.0	20.0	30.0	20.0	20.0	15.0	30.0	135.0	0.0	15.0	15.0	120.0
Total Split (%)	10.5%	10.5%	15.8%	10.5%	10.5%	7.9%	15.8%	71.1%	0.0%	7.9%	7.9%	63.2%
Maximum Green (s)	13.0	13.0	23.0	13.0	13.0	8.0	23.0	128.0		8.0	8.0	113.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effect Green (s)	22.0	13.4	27.5	16.6	10.8	18.3	143.0	130.7			135.2	125.8
Actuated g/C Ratio	0.12	0.07	0.14	0.09	0.06	0.10	0.75	0.69			0.71	0.66
v/c Ratio	0.31	0.71	0.69	1.02	0.28	0.61	0.68	0.72			0.28	0.70
Control Delay	84.4	114.4	74.6	137.4	92.0	78.6	47.9	12.9			3.6	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	84.4	114.4	74.6	137.4	92.0	78.6	47.9	12.9			3.6	8.5

Lane Group	SBR
Lane Configurations	
Volume (vph)	92
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1535
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Peak Hour Factor	0.89
Heavy Vehicles (%)	3%
Adj. Flow (vph)	103
Shared Lane Traffic (%)	
Lane Group Flow (vph)	103
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	10.5%
Maximum Green (s)	13.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	147.8
Actuated g/C Ratio	0.78
v/c Ratio	0.09
Control Delay	2.0
Queue Delay	0.0
Total Delay	2.0

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
LOS	F	F	E	F	F	E	D	B			A	A
Approach Delay		88.6			121.5			15.8				8.0
Approach LOS		F			F			B				A
Queue Length 50th (ft)	72	111	149	~227	37	94	69	319			2	430
Queue Length 95th (ft)	121	168	194	#337	76	151	164	225			m5	263
Internal Link Dist (ft)		343			325			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	199	143	300	301	147	159	326	2374			195	2322
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.31	0.63	0.49	1.02	0.20	0.59	0.48	0.72			0.27	0.70

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 177 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 190

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 28.0

Intersection LOS: C

Intersection Capacity Utilization 76.8%

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.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø1	 ø2		 ø4	 ø3
15 s	135 s		20 s	20 s
 ø5	 ø6		 ø8	 ø7
30 s	120 s		20 s	20 s



Lane Group	SBR
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	17
Queue Length 95th (ft)	m22
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1198
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.09
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

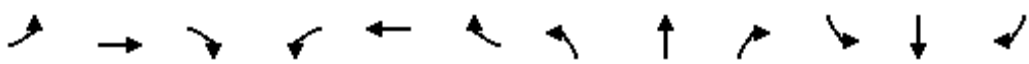
2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	25	24	51	58	17	56	1331	10	7	1491	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.926			0.966			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1734	0	1761	1790	0	1778	3553	0	1778	3557	1591
Flt Permitted	0.380			0.717			0.093			0.132		
Satd. Flow (perm)	711	1734	0	1329	1790	0	174	3553	0	247	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Peak Hour Factor	0.81	0.81	0.81	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88
Adj. Flow (vph)	90	31	30	62	71	21	60	1431	11	8	1694	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	61	0	62	92	0	60	1442	0	8	1694	174
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		33.0	33.0		15.0	90.0		15.0	80.0	80.0
Total Split (s)	15.0	52.0	0.0	37.0	37.0	0.0	15.0	123.0	0.0	15.0	123.0	123.0
Total Split (%)	7.9%	27.4%	0.0%	19.5%	19.5%	0.0%	7.9%	64.7%	0.0%	7.9%	64.7%	64.7%
Maximum Green (s)	8.7	45.6		30.6	30.6		8.9	116.9		9.4	116.9	116.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	30.6	30.6		15.7	15.7		144.4	144.4		134.4	134.4	134.4
Actuated g/C Ratio	0.16	0.16		0.08	0.08		0.76	0.76		0.71	0.71	0.71
v/c Ratio	0.53	0.22		0.56	0.62		0.28	0.53		0.03	0.67	0.15
Control Delay	81.0	70.0		102.5	101.7		6.2	4.3		4.9	8.1	5.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.3	0.0
Total Delay	81.0	70.0		102.5	101.7		6.2	4.3		4.9	8.4	5.1

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	E		F	F		A	A		A	A	A
Approach Delay		76.6			102.0			4.4			8.1	
Approach LOS		E			F			A			A	
Queue Length 50th (ft)	101	67		76	113		6	74		1	316	34
Queue Length 95th (ft)	141	103		118	161		m9	104		m2	m344	m70
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	171	429		224	301		217	2700		255	2516	1126
Starvation Cap Reductn	0	0		0	0		0	0		0	282	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.53	0.14		0.28	0.31		0.28	0.53		0.03	0.76	0.15

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 177 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 13.3

Intersection LOS: B

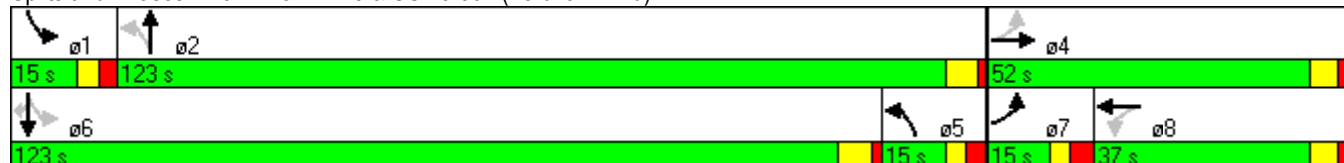
Intersection Capacity Utilization 65.6%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	50	3	350	8	8	14	5	328	1568	5	15	1656
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.98			0.99							
Frt			0.850		0.937							
Flt Protected		0.955			0.987			0.950			0.950	
Satd. Flow (prot)	0	1703	2668	0	1508	0	0	3383	3487	0	1744	3489
Flt Permitted		0.955			0.987			0.950			0.950	
Satd. Flow (perm)	0	1678	2668	0	1508	0	0	3383	3487	0	1744	3489
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	10					10						
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	2%	3%	3%	3%	4%	4%
Adj. Flow (vph)	56	3	389	11	11	19	5	360	1723	5	17	1926
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	389	0	41	0	0	365	1728	0	17	1926
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	20.0	20.0	45.0	41.0	41.0		45.0	45.0	59.0		15.0	19.0
Total Split (s)	20.0	20.0	45.0	41.0	41.0	0.0	45.0	45.0	114.0	0.0	15.0	84.0
Total Split (%)	10.5%	10.5%	23.7%	21.6%	21.6%	0.0%	23.7%	23.7%	60.0%	0.0%	7.9%	44.2%
Maximum Green (s)	13.4	13.4	38.3	34.3	34.3		38.3	38.3	107.9		8.5	77.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lane Group	SBR
Lane Configurations	
Volume (vph)	72
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1561
Flt Permitted	
Satd. Flow (perm)	1561
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	4%
Adj. Flow (vph)	84
Shared Lane Traffic (%)	
Lane Group Flow (vph)	84
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	10.5%
Maximum Green (s)	13.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		11.7	42.8		11.0			26.1	146.0		9.4	123.9
Actuated g/C Ratio		0.06	0.23		0.06			0.14	0.77		0.05	0.65
v/c Ratio		0.56	0.65		0.47			0.79	0.64		0.20	0.85
Control Delay		106.2	71.4		103.1			91.5	14.0		72.6	16.0
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		106.2	71.4		103.1			91.5	14.0		72.6	16.0
LOS		F	E		F			F	B		E	B
Approach Delay		75.9			103.1				27.5			15.9
Approach LOS		E			F				C			B
Queue Length 50th (ft)		73	255		51			231	572		21	515
Queue Length 95th (ft)		128	300		77			284	770		m33	1064
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		136	797		286			712	2680		92	2276
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.43	0.49		0.14			0.51	0.64		0.18	0.85

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 24 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 27.8

Intersection LOS: C

Intersection Capacity Utilization 96.4%

ICU Level of Service F

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø4	 ø3
114 s	15 s	41 s	20 s
 ø5	 ø6		
45 s	84 s		



Lane Group	SBR
Act Effect Green (s)	136.7
Actuated g/C Ratio	0.72
v/c Ratio	0.07
Control Delay	2.5
Queue Delay	0.0
Total Delay	2.5
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	7
Queue Length 95th (ft)	m18
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1152
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.07
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	9	0	0	114	0	1783	19	63	1915	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected										0.950		
Satd. Flow (prot)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Flt Permitted										0.950		
Satd. Flow (perm)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1002			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.71	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	13	0	0	161	0	1917	20	73	2227	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	13	0	0	161	0	1917	20	73	2227	15
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	35.0	14.0	125.0	125.0	35.0	146.0	146.0
Total Split (%)	0.0%	0.0%	8.8%	0.0%	0.0%	21.9%	8.8%	78.1%	78.1%	21.9%	91.3%	91.3%
Maximum Green (s)			7.0			28.0	7.0	118.0	118.0	28.0	139.0	139.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			23.3		126.7	126.7	23.3	152.4	152.4
Actuated g/C Ratio			0.06			0.15		0.79	0.79	0.15	0.95	0.95
v/c Ratio			0.14			0.70		0.69	0.02	0.29	0.67	0.01
Control Delay			75.7			80.6		5.8	3.3	62.3	2.7	0.9
Queue Delay			0.0			0.0		0.1	0.0	0.0	0.0	0.0
Total Delay			75.7			80.6		5.9	3.3	62.3	2.7	0.9
LOS			E			F		A	A	E	A	A
Approach Delay								5.8			4.6	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			13			162		205	3	69	0	0
Queue Length 95th (ft)			29			180		218	m4	111	293	4
Internal Link Dist (ft)		208			43			922			1513	
Turn Bay Length (ft)									150	200		150
Base Capacity (vph)			91			296		2776	1242	329	3339	1494
Starvation Cap Reductn			0			0		130	0	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.14			0.54		0.72	0.02	0.22	0.67	0.01

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 116 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 8.1

Intersection LOS: A

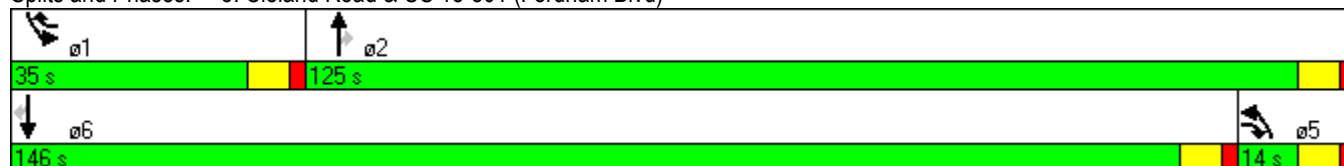
Intersection Capacity Utilization 67.1%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Volume (vph)	0	0	25	0	0	53	42	14	1935	26	41	1796
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				797			1036
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.80	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	36	0	0	66	46	15	2126	29	48	2088
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	36	0	0	66	0	61	2126	29	48	2088
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	19.0	0.0	0.0	20.0	19.0	19.0	140.0	140.0	20.0	141.0
Total Split (%)	0.0%	0.0%	11.9%	0.0%	0.0%	12.5%	11.9%	11.9%	87.5%	87.5%	12.5%	88.1%
Maximum Green (s)			12.0			13.0	12.0	12.0	133.0	133.0	13.0	134.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			12.2			13.0		12.2	137.0	137.0	13.0	141.6
Actuated g/C Ratio			0.08			0.08		0.08	0.86	0.86	0.08	0.88
v/c Ratio			0.29			0.50		0.46	0.71	0.02	0.34	0.67
Control Delay			75.3			83.4		84.6	3.0	1.1	71.3	3.5
Queue Delay			0.0			0.0		0.0	0.0	0.0	0.0	0.0
Total Delay			75.3			83.4		84.6	3.0	1.1	71.3	3.5
LOS			E			F		F	A	A	E	A
Approach Delay									5.2			5.0
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	6
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	3%
Adj. Flow (vph)	7
Shared Lane Traffic (%)	
Lane Group Flow (vph)	7
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	141.0
Total Split (%)	88.1%
Maximum Green (s)	134.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	141.6
Actuated g/C Ratio	0.88
v/c Ratio	0.01
Control Delay	1.8
Queue Delay	0.0
Total Delay	1.8
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			36			67		63	97	2	48	320
Queue Length 95th (ft)			57			106		m99	107	m4	m79	161
Internal Link Dist (ft)		24			5				717			956
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			141			151		153	3001	1343	164	3101
Starvation Cap Reductn			0			0		0	0	0	0	14
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.26			0.44		0.40	0.71	0.02	0.29	0.68

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 97 (61%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 6.9

Intersection LOS: A

Intersection Capacity Utilization 67.7%

ICU Level of Service C

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)

	
ø1	ø2
20 s	140 s
	
ø5	ø6
19 s	141 s



Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m1
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1388
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.01
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1037	0	0	378	0	1540	29	0	1482	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	1220	0	0	450	0	1711	32	0	1544	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1220	0	0	450	0	1711	32	0	1544	200
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0
Total Split (%)	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%
Maximum Green (s)			74.9								74.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			1.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			73.6			160.0		160.0	160.0		76.4	160.0
Actuated g/C Ratio			0.46			1.00		1.00	1.00		0.48	1.00
v/c Ratio			0.97			0.28		0.49	0.02		0.92	0.13
Control Delay			39.7			0.2		0.2	0.0		45.9	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			39.7			0.2		0.2	0.0		45.9	0.1
LOS			D			A		A	A		D	A
Approach Delay								0.2			40.6	
Approach LOS								A			D	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			646			0		0	0		804	0
Queue Length 95th (ft)			m631			m0		0	m0		#964	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1281			1580		3505	1583		1674	1568
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			0.95			0.28		0.49	0.02		0.92	0.13

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 85.6%

ICU Level of Service E

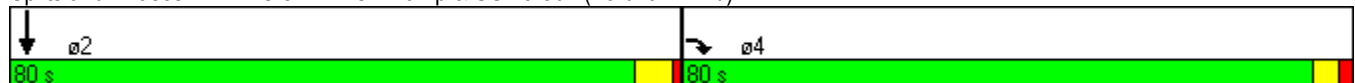
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	76	0	1493	0	0	2131	388	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	84	0	1659	0	0	2368	431	0	14
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	84	0	1659	0	0	2368	431	0	14
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 68.9% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations									
Volume (vph)	25	106	222	15	2957	254	2012	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					774		916		
Travel Time (s)					11.7		13.9		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.61	0.52	0.47	0.47	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	41	204	472	32	3080	265	2313	6	1
Shared Lane Traffic (%)									
Lane Group Flow (vph)	41	204	504	0	3080	265	2313	7	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0	25.0	
Total Split (s)	14.0	30.0	30.0	0.0	116.0	0.0	116.0	116.0	0.0
Total Split (%)	8.8%	18.8%	18.8%	0.0%	72.5%	0.0%	72.5%	72.5%	0.0%
Maximum Green (s)	7.0	23.0	23.0		109.0		109.0	109.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes								
Vehicle Extension (s)	3.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	27.8	27.8		118.2	160.0	111.0	111.0	
Actuated g/C Ratio	0.06	0.17	0.17		0.74	1.00	0.69	0.69	
v/c Ratio	0.45	0.74	1.05		1.12	0.17	0.90	0.01	
Control Delay	89.2	80.2	116.2		69.5	0.0	11.5	3.2	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		39.5	0.0	1.4	0.0	
Total Delay	89.2	80.2	116.2		108.9	0.0	12.9	3.2	
LOS	F	F	F		F	A	B	A	
Approach Delay					100.3		12.9		
Approach LOS					F		B		
Queue Length 50th (ft)	42	210	~355		~1702	0	632	1	
Queue Length 95th (ft)	58	164	183		m#957	m0	468	m1	
Internal Link Dist (ft)					694		836		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	91	276	479		2754	1583	2584	1098	
Starvation Cap Reductn	0	0	0		203	0	126	0	
Spillback Cap Reductn	0	0	0		0	0	7	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.45	0.74	1.05		1.21	0.17	0.94	0.01	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 11 (7%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 69.2

Intersection LOS: E

Intersection Capacity Utilization 97.0%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 Ø2	 Ø3	 Ø4
116 s	14 s	30 s
 Ø6		
116 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	319	0	39	17	0	51	0	2779	9	0	1329	1020
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99								
Frt			0.850			0.850		0.999				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3434	0	1584	1752	0	1568	0	4006	0	0	3438	1538
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1564	1742	0	1568	0	*3811	0	0	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			709	
Travel Time (s)		7.4			14.0			8.8			10.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.88	1.00	0.88	0.68	1.00	0.68	1.00	0.94	0.94	1.00	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Parking (#/hr)										0		
Adj. Flow (vph)	362	0	44	25	0	75	0	2956	10	0	1399	1074
Shared Lane Traffic (%)												
Lane Group Flow (vph)	362	0	44	25	0	75	0	2966	0	0	1399	1074
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				23.4			19.0	
Total Split (s)	32.0	0.0	0.0	32.0	0.0	0.0	0.0	128.0	0.0	0.0	128.0	0.0
Total Split (%)	20.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	80.0%	0.0%	0.0%	80.0%	0.0%
Maximum Green (s)	25.0			25.0				121.0			121.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	22.1		160.0	22.1		160.0		127.9			127.9	160.0

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.14		1.00	0.14		1.00		0.80			0.80	1.00
v/c Ratio	0.76		0.03	0.10		0.05		0.93			0.51	0.70
Control Delay	77.0		0.0	59.4		0.1		19.7			2.5	3.4
Queue Delay	0.8		0.0	0.0		0.0		0.1			0.3	0.0
Total Delay	77.8		0.0	59.4		0.1		19.8			2.8	3.4
LOS	E		A	E		A		B			A	A
Approach Delay								19.8			3.1	
Approach LOS								B			A	
Queue Length 50th (ft)	190		0	23		0		996			94	30
Queue Length 95th (ft)	235		0	40		0		1315			104	41
Internal Link Dist (ft)		302			435			504			629	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	579		1564	296		1568		3201			2747	1538
Starvation Cap Reductn	0		0	0		0		0			594	0
Spillback Cap Reductn	58		0	0		41		11			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.69		0.03	0.08		0.05		0.93			0.65	0.70

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 17 (11%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 16.1

Intersection LOS: B

Intersection Capacity Utilization 71.3%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 Ø2	 Ø3
128 s	32 s
 Ø6	
128 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	226	34	543	429	505	34	60	115	404	148	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00		0.96		1.00	0.98	1.00	1.00	
Frt		0.980				0.850			0.850		0.993	
Flt Protected	0.950			0.950				0.982		0.950	0.979	
Satd. Flow (prot)	1517	3060	0	1752	1845	1672	0	1883	1482	1625	1948	0
Flt Permitted	0.493			0.401				0.982		0.950	0.979	
Satd. Flow (perm)	779	3060	0	737	1845	1613	0	1880	1456	1620	1945	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	7		3	3		7	6		3	3		6
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.79	0.79	0.79	0.88	0.88	0.88
Heavy Vehicles (%)	15%	15%	15%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	12	257	39	597	471	555	43	76	146	459	168	15
Shared Lane Traffic (%)										31%		
Lane Group Flow (vph)	12	296	0	597	471	555	0	119	146	317	325	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	33.0	33.0	0.0	35.0	68.0	37.0	25.0	25.0	35.0	37.0	37.0	0.0
Total Split (%)	25.4%	25.4%	0.0%	26.9%	52.3%	28.5%	19.2%	19.2%	26.9%	28.5%	28.5%	0.0%
Maximum Green (s)	25.7	25.7		28.2	60.7	30.3	18.3	18.3	28.2	30.3	30.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	28.0	28.0		63.0	63.0	93.5		21.5	51.5	30.5	30.5	
Actuated g/C Ratio	0.22	0.22		0.48	0.48	0.72		0.17	0.40	0.23	0.23	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.07	0.45		1.01	0.53	0.47		0.38	0.25	0.83	0.71	
Control Delay	42.2	46.9		68.0	25.9	7.3		53.3	25.2	66.1	54.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.2	46.9		68.0	25.9	7.3		53.3	25.2	66.1	54.8	
LOS	D	D		E	C	A		D	C	E	D	
Approach Delay		46.7			35.0			37.8			60.4	
Approach LOS		D			D			D			E	
Queue Length 50th (ft)	8	115		~391	268	139		92	78	265	262	
Queue Length 95th (ft)	26	157		#587	370	193		133	110	#394	363	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	168	659		591	894	1193		311	583	400	480	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.07	0.45		1.01	0.53	0.47		0.38	0.25	0.79	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 42.3

Intersection LOS: D

Intersection Capacity Utilization 96.7%

ICU Level of Service F

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: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
35 s	33 s	37 s	25 s
 ø6			
68 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 With Site Phase 2 AM Peak

10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	792	13	0	1363	1037	0	0	388	0	0	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	861	14	0	1482	1127	0	0	422	0	0	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	861	14	0	1482	1127	0	0	422	0	0	209
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

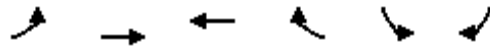
Intersection Capacity Utilization 67.5% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2023 With Site Phase 2 AM Peak

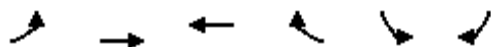
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑	↗		↗
Volume (vph)	0	1186	2344	378	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1318	2726	440	0	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1318	2726	440	0	34
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	55.3%			ICU Level of Service B		
Analysis Period (min)	15					

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2023 With Site Phase 2 AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2440	2752	37	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		206	565		229	
Travel Time (s)		3.1	8.6		6.2	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2440	2991	40	0	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2440	2991	40	0	48
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 63.2% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	226	1929	202	67	2378	313	196	38	107	172	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	250	
Storage Lanes		1		0	1		1	1		1	1	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00				0.94	0.99		0.98	0.99	0.97
Frt			0.986				0.850			0.850		0.873
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1753	4944	0	1736	4988	1553	1736	1827	1553	1719	1538
Flt Permitted		0.950			0.048			0.488			0.719	
Satd. Flow (perm)	0	1752	4944	0	88	4988	1467	881	1827	1521	1291	1538
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			565			576			537			463
Travel Time (s)			8.6			8.7			14.6			12.6
Confl. Peds. (#/hr)		9		6	6		9	13		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86
Heavy Vehicles (%)	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%
Adj. Flow (vph)	11	257	2192	230	75	2672	352	302	58	165	200	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	268	2422	0	75	2672	352	302	58	165	200	211
Turn Type	Prot	Prot			pm+pt		Perm	Perm		pm+ov	Perm	
Protected Phases	5	5	2		1	6			8	1		4
Permitted Phases					6		6	8		8	4	
Detector Phase	5	5	2		1	6	6	8	8	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	13.0	27.0		13.0	26.0	26.0	41.0	41.0	13.0	39.0	39.0
Total Split (s)	13.0	13.0	96.0	0.0	13.0	96.0	96.0	51.0	51.0	13.0	51.0	51.0
Total Split (%)	8.1%	8.1%	60.0%	0.0%	8.1%	60.0%	60.0%	31.9%	31.9%	8.1%	31.9%	31.9%
Maximum Green (s)	7.4	7.4	90.4		7.6	90.1	90.1	44.6	44.6	7.6	44.5	44.5
Yellow Time (s)	3.0	3.0	3.8		3.0	4.1	4.1	3.1	3.1	3.0	3.2	3.2
All-Red Time (s)	2.6	2.6	1.8		2.4	1.8	1.8	3.3	3.3	2.4	3.3	3.3
Lost Time Adjust (s)	0.0	-0.6	-0.6	0.0	-0.4	-0.9	-0.9	-1.4	-1.4	-0.4	-1.5	-1.5
Total Lost Time (s)	5.6	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag			Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	C-Max	None	None	None	None	None
Walk Time (s)			7.0			7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)			12.0			13.0	13.0	27.0	27.0		25.0	25.0
Pedestrian Calls (#/hr)			0			0	0	0	0		0	0
Act Effct Green (s)		8.0	91.0		91.0	91.0	91.0	46.0	46.0	54.0	46.0	46.0
Actuated g/C Ratio		0.05	0.57		0.57	0.57	0.57	0.29	0.29	0.34	0.29	0.29
v/c Ratio		3.05	0.86		0.57	0.94	0.42	1.19	0.11	0.32	0.54	0.48
Control Delay		969.1	35.3		44.2	22.4	13.7	166.9	42.8	39.3	54.5	51.4

Lane Group	SBR
Lane Configurations	
Volume (vph)	153
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	13
Peak Hour Factor	0.86
Heavy Vehicles (%)	5%
Adj. Flow (vph)	178
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		969.1	35.3		44.2	22.4	13.7	166.9	42.8	39.3	54.5	51.4
LOS		F	D		D	C	B	F	D	D	D	D
Approach Delay			128.4			22.0			113.1			52.9
Approach LOS			F			C			F			D
Queue Length 50th (ft)		~491	771		26	503	72	~380	45	122	177	184
Queue Length 95th (ft)		m#621	803		m40	286	m114	#343	59	128	253	256
Internal Link Dist (ft)			485			496			457			383
Turn Bay Length (ft)		300			250		150	150		150	250	
Base Capacity (vph)		88	2812		132	2837	834	253	525	515	371	442
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		3.05	0.86		0.57	0.94	0.42	1.19	0.11	0.32	0.54	0.48

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 31 (19%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 3.05

Intersection Signal Delay: 73.5

Intersection LOS: E

Intersection Capacity Utilization 103.7%

ICU Level of Service G

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.

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

	ø2				ø1		ø4
96 s				13 s		51 s	
	ø5		ø6				ø8
13 s		96 s				51 s	



Lane Group	SBR
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	2158	41	105	2662	16	17	5	192	34	8	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99	0.99		0.99	
Frt		0.997			0.999				0.850		0.934	
Flt Protected	0.950			0.950				0.963			0.979	
Satd. Flow (prot)	1770	5066	0	1736	4981	0	0	1776	1568	0	1684	0
Flt Permitted	0.037			0.039				0.789			0.865	
Satd. Flow (perm)	69	5066	0	71	4981	0	0	1445	1547	0	1488	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	6		8	8		6	9		1	1		9
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	30	2296	44	117	2958	18	21	6	237	44	10	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	2340	0	117	2976	0	0	27	237	0	105	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	93.0	0.0	19.0	99.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	8.1%	58.1%	0.0%	11.9%	61.9%	0.0%	30.0%	30.0%	30.0%	30.0%	30.0%	0.0%
Maximum Green (s)	7.1	86.8		13.1	92.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	0.0	-0.9	-1.2	0.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	116.8	102.7		114.8	112.0			30.2	30.2		30.2	
Actuated g/C Ratio	0.73	0.64		0.72	0.70			0.19	0.19		0.19	
v/c Ratio	0.22	0.72		0.66	0.85			0.10	0.81		0.37	
Control Delay	10.8	8.0		54.4	9.4			51.1	82.5		58.8	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.1			0.0	0.0		0.0	
Total Delay	10.8	8.0		54.4	9.5			51.1	82.5		58.8	
LOS	B	A		D	A			D	F		E	
Approach Delay		8.0			11.2			79.3			58.8	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	4	156		62	323			24	240		97	
Queue Length 95th (ft)	m5	375		m94	m#935			45	282		125	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	135	3252		205	3487			388	416		400	
Starvation Cap Reductn	0	0		0	42			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.22	0.72		0.57	0.86			0.07	0.57		0.26	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 45 (28%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 13.8

Intersection LOS: B

Intersection Capacity Utilization 87.3%

ICU Level of Service E

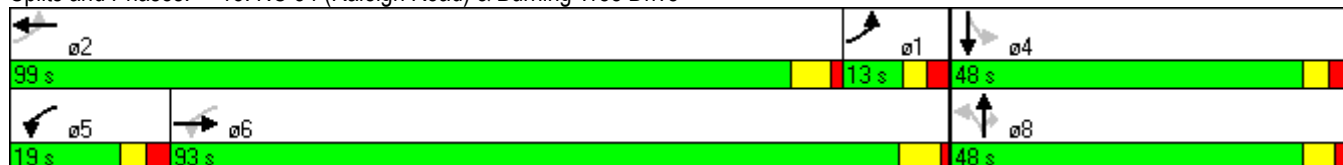
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	226	2074	137	127	2690	27	27	0	6	10	14	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.94			0.97						
Frt			0.850			0.850		0.850			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1724	5036	1568	1736	4988	1553	1770	1583	0	1736	1577	0
Flt Permitted	0.035			0.055			0.250			0.752		
Satd. Flow (perm)	64	5036	1478	100	4988	1511	466	1583	0	1374	1577	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	8		10	10		8						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.73	0.73	0.73	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	243	2230	147	137	2892	29	37	0	8	11	15	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	243	2230	147	137	2892	29	37	8	0	11	170	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	28.0	28.0	14.0	19.0	19.0	14.0	14.0		15.0	15.0	
Total Split (s)	21.0	119.0	119.0	20.0	91.0	91.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	13.1%	74.4%	74.4%	12.5%	56.9%	56.9%	13.1%	13.1%	0.0%	13.1%	13.1%	0.0%
Maximum Green (s)	14.7	112.7	112.7	13.7	84.7	84.7	14.2	14.2		13.7	13.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	-1.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)	129.0	117.7	117.7	129.0	113.0	113.0	16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.81	0.74	0.74	0.81	0.71	0.71	0.10	0.10		0.10	0.10	
v/c Ratio	1.11	0.60	0.14	0.70	0.82	0.03	0.79	0.05		0.08	1.08	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	17%
Maximum Green (s)	23.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	122.8	12.8	9.3	42.6	8.1	5.9	147.2	66.2		67.0	157.8	
Queue Delay	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0		0.0	0.0	
Total Delay	122.8	12.9	9.3	42.6	8.4	5.9	147.2	66.2		67.0	157.8	
LOS	F	B	A	D	A	A	F	E		E	F	
Approach Delay	22.9			9.9			132.8			152.3		
Approach LOS	C			A			F			F		
Queue Length 50th (ft)	~244	341	48	80	234	5	39	8		11	~198	
Queue Length 95th (ft)	#432	458	m91	m105	264	m7	#82	21		32	#360	
Internal Link Dist (ft)	767			1857			371			455		
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	218	3705	1087	236	3523	1067	47	158		137	158	
Starvation Cap Reductn	0	271	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	159	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.11	0.65	0.14	0.58	0.86	0.03	0.79	0.05		0.08	1.08	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 19 (12%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 21.0

Intersection LOS: C

Intersection Capacity Utilization 96.8%

ICU Level of Service F

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
20 s	119 s	21 s
 ø5	 ø10	 ø6
21 s	27 s	91 s
 ø8		
21 s		

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	1781	189	717	2617	164	97	17	58	62	27	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor			0.98	1.00				1.00		1.00		
Frt			0.850			0.850		0.986	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.970		0.950		
Satd. Flow (prot)	3434	5086	1584	3383	5011	1560	1427	1374	1276	3451	1872	1591
Flt Permitted	0.950			0.950			0.950	0.970		0.950		
Satd. Flow (perm)	3434	5086	1546	3379	5011	1560	1427	1374	1276	3440	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)			7	7					1	1		
Peak Hour Factor	0.86	0.86	0.86	0.94	0.94	0.94	0.78	0.78	0.78	0.79	0.79	0.79
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	19%	19%	19%	3%	3%	3%
Adj. Flow (vph)	148	2071	220	763	2784	174	124	22	74	78	34	171
Shared Lane Traffic (%)							38%		10%			
Lane Group Flow (vph)	148	2071	220	763	2784	174	77	76	67	78	34	171
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	77.0	18.0	46.0	107.0	19.0	18.0	18.0	64.0	19.0	19.0	35.0
Total Split (%)	10.0%	48.1%	11.3%	28.8%	66.9%	11.9%	11.3%	11.3%	40.0%	11.9%	11.9%	21.9%
Maximum Green (s)	8.8	70.4	10.9	38.9	100.5	11.7	10.9	10.9		11.7	11.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	0.0	-2.3	-2.3	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.1	5.0	5.0	7.3
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effect Green (s)	10.6	72.2	85.0	41.0	102.6	121.6	12.8	12.8	49.6	14.0	14.0	20.0
Actuated g/C Ratio	0.07	0.45	0.53	0.26	0.64	0.76	0.08	0.08	0.31	0.09	0.09	0.12
v/c Ratio	0.65	0.90	0.27	0.88	0.87	0.15	0.68	0.69	0.17	0.26	0.21	0.86

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	73.7	41.6	17.5	38.2	6.1	3.3	99.4	101.8	26.9	70.6	71.3	87.6
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.7	41.6	17.5	38.2	6.8	3.3	99.4	101.8	26.9	70.6	71.3	87.6
LOS	E	D	B	D	A	A	F	F	C	E	E	F
Approach Delay	41.4			13.1			78.2			81.0		
Approach LOS	D			B			E			F		
Queue Length 50th (ft)	83	525	111	377	326	31	84	86	40	40	34	144
Queue Length 95th (ft)	119	604	193	m322	m228	m28	126	#131	63	60	62	#204
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	236	2297	826	867	3214	1186	116	112	397	302	164	203
Starvation Cap Reductn	0	0	0	0	159	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	0.63	0.90	0.27	0.88	0.91	0.15	0.66	0.68	0.17	0.26	0.21	0.84

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 148 (93%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 28.5

Intersection LOS: C

Intersection Capacity Utilization 79.4%

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.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø3	 ø4
77 s	46 s	19 s	18 s
 ø5	 ø6		
16 s	107 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	9	1720	155	34	2727	201	718	106	71	156	30	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.976			0.978	
Flt Protected	0.950			0.950			0.950	0.971		0.950	0.973	
Satd. Flow (prot)	1761	4448	1575	1761	5061	1576	1656	1652	0	1664	1667	0
Flt Permitted	0.050			0.054			0.950	0.971		0.950	0.973	
Satd. Flow (perm)	93	4448	1524	100	5061	1576	1656	1652	0	1664	1667	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	10	1849	167	36	2871	212	756	112	75	188	36	18
Shared Lane Traffic (%)							37%			36%		
Lane Group Flow (vph)	10	1849	167	36	2871	212	476	467	0	120	122	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	80.0	44.0	16.0	80.0	20.0	44.0	44.0	0.0	20.0	20.0	0.0
Total Split (%)	10.0%	50.0%	27.5%	10.0%	50.0%	12.5%	27.5%	27.5%	0.0%	12.5%	12.5%	0.0%
Maximum Green (s)	9.2	72.5	36.8	9.0	72.5	12.8	36.8	36.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	89.0	78.2	117.7	87.0	85.5	105.0	39.5	39.5		14.5	14.5	
Actuated g/C Ratio	0.56	0.49	0.74	0.54	0.53	0.66	0.25	0.25		0.09	0.09	
v/c Ratio	0.07	0.85	0.15	0.22	1.06	0.21	1.16	1.14		0.79	0.81	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.2	5.8	0.9	35.3	72.3	12.4	149.1	142.8		104.3	106.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	2.2	5.8	0.9	35.3	72.3	12.4	149.1	142.8		104.3	106.1	
LOS	A	A	A	D	E	B	F	F		F	F	
Approach Delay		5.4			67.8			146.0			105.2	
Approach LOS		A			E			F			F	
Queue Length 50th (ft)	0	60	5	16	1064	73	~625	~606		131	133	
Queue Length 95th (ft)	m1	64	m6	34	#1380	142	#865	#845		#209	#216	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	167	2174	1133	169	2704	1039	409	408		156	156	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.06	0.85	0.15	0.21	1.06	0.20	1.16	1.14		0.77	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

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

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 60.9

Intersection LOS: E

Intersection Capacity Utilization 95.9%

ICU Level of Service F

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ 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.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

											
ø2	ø1	ø3	ø4	ø5	ø6						
80 s	16 s	20 s	44 s	16 s	80 s						

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

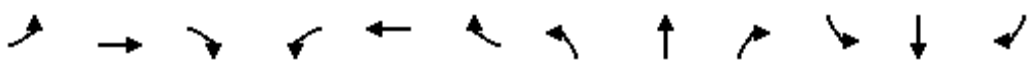
2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	406	430	65	157	271	92	55	455	109	82	651	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.98		1.00		1.00		0.95
Frt		0.980				0.850		0.971				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	1803	0	1719	1810	1538	1703	3296	0	1703	3406	1524
Flt Permitted	0.950			0.950			0.257			0.283		
Satd. Flow (perm)	3210	1803	0	1714	1810	1511	461	3296	0	506	3406	1444
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	3		4	4		3	7		4	4		7
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Parking (#/hr)	0											
Adj. Flow (vph)	441	467	71	169	291	99	59	484	116	88	700	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	441	538	0	169	291	99	59	600	0	88	700	290
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	34.0	63.0	0.0	27.0	56.0	15.0	15.0	45.0	0.0	15.0	45.0	34.0
Total Split (%)	22.7%	42.0%	0.0%	18.0%	37.3%	10.0%	10.0%	30.0%	0.0%	10.0%	30.0%	22.7%
Maximum Green (s)	28.1	57.1		21.4	50.4	9.1	8.8	39.3		9.1	39.6	28.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	38.9	50.0		18.6	29.6	39.3	60.6	51.8		63.4	55.3	94.3
Actuated g/C Ratio	0.26	0.33		0.12	0.20	0.26	0.40	0.35		0.42	0.37	0.63
v/c Ratio	0.53	0.90		0.79	0.81	0.25	0.23	0.53		0.30	0.56	0.31

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	49.7	65.6		86.1	65.2	20.3	30.2	43.7		30.7	42.9	9.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	49.7	65.6		86.1	65.2	20.3	30.2	43.7		30.7	42.9	9.6
LOS	D	E		F	E	C	C	D		C	D	A
Approach Delay	58.4			63.6			42.5			33.0		
Approach LOS	E			E			D			C		
Queue Length 50th (ft)	188	495		161	257	35	34	254		51	299	84
Queue Length 95th (ft)	243	612		m238	324	m53	72	348		100	411	152
Internal Link Dist (ft)	718			652			519			599		
Turn Bay Length (ft)	250											
Base Capacity (vph)	838	697		252	615	405	273	1139		298	1256	928
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.53	0.77		0.67	0.47	0.24	0.22	0.53		0.30	0.56	0.31

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 16 (11%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 47.7

Intersection LOS: D

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
15 s	45 s	27 s	63 s
 ø5	 ø6	 ø8	 ø7
15 s	45 s	56 s	34 s

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	326	7	6	328	48	15	3	8	36	3	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.981			0.959				0.850
Flt Protected	0.950			0.950				0.972			0.956	
Satd. Flow (prot)	1719	3426	0	1752	3426	0	0	1727	0	0	1730	1538
Flt Permitted	0.454			0.528				0.795			0.713	
Satd. Flow (perm)	818	3426	0	969	3426	0	0	1412	0	0	1284	1519
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	4		4	4		4	1		6	6		1
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.60	0.60	0.60	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	210	370	8	7	364	53	25	5	13	42	4	280
Shared Lane Traffic (%)												
Lane Group Flow (vph)	210	378	0	7	417	0	0	43	0	0	46	280
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	18.0	46.0	0.0	28.0	28.0	0.0	29.0	29.0	0.0	29.0	29.0	18.0
Total Split (%)	24.0%	61.3%	0.0%	37.3%	37.3%	0.0%	38.7%	38.7%	0.0%	38.7%	38.7%	24.0%
Maximum Green (s)	12.9	40.9		22.8	22.8		23.3	23.3		23.2	23.2	12.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	61.9	63.9		44.1	44.1			8.2			8.3	17.9
Actuated g/C Ratio	0.83	0.85		0.59	0.59			0.11			0.11	0.24
v/c Ratio	0.25	0.13		0.01	0.21			0.28			0.32	0.77
Control Delay	1.3	0.7		10.3	9.2			35.3			37.1	37.7
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	1.3	0.7		10.3	9.2			35.3			37.1	37.7
LOS	A	A		B	A			D			D	D

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		0.9			9.3			35.3			37.6	
Approach LOS		A			A			D			D	
Queue Length 50th (ft)	6	5		1	46			19			20	110
Queue Length 95th (ft)	m27	24		8	90			31			47	142
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	843	2917		570	2014			452			411	392
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.25	0.13		0.01	0.21			0.10			0.11	0.71

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 13.2

Intersection LOS: B

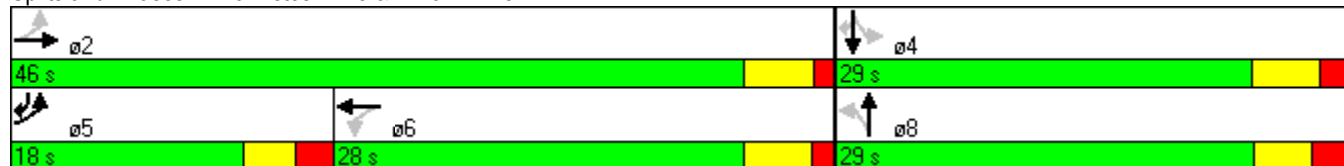
Intersection Capacity Utilization 49.8%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2023 With Site Phase 2 AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	74	5	2	106	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1812	0	0	1825	1770	0
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1812	0	0	1825	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.82	0.82	0.77	0.77	0.45	0.45
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	90	6	3	138	20	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	96	0	0	141	20	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	17.2%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	57	6	1	39	1	14	1	0	0	2	0
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			0.997							
Flt Protected		0.999			0.999			0.956				
Satd. Flow (prot)	0	1769	0	0	1855	0	0	1781	0	0	1863	0
Flt Permitted		0.999			0.999			0.956				
Satd. Flow (perm)	0	1769	0	0	1855	0	0	1781	0	0	1863	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.83	0.83	0.83	0.79	0.79	0.79	0.65	0.65	0.65	0.50	0.50	0.50
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	69	7	1	49	1	22	2	0	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	0	51	0	0	24	0	0	4	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 18.0% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↩↩	↩↩	↩		↩↩	↩↩
Volume (vph)	0	127	1703	168	12	192	1626
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	30		45				45
Link Distance (ft)	449		664				797
Travel Time (s)	10.2		10.1				12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	141	1892	187	13	213	1807
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	141	1892	187	0	226	1807
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	26.0	134.0	134.0	26.0	26.0	160.0
Total Split (%)	0.0%	16.3%	83.8%	83.8%	16.3%	16.3%	100.0%
Maximum Green (s)		19.0	127.0	127.0	19.0	19.0	153.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		21.0	129.0	129.0		21.0	160.0
Actuated g/C Ratio		0.13	0.81	0.81		0.13	1.00
v/c Ratio		0.39	0.66	0.15		0.50	0.51
Control Delay		67.1	5.0	2.2		68.3	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		67.1	5.0	2.2		68.3	0.4
LOS		E	A	A		E	A
Approach Delay			4.8				7.9
Approach LOS			A				A
Queue Length 50th (ft)		77	225	17		118	0

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak
10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		119	408	47		165	0
Internal Link Dist (ft)	369		584				717
Turn Bay Length (ft)						300	
Base Capacity (vph)		366	2853	1276		451	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	23	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.39	0.67	0.15		0.50	0.51

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 92 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 8.3

Intersection LOS: A

Intersection Capacity Utilization 71.2%

ICU Level of Service C

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
134 s	26 s
 ø6	
160 s	



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	2144	1493	1330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	666		536		1192	
Travel Time (s)	15.1		8.1		18.1	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2144	1659	1478
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2144	1659	1478
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 85.7% ICU Level of Service E

Analysis Period (min) 15

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1330	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			666	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1478	0	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1478	0	84
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	73.3%			ICU Level of Service D		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations							⬇		⬆⬆		⬇	
Volume (vph)	0	0	0	0	0	0	10	0	1978	0	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		59			59				1036			
Travel Time (s)		1.3			1.3				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	11	0	2198	0	9	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	11	0	2198	0	9	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	139.0	0.0	21.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%	0.0%	86.9%	0.0%	13.1%	0.0%
Maximum Green (s)							7.0		132.0		14.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		156.0		9.2	
Actuated g/C Ratio							0.06		0.98		0.06	
v/c Ratio							0.11		0.64		0.09	
Control Delay							78.2		0.9		82.4	
Queue Delay							0.0		0.0		0.0	
Total Delay							78.2		0.9		82.4	
LOS							E		A		F	
Approach Delay									1.3			
Approach LOS									A			
Queue Length 50th (ft)							11		0		9	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1916	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1002	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2129	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2129	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	146.0	0.0
Total Split (%)	91.3%	0.0%
Maximum Green (s)	139.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	152.4	
Actuated g/C Ratio	0.95	
v/c Ratio	0.63	
Control Delay	0.8	
Queue Delay	0.0	
Total Delay	0.8	
LOS	A	
Approach Delay	1.2	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m17		84		m14	
Internal Link Dist (ft)		1			1				956			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							100		3451		177	
Starvation Cap Reductn							0		5		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.11		0.64		0.05	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 105 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 1.2

Intersection LOS: A

Intersection Capacity Utilization 58.8%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	
ø1	ø2
21 s	139 s
	
ø5	ø6
14 s	146 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	0	
Internal Link Dist (ft)	922	
Turn Bay Length (ft)		
Base Capacity (vph)	3371	
Starvation Cap Reductn	38	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.64	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬇		⬆⬆		⬇	
Volume (vph)	0	0	0	0	0	0	242	0	2907	0	186	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		95			93				709			
Travel Time (s)		2.2			2.1				10.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	269	0	3230	0	207	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	269	0	3230	0	207	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	41.0	0.0	138.0	0.0	22.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.6%	0.0%	86.3%	0.0%	13.8%	0.0%
Maximum Green (s)							34.0		131.0		15.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							30.6		133.0		17.0	
Actuated g/C Ratio							0.19		0.83		0.11	
v/c Ratio							0.80		1.10		1.10	
Control Delay							71.2		59.7		139.1	
Queue Delay							0.0		1.5		0.0	
Total Delay							71.2		61.2		139.1	
LOS							E		E		F	
Approach Delay									61.9			
Approach LOS									E			
Queue Length 50th (ft)							274		~2015		~249	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak
10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2073	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	774	
Travel Time (s)	11.7	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2303	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2303	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	119.0	0.0
Total Split (%)	74.4%	0.0%
Maximum Green (s)	112.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	119.4	
Actuated g/C Ratio	0.75	
v/c Ratio	0.79	
Control Delay	7.1	
Queue Delay	0.5	
Total Delay	7.6	
LOS	A	
Approach Delay	18.5	
Approach LOS	B	
Queue Length 50th (ft)	364	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m306		#2091		m#292	
Internal Link Dist (ft)		15			13				629			
Turn Bay Length (ft)											250	
Base Capacity (vph)							398		2942		188	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		9		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.68		1.10		1.10	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 18 (11%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 43.8

Intersection LOS: D

Intersection Capacity Utilization 99.0%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

	ø1		ø2
22 s		138 s	
	ø5		ø6
41 s		119 s	



Lane Group	SWT	SWR
Queue Length 95th (ft)	m509	
Internal Link Dist (ft)	694	
Turn Bay Length (ft)		
Base Capacity (vph)	2919	
Starvation Cap Reductn	232	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.86	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↕	↕	
Volume (vph)	0	0	93	111	2824	2144	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	128				916	1192	
Travel Time (s)	3.5				13.9	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	103	123	3138	2382	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	226	3138	2382	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	23.0	23.0	
Total Split (s)	0.0	0.0	34.0	34.0	160.0	126.0	0.0
Total Split (%)	0.0%	0.0%	21.3%	21.3%	100.0%	78.8%	0.0%
Maximum Green (s)			27.0	27.0	153.0	119.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				25.9	160.0	124.1	
Actuated g/C Ratio				0.16	1.00	0.78	
v/c Ratio				0.79	0.89	0.87	
Control Delay				56.0	7.1	12.0	
Queue Delay				0.0	0.0	0.1	
Total Delay				56.0	7.1	12.1	
LOS				E	A	B	
Approach Delay					10.4	12.1	
Approach LOS					B	B	
Queue Length 50th (ft)				232	549	625	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 AM Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m210	m0	673	
Internal Link Dist (ft)	48				836	1112	
Turn Bay Length (ft)				250			
Base Capacity (vph)				321	3539	2746	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	16	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.70	0.89	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 154 (96%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 11.1

Intersection LOS: B

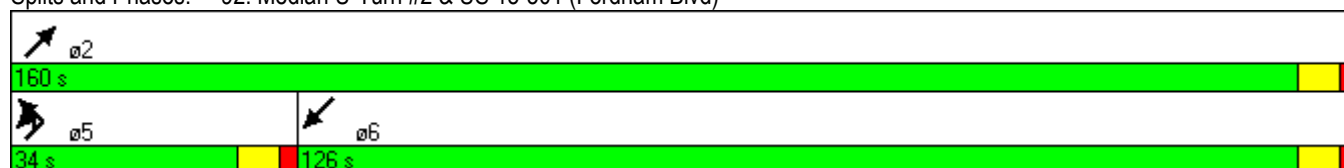
Intersection Capacity Utilization 82.2%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2023 With Site Phase 2 AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1110	76	0	2722	0	1330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			206	476	
Travel Time (s)	1.4			3.1	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1321	90	0	3024	0	1371
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1321	90	0	3024	0	1371
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	119.7%			ICU Level of Service H		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Volume (vph)	95	117	80	269	89	57	176	1158	4	149	1057	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99				0.99							
Frt		0.939			0.942						0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1682	0	3270	1716	0	1744	3487	0	1686	3478	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1691	1682	0	3270	1716	0	1744	3487	0	1686	3478	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	109	134	92	299	99	63	191	1259	4	159	1124	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	226	0	299	162	0	191	1263	0	159	1150	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		18.0	68.0	
Total Split (s)	36.0	36.0	0.0	35.0	35.0	0.0	31.0	81.0	0.0	28.0	78.0	0.0
Total Split (%)	20.0%	20.0%	0.0%	19.4%	19.4%	0.0%	17.2%	45.0%	0.0%	15.6%	43.3%	0.0%
Maximum Green (s)	29.7	29.7		29.2	29.2		24.8	75.2		21.7	72.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.0	3.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	28.7	28.7		23.4	23.4		26.0	85.7		22.2	81.9	
Actuated g/C Ratio	0.16	0.16		0.13	0.13		0.14	0.48		0.12	0.46	
v/c Ratio	0.40	0.84		0.70	0.73		0.76	0.76		0.76	0.73	
Control Delay	72.0	99.1		83.8	93.3		70.2	26.1		98.8	44.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	72.0	99.1		83.8	93.3		70.2	26.1		98.8	44.5	
LOS	E	F		F	F		E	C		F	D	
Approach Delay		90.3			87.2			31.9			51.1	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	116	259		177	187		210	313		183	591	
Queue Length 95th (ft)	178	#357		223	266		#334	655		#292	728	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	293	290		545	286		252	1661		224	1583	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.37	0.78		0.55	0.57		0.76	0.76		0.71	0.73	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 79 (44%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 160

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 51.6

Intersection LOS: D

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
28 s	81 s	36 s	35 s
 ø6	 ø5		
78 s	31 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	157	81	312	281	37	79	276	1205	226	11	31	1084
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Frt			0.850			0.850		0.976				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1752	3421	0	0	1752	3505
Flt Permitted	0.950			0.950			0.104				0.056	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	192	3421	0	0	103	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			451			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Peak Hour Factor	0.81	0.81	0.81	0.90	0.90	0.90	0.95	0.95	0.95	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	194	100	385	312	41	88	291	1268	238	11	32	1129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	100	385	312	41	88	291	1506	0	0	43	1129
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	15.0	14.0	19.0		15.0	15.0	19.0
Total Split (s)	37.0	24.0	51.0	30.0	17.0	16.0	51.0	110.0	0.0	16.0	16.0	75.0
Total Split (%)	20.6%	13.3%	28.3%	16.7%	9.4%	8.9%	28.3%	61.1%	0.0%	8.9%	8.9%	41.7%
Maximum Green (s)	30.0	17.0	44.0	23.0	10.0	9.0	44.0	103.0		9.0	9.0	68.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	2.0	2.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	30.2	15.5	61.2	22.7	10.8	23.7	126.8	111.1			86.8	76.1
Actuated g/C Ratio	0.17	0.09	0.34	0.13	0.06	0.13	0.70	0.62			0.48	0.42
v/c Ratio	0.65	0.62	0.74	0.72	0.37	0.42	0.55	0.71			0.29	0.76
Control Delay	81.5	95.7	40.5	85.4	90.3	76.6	41.8	17.7			39.0	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4			0.0	0.0
Total Delay	81.5	95.7	40.5	85.4	90.3	76.6	41.8	18.2			39.0	20.6
LOS	F	F	D	F	F	E	D	B			D	C
Approach Delay		60.3			84.1			22.0				18.3

Lane Group	SBR
Lane Configurations	
Volume (vph)	218
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	3%
Adj. Flow (vph)	227
Shared Lane Traffic (%)	
Lane Group Flow (vph)	227
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	37.0
Total Split (%)	20.6%
Maximum Green (s)	30.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	None
Act Effct Green (s)	111.3
Actuated g/C Ratio	0.62
v/c Ratio	0.23
Control Delay	2.8
Queue Delay	0.0
Total Delay	2.8
LOS	A
Approach Delay	

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach LOS	E			F			C			B		
Queue Length 50th (ft)	220	116	280	184	47	95	209	695			12	578
Queue Length 95th (ft)	274	164	305	240	93	157	m311	m550			m26	498
Internal Link Dist (ft)	343			371			720			1264		
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	319	197	523	477	124	211	534	2112			151	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	211			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.61	0.51	0.74	0.65	0.33	0.42	0.54	0.79			0.28	0.76

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 70 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 33.2

Intersection LOS: C

Intersection Capacity Utilization 77.5%

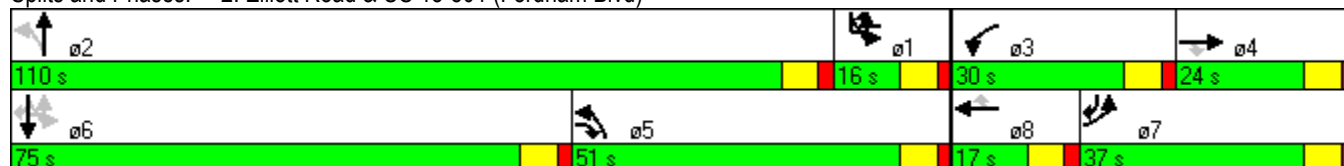
ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Approach LOS	
Queue Length 50th (ft)	22
Queue Length 95th (ft)	m29
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	960
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.24
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	59	44	35	56	16	67	1452	32	33	1413	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.97
Frt		0.936			0.967			0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1736	0	1761	1792	0	1744	3476	0	1744	3489	1561
Flt Permitted	0.390			0.679			0.115			0.066		
Satd. Flow (perm)	730	1736	0	1247	1792	0	211	3476	0	121	3489	1520
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			5	5			1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.93	0.93	0.93	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	321	70	52	44	71	20	72	1561	34	34	1457	330
Shared Lane Traffic (%)												
Lane Group Flow (vph)	321	122	0	44	91	0	72	1595	0	34	1457	330
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	20.0	32.4		30.0	30.0		15.0	104.0		15.0	104.0	104.0
Total Split (s)	31.0	61.0	0.0	30.0	30.0	0.0	15.0	104.0	0.0	15.0	104.0	104.0
Total Split (%)	17.2%	33.9%	0.0%	16.7%	16.7%	0.0%	8.3%	57.8%	0.0%	8.3%	57.8%	57.8%
Maximum Green (s)	24.7	54.6		23.6	23.6		9.0	97.9		9.4	97.9	97.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.0	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.0	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effct Green (s)	46.0	46.0		15.0	15.0		113.8	113.8		109.0	109.0	109.0
Actuated g/C Ratio	0.26	0.26		0.08	0.08		0.63	0.63		0.61	0.61	0.61
v/c Ratio	0.95	0.27		0.42	0.61		0.33	0.73		0.24	0.69	0.36

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	98.3	54.6		89.4	96.1		19.1	17.7		11.6	14.1	11.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.2		0.0	0.3	0.0
Total Delay	98.3	54.6		89.4	96.1		19.1	17.9		11.6	14.5	11.4
LOS	F	D		F	F		B	B		B	B	B
Approach Delay	86.3			93.9			17.9			13.9		
Approach LOS	F			F			B			B		
Queue Length 50th (ft)	348	117		50	106		22	259		9	327	136
Queue Length 95th (ft)	#444	161		83	146		m36	656		m15	395	181
Internal Link Dist (ft)	500			548			408			720		
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	338	540		173	249		219	2198		163	2113	920
Starvation Cap Reductn	0	0		0	0		0	0		0	193	0
Spillback Cap Reductn	0	0		0	0		0	104		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.95	0.23		0.25	0.37		0.33	0.76		0.21	0.76	0.36

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 63 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 26.1

Intersection LOS: C

Intersection Capacity Utilization 81.1%

ICU Level of Service D

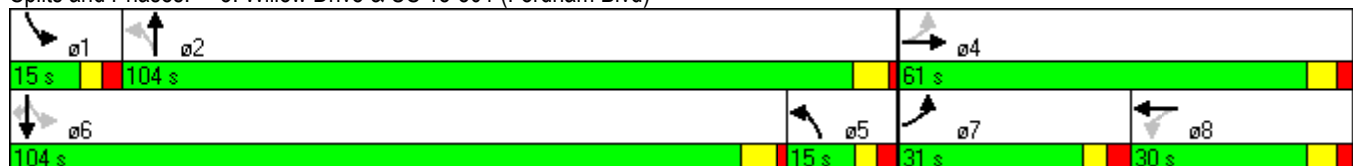
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	131	7	434	5	6	7	7	500	1374	8	16	1330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99			0.99				1.00		1.00	
Frt			0.850		0.949				0.999			
Flt Protected		0.955			0.986			0.950			0.950	
Satd. Flow (prot)	0	1753	2746	0	1647	0	0	3383	3483	0	1761	3522
Flt Permitted		0.955			0.986			0.950			0.950	
Satd. Flow (perm)	0	1735	2746	0	1647	0	0	3383	3483	0	1759	3522
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	7					7				1	1	
Peak Hour Factor	0.85	0.85	0.85	0.75	0.75	0.75	0.96	0.96	0.96	0.96	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	154	8	511	7	8	9	7	521	1431	8	18	1462
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	162	511	0	24	0	0	528	1439	0	18	1462
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	41.0	41.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	24.0	24.0	34.0	41.0	41.0	0.0	34.0	34.0	100.0	0.0	15.0	81.0
Total Split (%)	13.3%	13.3%	18.9%	22.8%	22.8%	0.0%	18.9%	18.9%	55.6%	0.0%	8.3%	45.0%
Maximum Green (s)	17.4	17.4	27.3	34.3	34.3		27.3	27.3	93.9		8.5	74.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	3.0	1.0	1.0		3.0	3.0	6.0		3.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

Lane Group	SBR
Lane Configurations	
Volume (vph)	130
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1576
Flt Permitted	
Satd. Flow (perm)	1576
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	3%
Adj. Flow (vph)	143
Shared Lane Traffic (%)	
Lane Group Flow (vph)	143
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	24.0
Total Split (%)	13.3%
Maximum Green (s)	17.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		18.4	59.4		9.2			39.0	133.9		9.4	98.8
Actuated g/C Ratio		0.10	0.33		0.05			0.22	0.74		0.05	0.55
v/c Ratio		0.91	0.56		0.28			0.72	0.56		0.20	0.76
Control Delay		124.5	45.4		90.6			71.1	13.1		58.8	13.0
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		124.5	45.4		90.6			71.1	13.1		58.8	13.0
LOS		F	D		F			E	B		E	B
Approach Delay		64.5			90.6				28.7			12.7
Approach LOS		E			F				C			B
Queue Length 50th (ft)		192	239		28			301	463		22	506
Queue Length 95th (ft)		#307	256		52			355	547		m30	735
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		185	906		329			734	2591		98	1934
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.88	0.56		0.07			0.72	0.56		0.18	0.76

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 99 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 28.6

Intersection LOS: C

Intersection Capacity Utilization 93.6%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø3	ø4
100 s	15 s	24 s	41 s
			
ø5	ø6		
34 s	81 s		



Lane Group	SBR
Act Effect Green (s)	122.2
Actuated g/C Ratio	0.68
v/c Ratio	0.13
Control Delay	4.4
Queue Delay	0.0
Total Delay	4.4
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	38
Queue Length 95th (ft)	m63
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1076
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.13
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	11	0	0	77	5	1789	9	74	1664	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1031			1593	
Travel Time (s)		7.9			3.4			15.6			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.77	0.98	0.98	0.98	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	16	0	0	100	5	1826	9	86	1935	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	16	0	0	100	5	1826	9	86	1935	21
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	15.0	0.0	0.0	22.0	15.0	98.0	98.0	22.0	105.0	105.0
Total Split (%)	0.0%	0.0%	12.5%	0.0%	0.0%	18.3%	12.5%	81.7%	81.7%	18.3%	87.5%	87.5%
Maximum Green (s)			8.0			15.0	8.0	91.0	91.0	15.0	98.0	98.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.4			14.2	9.4	95.8	95.8	14.2	112.0	112.0
Actuated g/C Ratio			0.08			0.12	0.08	0.80	0.80	0.12	0.93	0.93
v/c Ratio			0.13			0.53	0.04	0.65	0.01	0.41	0.59	0.01
Control Delay			53.7			59.5	45.0	2.6	1.1	54.4	2.7	1.3
Queue Delay			0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay			53.7			59.5	45.0	2.6	1.1	54.4	2.7	1.3
LOS			D			E	D	A	A	D	A	A
Approach Delay								2.7			4.9	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			12			74	3	84	1	62	0	0
Queue Length 95th (ft)			27			108	m6	51	m1	107	240	5
Internal Link Dist (ft)		208			43			951			1513	
Turn Bay Length (ft)							150		150	200		150
Base Capacity (vph)			134			226	146	2798	1252	248	3271	1464
Starvation Cap Reductn			0			0	0	0	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.12			0.44	0.03	0.65	0.01	0.35	0.59	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 5.4

Intersection LOS: A

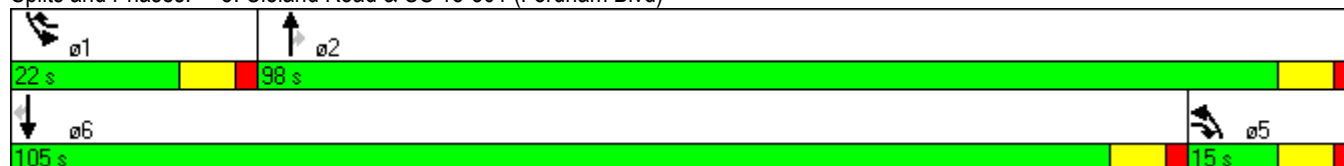
Intersection Capacity Utilization 63.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	0	0	20	0	0	66	59	10	1826	18	43	1615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				802			1006
Travel Time (s)		2.8			2.3				12.2			15.2
Peak Hour Factor	0.53	0.53	0.53	0.61	0.61	0.61	0.95	0.95	0.95	0.95	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	38	0	0	108	62	11	1922	19	47	1755
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	38	0	0	108	0	73	1922	19	47	1755
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	18.0	0.0	0.0	23.0	18.0	18.0	97.0	97.0	23.0	102.0
Total Split (%)	0.0%	0.0%	15.0%	0.0%	0.0%	19.2%	15.0%	15.0%	80.8%	80.8%	19.2%	85.0%
Maximum Green (s)			11.0			16.0	11.0	11.0	90.0	90.0	16.0	95.0
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)	0.0	0.0	2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	9.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			7.6			14.8		11.6	95.2	95.2	14.8	102.2
Actuated g/C Ratio			0.06			0.12		0.10	0.79	0.79	0.12	0.85
v/c Ratio			0.37			0.55		0.43	0.69	0.02	0.22	0.59
Control Delay			63.8			59.4		59.6	4.5	1.9	44.3	4.1
Queue Delay			0.0			0.0		0.0	0.1	0.0	0.0	0.0
Total Delay			63.8			59.4		59.6	4.5	1.9	44.3	4.1
LOS			E			E		E	A	A	D	A
Approach Delay									6.5			5.1
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	3%
Adj. Flow (vph)	5
Shared Lane Traffic (%)	
Lane Group Flow (vph)	5
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	102.0
Total Split (%)	85.0%
Maximum Green (s)	95.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	102.2
Actuated g/C Ratio	0.85
v/c Ratio	0.00
Control Delay	2.2
Queue Delay	0.0
Total Delay	2.2
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			29			79		56	102	2	33	210
Queue Length 95th (ft)			38			89		m84	148	m3	m60	184
Internal Link Dist (ft)		24			5				722			926
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			121			239		190	2779	1243	263	2985
Starvation Cap Reductn			0			0		0	99	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.31			0.45		0.38	0.72	0.02	0.18	0.59

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 7.9

Intersection LOS: A

Intersection Capacity Utilization 72.1%

ICU Level of Service C

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m1
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1335
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.00
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	754	0	0	458	0	1240	25	0	1409	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	887	0	0	545	0	1378	28	0	1468	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	887	0	0	545	0	1378	28	0	1468	170
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	54.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.0	0.0
Total Split (%)	0.0%	0.0%	45.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.0%	0.0%
Maximum Green (s)			48.9								60.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			44.1			120.0		120.0	120.0		65.9	120.0
Actuated g/C Ratio			0.37			1.00		1.00	1.00		0.55	1.00
v/c Ratio			0.88			0.34		0.39	0.02		0.76	0.11
Control Delay			46.4			0.6		0.3	0.0		21.5	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			46.4			0.6		0.3	0.0		21.5	0.1
LOS			D			A		A	A		C	A
Approach Delay								0.3			19.2	
Approach LOS								A			B	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			356			0		0	0		472	0
Queue Length 95th (ft)			393			0		0	m0		457	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1116			1580		3505	1583		1924	1568
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			0.79			0.34		0.39	0.02		0.76	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 95 (79%), Referenced to phase 2:SBT and 6:, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 73.7%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2023 With Site Phase 2 Noon Peak
10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	110	0	1156	0	0	1805	359	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	122	0	1284	0	0	2006	399	0	34
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	122	0	1284	0	0	2006	399	0	34
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 59.9% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		 		 		
Volume (vph)	31	215	99	3	2067	197	1942	21	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1563	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					708		906		
Travel Time (s)					10.7		13.7		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.70	0.77	0.72	0.72	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	44	279	138	4	2297	219	2044	22	11
Shared Lane Traffic (%)									
Lane Group Flow (vph)	44	279	142	0	2297	219	2044	33	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	36.0	17.0	17.0		33.0		25.0	25.0	
Total Split (s)	36.0	17.0	17.0	0.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	30.0%	14.2%	14.2%	0.0%	55.8%	0.0%	55.8%	55.8%	0.0%
Maximum Green (s)	29.0	10.0	10.0		60.0		60.0	60.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lead	Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	10.4	12.0	12.0		94.0	120.0	85.4	85.4	
Actuated g/C Ratio	0.09	0.10	0.10		0.78	1.00	0.71	0.71	
v/c Ratio	0.31	1.75	0.51		0.79	0.14	0.77	0.03	
Control Delay	57.0	396.4	58.4		4.1	0.1	6.2	3.4	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.2	0.0	0.1	0.0	
Total Delay	57.0	396.4	58.4		4.3	0.1	6.3	3.4	
LOS	E	F	E		A	A	A	A	
Approach Delay					3.9		6.3		
Approach LOS					A		A		
Queue Length 50th (ft)	33	~322	60		110	0	108	3	
Queue Length 95th (ft)	54	#404	77		185	m0	299	m6	
Internal Link Dist (ft)					628		826		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	416	159	276		2923	1583	2651	1127	
Starvation Cap Reductn	0	0	0		121	0	73	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.11	1.75	0.51		0.82	0.14	0.79	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 18 (15%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.75

Intersection Signal Delay: 28.5

Intersection LOS: C

Intersection Capacity Utilization 78.9%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 Ø2	 Ø4	 Ø3
67 s	17 s	36 s
 Ø6		
67 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	649	0	106	15	0	21	0	1587	16	0	1467	578
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.998				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1752	0	1568	0	3886	0	0	3471	1553
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1592	1735	0	1568	0	*3811	0	0	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			775	
Travel Time (s)		7.4			14.0			8.8			11.7	
Confl. Peds. (#/hr)			7	7					4	4		
Peak Hour Factor	0.86	1.00	0.86	0.77	1.00	0.77	1.00	0.86	0.86	1.00	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	755	0	123	19	0	27	0	1845	19	0	1612	635
Shared Lane Traffic (%)												
Lane Group Flow (vph)	755	0	123	19	0	27	0	1864	0	0	1612	635
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				19.0			19.0	
Total Split (s)	41.0	0.0	0.0	41.0	0.0	0.0	0.0	79.0	0.0	0.0	79.0	0.0
Total Split (%)	34.2%	0.0%	0.0%	34.2%	0.0%	0.0%	0.0%	65.8%	0.0%	0.0%	65.8%	0.0%
Maximum Green (s)	34.0			34.0				72.0			72.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effct Green (s)	31.1		120.0	31.1		120.0		78.9			78.9	120.0
Actuated g/C Ratio	0.26		1.00	0.26		1.00		0.66			0.66	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.83		0.08	0.04		0.02		0.73			0.71	0.41
Control Delay	50.5		0.1	31.5		0.0		16.3			7.4	0.6
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.2	0.0
Total Delay	50.5		0.1	31.5		0.0		16.3			7.6	0.6
LOS	D		A	C		A		B			A	A
Approach Delay								16.3			5.6	
Approach LOS								B			A	
Queue Length 50th (ft)	284		0	11		0		420			98	0
Queue Length 95th (ft)	320		0	25		0		511			296	0
Internal Link Dist (ft)		302			435			504			695	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	1051		1592	526		1568		2556			2283	1553
Starvation Cap Reductn	0		0	0		0		0			132	0
Spillback Cap Reductn	0		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.72		0.08	0.04		0.02		0.73			0.75	0.41

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 21 (18%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 16.2

Intersection LOS: B

Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 Ø2	 Ø3
79 s	41 s
 Ø6	
79 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	257	35	217	329	350	38	111	125	339	98	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.95	0.99		0.99		0.93		1.00	0.98	1.00	1.00	
Frt		0.982				0.850			0.850		0.990	
Flt Protected	0.950			0.950				0.987		0.950	0.975	
Satd. Flow (prot)	1646	3327	0	1752	1845	1672	0	1965	1538	1625	1933	0
Flt Permitted	0.553			0.351				0.987		0.950	0.975	
Satd. Flow (perm)	914	3327	0	644	1845	1549	0	1960	1513	1623	1932	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	25		5	5		25	10		1	1		10
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.82	0.82	0.82	0.93	0.93	0.93
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	31	321	44	228	346	368	46	135	152	365	105	17
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	31	365	0	228	346	368	0	181	152	241	246	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	23.0	57.0	41.0	32.0	32.0	23.0	41.0	41.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	17.7%	43.8%	31.5%	24.6%	24.6%	17.7%	31.5%	31.5%	0.0%
Maximum Green (s)	26.7	26.7		16.2	49.7	34.3	25.3	25.3	16.2	34.3	34.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-1.8	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.5	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	30.2	30.2		52.0	51.5	79.5		35.5	52.2	27.5	27.5	
Actuated g/C Ratio	0.23	0.23		0.40	0.40	0.61		0.27	0.40	0.21	0.21	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.15	0.47		0.57	0.47	0.38		0.34	0.25	0.70	0.60	
Control Delay	42.8	45.8		33.1	31.9	11.2		42.1	25.4	57.7	51.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.8	45.8		33.1	31.9	11.2		42.1	25.4	57.7	51.6	
LOS	D	D		C	C	B		D	C	E	D	
Approach Delay		45.5			24.1			34.5			54.6	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	21	142		131	214	128		123	77	198	197	
Queue Length 95th (ft)	45	168		198	305	146		188	126	274	269	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	213	774		411	731	1083		536	626	450	535	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.15	0.47		0.55	0.47	0.34		0.34	0.24	0.54	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 36.5

Intersection LOS: D

Intersection Capacity Utilization 66.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
23 s	34 s	41 s	32 s
 ø6			
57 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	777	31	0	760	754	0	0	359	0	0	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	845	34	0	826	820	0	0	390	0	0	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	845	34	0	826	820	0	0	390	0	0	177
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 50.4%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2023 With Site Phase 2 Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1124	1495	458	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	0.90	0.90	0.86	0.86	0.90	0.85
Adj. Flow (vph)	0	1249	1738	533	0	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1249	1738	533	0	29
Sign Control		Free	Free		Stop	

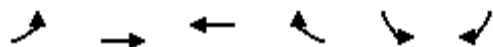
Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.9% ICU Level of Service A

Analysis Period (min) 15



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1896	1856	45	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	4940	4988	1553	0	1315
Flt Permitted						
Satd. Flow (perm)	0	4940	4988	1553	0	1315
Link Speed (mph)		45	45		25	
Link Distance (ft)		218	553		229	
Travel Time (s)		3.3	8.4		6.2	
Peak Hour Factor	1.00	0.97	0.95	0.95	1.00	0.44
Heavy Vehicles (%)	5%	5%	4%	4%	25%	25%
Adj. Flow (vph)	0	1955	1954	47	0	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1955	1954	47	0	111
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 45.9% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	34	159	1511	41	105	1550	210	161	19	90	226	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	250	
Storage Lanes		1		0	1		1	1		1	1	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00				0.98	1.00		0.98	0.99	0.98
Frt			0.996				0.850			0.850		0.863
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1741	4963	0	1752	5036	1568	1752	1845	1568	1736	1549
Flt Permitted		0.950			0.089			0.393			0.743	
Satd. Flow (perm)	0	1741	4963	0	164	5036	1531	722	1845	1537	1347	1549
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			553			576			537			463
Travel Time (s)			8.4			8.7			14.6			12.6
Confl. Peds. (#/hr)		1		3	3		1	5		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82
Heavy Vehicles (%)	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%	4%	4%
Adj. Flow (vph)	37	181	1717	47	114	1685	228	185	22	103	276	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	218	1764	0	114	1685	228	185	22	103	276	255
Turn Type	Prot	Prot			pm+pt		Perm	Perm		pm+ov	Perm	
Protected Phases	5	5	2		1	6			8	1		4
Permitted Phases					6		6	8		8	4	
Detector Phase	5	5	2		1	6	6	8	8	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	13.0	28.0		29.0	26.0	26.0	41.0	41.0	29.0	39.0	39.0
Total Split (s)	24.0	24.0	73.0	0.0	29.0	78.0	78.0	48.0	48.0	29.0	48.0	48.0
Total Split (%)	16.0%	16.0%	48.7%	0.0%	19.3%	52.0%	52.0%	32.0%	32.0%	19.3%	32.0%	32.0%
Maximum Green (s)	18.4	18.4	67.4		23.6	72.1	72.1	41.6	41.6	23.6	41.5	41.5
Yellow Time (s)	3.0	3.0	3.8		3.0	4.1	4.1	3.1	3.1	3.0	3.2	3.2
All-Red Time (s)	2.6	2.6	1.8		2.4	1.8	1.8	3.3	3.3	2.4	3.3	3.3
Lost Time Adjust (s)	0.0	-0.6	-0.6	0.0	-0.4	-0.9	-0.9	-1.4	-1.4	-0.4	-1.5	-1.5
Total Lost Time (s)	5.6	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Vehicle Extension (s)	1.0	1.0	3.0		1.0	3.0	3.0	1.0	1.0	1.0	1.0	1.0
Recall Mode	None	None	C-Max		None	C-Max	C-Max	None	None	None	None	None
Walk Time (s)			7.0			7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)			12.0			13.0	13.0	27.0	27.0		25.0	25.0
Pedestrian Calls (#/hr)			0			0	0	0	0		0	0
Act Effct Green (s)		20.7	86.2		86.0	75.8	75.8	38.6	38.6	48.8	38.6	38.6
Actuated g/C Ratio		0.14	0.57		0.57	0.51	0.51	0.26	0.26	0.33	0.26	0.26
v/c Ratio		0.91	0.62		0.56	0.66	0.29	0.99	0.05	0.21	0.80	0.64
Control Delay		101.3	23.4		41.8	15.3	10.5	119.1	39.5	32.2	68.8	56.7

Lane Group	SBR
Lane Configurations	
Volume (vph)	191
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Peak Hour Factor	0.82
Heavy Vehicles (%)	4%
Adj. Flow (vph)	233
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		101.3	23.4		41.8	15.3	10.5	119.1	39.5	32.2	68.8	56.7
LOS		F	C		D	B	B	F	D	C	E	E
Approach Delay			32.0			16.3			84.6			63.0
Approach LOS			C			B			F			E
Queue Length 50th (ft)		216	427		35	549	56	175	16	66	244	214
Queue Length 95th (ft)		#379	504		105	108	51	#311	38	101	314	278
Internal Link Dist (ft)			473			496			457			383
Turn Bay Length (ft)		300			250		150	150		150	250	
Base Capacity (vph)		240	2852		363	2544	773	207	529	646	386	444
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.91	0.62		0.31	0.66	0.29	0.89	0.04	0.16	0.72	0.57

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 63 (42%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 32.2

Intersection LOS: C

Intersection Capacity Utilization 81.5%

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: 16: NC 54 (Raleigh Road) & Hamilton Road

 ø1	 ø2	 ø4
29 s	73 s	48 s
 ø5	 ø6	 ø8
24 s	78 s	48 s



Lane Group	SBR
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	1827	46	81	1815	16	32	6	144	26	9	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.996			0.999				0.850		0.930	
Flt Protected	0.950			0.950				0.959			0.982	
Satd. Flow (prot)	1736	4964	0	1752	5029	0	0	1752	1553	0	1524	0
Flt Permitted	0.082			0.051				0.681			0.875	
Satd. Flow (perm)	150	4964	0	94	5029	0	0	1242	1553	0	1358	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	5		3	3		5	2					2
Peak Hour Factor	0.85	0.85	0.85	0.96	0.96	0.96	0.83	0.83	0.83	0.74	0.74	0.74
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Adj. Flow (vph)	48	2149	54	84	1891	17	39	7	173	35	12	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	2203	0	84	1908	0	0	46	173	0	97	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	86.0	0.0	15.0	88.0	0.0	49.0	49.0	49.0	49.0	49.0	0.0
Total Split (%)	8.7%	57.3%	0.0%	10.0%	58.7%	0.0%	32.7%	32.7%	32.7%	32.7%	32.7%	0.0%
Maximum Green (s)	7.1	79.8		9.1	81.8		42.8	42.8	42.8	42.7	42.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	113.5	103.1		112.5	107.1			22.5	22.5		22.5	
Actuated g/C Ratio	0.76	0.69		0.75	0.71			0.15	0.15		0.15	
v/c Ratio	0.24	0.65		0.48	0.53			0.25	0.74		0.48	
Control Delay	8.4	8.7		36.9	6.2			57.2	79.3		64.8	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.1			0.0	0.0		0.0	
Total Delay	8.4	8.7		36.9	6.4			57.2	79.3		64.8	
LOS	A	A		D	A			E	E		E	
Approach Delay		8.7			7.7			74.7			64.8	
Approach LOS		A			A			E			E	
Queue Length 50th (ft)	7	206		19	358			40	164		88	
Queue Length 95th (ft)	m13	215		m60	186			71	215		113	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	198	3411		189	3592			364	456		398	
Starvation Cap Reductn	0	0		0	559			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.24	0.65		0.44	0.63			0.13	0.38		0.24	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 67 (45%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 67.0%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive

		
ø2	ø1	ø4
88 s	13 s	49 s
		
ø5	ø6	ø8
15 s	86 s	49 s

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	178	1615	32	16	1637	17	46	7	33	16	6	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98		0.99		1.00		
Frt			0.850			0.850		0.876			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	4988	1553	1736	4988	1553	1770	1610	0	1736	1562	0
Flt Permitted	0.094			0.111			0.347			0.713		
Satd. Flow (perm)	169	4988	1553	203	4988	1514	646	1610	0	1297	1562	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	4					4			3	3		
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.59	0.59	0.59	0.86	0.86	0.86
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	185	1682	33	17	1723	18	78	12	56	19	7	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	185	1682	33	17	1723	18	78	68	0	19	202	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	44.0	44.0	14.0	44.0	44.0	14.0	14.0		15.0	15.0	
Total Split (s)	25.0	102.0	102.0	14.0	64.0	64.0	34.0	34.0	0.0	34.0	34.0	0.0
Total Split (%)	16.7%	68.0%	68.0%	9.3%	42.7%	42.7%	22.7%	22.7%	0.0%	22.7%	22.7%	0.0%
Maximum Green (s)	18.7	95.7	95.7	7.7	57.7	57.7	27.2	27.2		26.7	26.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lag	Lead	Lead	Lag								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)	110.8	110.2	110.2	113.8	94.2	94.2	24.2	24.2		24.2	24.2	
Actuated g/C Ratio	0.74	0.73	0.73	0.76	0.63	0.63	0.16	0.16		0.16	0.16	
v/c Ratio	0.62	0.46	0.03	0.07	0.55	0.02	0.75	0.26		0.09	0.80	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	18%
Maximum Green (s)	23.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	25.4	16.7	12.0	3.2	7.7	6.6	98.3	56.1		52.1	83.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	25.4	16.7	12.0	3.2	7.7	6.6	98.3	56.1		52.1	83.2	
LOS	C	B	B	A	A	A	F	E		D	F	
Approach Delay		17.5			7.7			78.6			80.5	
Approach LOS		B			A			E			F	
Queue Length 50th (ft)	103	352	14	2	140	3	73	59		16	192	
Queue Length 95th (ft)	202	541	m29	m3	142	m6	81	66		38	264	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	341	3665	1141	246	3131	950	125	311		251	302	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.54	0.46	0.03	0.07	0.55	0.02	0.62	0.22		0.08	0.67	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 37 (25%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 18.9 Intersection LOS: B
 Intersection Capacity Utilization 74.7% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø2	 ø1	 ø4
102 s	14 s	34 s
 ø10	 ø5	 ø6
27 s	25 s	64 s
		 ø8
		34 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	1480	77	74	1392	75	76	35	121	141	26	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00		0.99	1.00	1.00				
Frt			0.850			0.850		0.926	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.995		0.950		
Satd. Flow (prot)	3401	5037	1568	3350	4963	1545	1648	1531	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.995		0.950		
Satd. Flow (perm)	3400	5037	1520	3338	4963	1524	1645	1531	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	1		12	12		1	1					1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.65	0.65	0.65	0.83	0.83	0.83
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	145	1591	83	77	1450	78	117	54	186	170	31	216
Shared Lane Traffic (%)							10%		35%			
Lane Group Flow (vph)	145	1591	83	77	1450	78	105	131	121	170	31	216
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	42.0	15.0	15.0	42.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	18.0	72.0	31.0	17.0	71.0	30.0	31.0	31.0	48.0	30.0	30.0	48.0
Total Split (%)	12.0%	48.0%	20.7%	11.3%	47.3%	20.0%	20.7%	20.7%	32.0%	20.0%	20.0%	32.0%
Maximum Green (s)	10.8	65.4	23.9	9.9	64.5	22.7	23.9	23.9		22.7	22.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	13.0	84.9	103.4	12.0	83.9	98.5	18.5	18.5	35.5	14.6	14.6	27.6
Actuated g/C Ratio	0.09	0.57	0.69	0.08	0.56	0.66	0.12	0.12	0.24	0.10	0.10	0.18
v/c Ratio	0.49	0.56	0.08	0.29	0.52	0.08	0.52	0.70	0.35	0.50	0.17	0.73

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	70.4	15.6	2.2	64.7	12.2	4.5	69.5	81.2	49.4	68.4	61.8	54.5
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	70.4	15.6	2.2	64.7	12.2	4.5	69.5	81.2	49.4	68.4	61.8	54.5
LOS	E	B	A	E	B	A	E	F	D	E	E	D
Approach Delay	19.4			14.3			67.0			60.7		
Approach LOS	B			B			E			E		
Queue Length 50th (ft)	71	215	9	37	130	18	103	137	104	84	29	155
Queue Length 95th (ft)	116	131	6	71	323	20	113	143	111	106	55	169
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	295	2851	1132	268	2776	1051	286	265	423	581	315	407
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	0.56	0.07	0.29	0.52	0.07	0.37	0.49	0.29	0.29	0.10	0.53

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 8 (5%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 25.6

Intersection LOS: C

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø4	 ø3
72 s	17 s	31 s	30 s
 ø6	 ø5		
71 s	18 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	11	1515	245	41	1360	113	181	55	60	100	44	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96				1.00	1.00			1.00	
Frt			0.850			0.850		0.938			0.971	
Flt Protected	0.950			0.950			0.950	0.990		0.950	0.988	
Satd. Flow (prot)	1727	4363	1545	1761	5061	1576	1656	1619	0	1648	1660	0
Flt Permitted	0.134			0.069			0.950	0.990		0.950	0.988	
Satd. Flow (perm)	244	4363	1490	128	5061	1576	1654	1619	0	1648	1660	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	12	1612	261	43	1432	119	197	60	65	111	49	17
Shared Lane Traffic (%)							17%			20%		
Lane Group Flow (vph)	12	1612	261	43	1432	119	164	158	0	89	88	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	27.0	15.0	14.0	29.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	14.0	80.0	33.0	14.0	80.0	23.0	33.0	33.0	0.0	23.0	23.0	0.0
Total Split (%)	9.3%	53.3%	22.0%	9.3%	53.3%	15.3%	22.0%	22.0%	0.0%	15.3%	15.3%	0.0%
Maximum Green (s)	7.2	72.5	25.8	7.0	72.5	15.8	25.8	25.8		15.8	15.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	1.8	5.0	5.0	1.8
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	96.4	87.2	109.5	94.4	92.8	112.1	22.3	22.3		14.3	14.3	
Actuated g/C Ratio	0.64	0.58	0.73	0.63	0.62	0.75	0.15	0.15		0.10	0.10	
v/c Ratio	0.05	0.64	0.24	0.24	0.46	0.10	0.66	0.66		0.57	0.56	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	4.0	6.4	2.2	14.5	17.9	7.1	72.9	72.6		78.4	77.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	4.0	6.4	2.2	14.5	17.9	7.1	72.9	72.6		78.4	77.7	
LOS	A	A	A	B	B	A	E	E		E	E	
Approach Delay		5.8			17.0			72.7			78.1	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	1	130	28	14	238	24	161	154		89	88	
Queue Length 95th (ft)	m3	157	36	35	397	67	237	230		150	149	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	246	2537	1154	179	3131	1166	309	302		198	199	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	0.64	0.23	0.24	0.46	0.10	0.53	0.52		0.45	0.44	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 2 (1%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 18.9

Intersection LOS: B

Intersection Capacity Utilization 57.4%

ICU Level of Service B

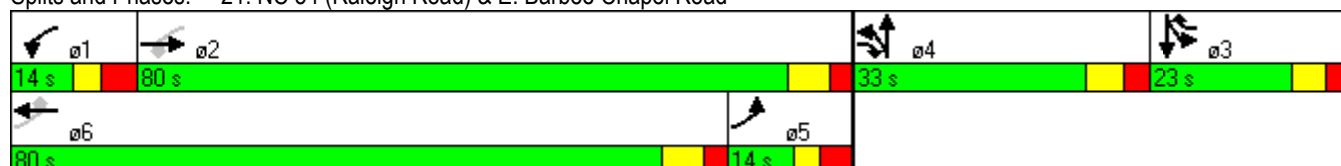
Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road



Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	309	33	214	330	253	52	626	185	144	506	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.97	0.99	0.99				0.96
Frt		0.985				0.850		0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	1814	0	1719	1810	1538	1736	3333	0	1752	3505	1568
Flt Permitted	0.950			0.950			0.402			0.171		
Satd. Flow (perm)	3183	1814	0	1714	1810	1498	729	3333	0	315	3505	1501
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	8		3	3		8	5		10	10		5
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Parking (#/hr)	0											
Adj. Flow (vph)	373	351	38	238	367	281	54	652	193	155	544	287
Shared Lane Traffic (%)												
Lane Group Flow (vph)	373	389	0	238	367	281	54	845	0	155	544	287
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	29.0	46.0	0.0	32.0	49.0	19.0	15.0	53.0	0.0	19.0	57.0	29.0
Total Split (%)	19.3%	30.7%	0.0%	21.3%	32.7%	12.7%	10.0%	35.3%	0.0%	12.7%	38.0%	19.3%
Maximum Green (s)	23.1	40.1		26.4	43.4	13.1	8.8	47.3		13.1	51.6	23.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	25.1	36.2		24.1	35.3	47.8	65.6	57.1		74.2	63.8	88.8
Actuated g/C Ratio	0.17	0.24		0.16	0.24	0.32	0.44	0.38		0.49	0.43	0.59
v/c Ratio	0.69	0.89		0.86	0.86	0.58	0.14	0.67		0.56	0.37	0.32

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	66.0	77.0		87.0	66.3	27.2	23.5	43.7		30.9	32.6	11.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	66.0	77.0		87.0	66.3	27.2	23.5	43.7		30.9	32.6	11.6
LOS	E	E		F	E	C	C	D		C	C	B
Approach Delay		71.6			59.5			42.5			26.3	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)	174	366		222	316	125	28	379		86	202	97
Queue Length 95th (ft)	234	470		#352	389	172	58	480		142	272	168
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	558	496		309	531	496	393	1269		291	1490	909
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.67	0.78		0.77	0.69	0.57	0.14	0.67		0.53	0.37	0.32

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 10 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 48.5

Intersection LOS: D

Intersection Capacity Utilization 81.2%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 22: Estes Drive & E. Franklin Street

			
ø1	ø2	ø3	ø4
19 s	53 s	32 s	46 s
			
ø5	ø6	ø8	ø7
15 s	57 s	49 s	29 s

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	226	382	6	5	392	48	8	5	7	84	10	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.998			0.984			0.951				0.850
Flt Protected	0.950			0.950				0.980			0.957	
Satd. Flow (prot)	1719	3430	0	1736	3402	0	0	1657	0	0	1732	1538
Flt Permitted	0.407			0.491				0.845			0.732	
Satd. Flow (perm)	732	3430	0	891	3402	0	0	1428	0	0	1313	1518
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		6	6		8	2		10	10		2
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	5%	5%	5%
Adj. Flow (vph)	263	444	7	5	431	53	9	5	8	88	10	358
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	451	0	5	484	0	0	22	0	0	98	358
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	20.0	46.0	0.0	26.0	26.0	0.0	29.0	29.0	0.0	29.0	29.0	20.0
Total Split (%)	26.7%	61.3%	0.0%	34.7%	34.7%	0.0%	38.7%	38.7%	0.0%	38.7%	38.7%	26.7%
Maximum Green (s)	14.9	40.9		20.8	20.8		23.3	23.3		23.2	23.2	14.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	57.2	58.2		38.9	38.9			10.3			10.4	22.1
Actuated g/C Ratio	0.76	0.78		0.52	0.52			0.14			0.14	0.29
v/c Ratio	0.36	0.17		0.01	0.27			0.11			0.54	0.80
Control Delay	2.9	1.9		13.0	12.4			27.9			40.6	34.4
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	2.9	1.9		13.0	12.4			27.9			40.6	34.4
LOS	A	A		B	B			C			D	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 With Site Phase 2 Noon Peak
10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		2.3			12.4			27.9			35.7	
Approach LOS		A			B			C			D	
Queue Length 50th (ft)	15	13		1	64			9			44	136
Queue Length 95th (ft)	m62	48		8	120			27			84	179
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	759	2662		463	1766			457			420	491
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.35	0.17		0.01	0.27			0.05			0.23	0.73

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 14.6

Intersection LOS: B

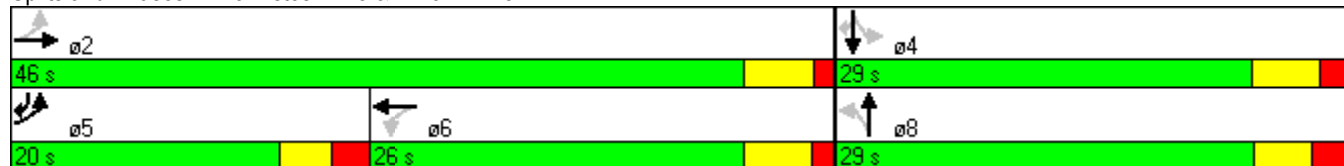
Intersection Capacity Utilization 57.8%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2023 With Site Phase 2 Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	73	7	2	56	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1805	0	0	1823	1770	0
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1805	0	0	1823	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.79	0.79	0.71	0.71	0.46	0.46
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	92	9	3	79	4	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	0	82	4	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.6%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	44	9	1	35	2	9	0	2	3	2	3
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			0.992			0.979			0.951	
Flt Protected		0.996			0.999			0.959			0.982	
Satd. Flow (prot)	0	1700	0	0	1828	0	0	1749	0	0	1740	0
Flt Permitted		0.996			0.999			0.959			0.982	
Satd. Flow (perm)	0	1700	0	0	1828	0	0	1749	0	0	1740	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.83	0.83	0.83	0.67	0.67	0.67
Heavy Vehicles (%)	9%	9%	9%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	7	63	13	1	47	3	11	0	2	4	3	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	51	0	0	13	0	0	11	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.3% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Volume (vph)	0	174	1748	100	15	122	1519
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	717		659				802
Travel Time (s)	19.6		10.0				12.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	193	1942	111	17	136	1688
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	193	1942	111	0	153	1688
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	21.0	99.0	99.0	21.0	21.0	120.0
Total Split (%)	0.0%	17.5%	82.5%	82.5%	17.5%	17.5%	100.0%
Maximum Green (s)		14.0	92.0	92.0	14.0	14.0	113.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		16.0	94.0	94.0		16.0	120.0
Actuated g/C Ratio		0.13	0.78	0.78		0.13	1.00
v/c Ratio		0.52	0.70	0.09		0.33	0.48
Control Delay		54.0	6.2	2.5		46.2	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		54.0	6.2	2.5		46.2	0.4
LOS		D	A	A		D	A
Approach Delay			6.0				4.2
Approach LOS			A				A
Queue Length 50th (ft)		80	227	12		57	0

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		123	258	21		91	0
Internal Link Dist (ft)	637		579				722
Turn Bay Length (ft)						300	
Base Capacity (vph)		372	2772	1240		458	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	0	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.52	0.70	0.09		0.33	0.48

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 57 (48%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 72.7%

ICU Level of Service C

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
99 s	21 s
 ø6	
120 s	

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2023 With Site Phase 2 Noon Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Volume (vph)	0	0	0	1836	1156	882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	667		536		1201	
Travel Time (s)	15.2		8.1		18.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	2040	1284	980
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2040	1284	980
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 67.6% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
46: NC 54 EB Off Ramp &

2023 With Site Phase 2 Noon Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	882	0	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			667	476	
Travel Time (s)	4.7			15.2	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	980	0	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	980	0	122
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	49.8%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	8	0	1884	0	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		74			78				1006			
Travel Time (s)		1.7			1.8				15.2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	9	0	2093	0	7	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	9	0	2093	0	7	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	101.0	0.0	19.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	0.0%	84.2%	0.0%	15.8%	0.0%
Maximum Green (s)							7.0		94.0		12.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		116.2		9.0	
Actuated g/C Ratio							0.08		0.97		0.08	
v/c Ratio							0.07		0.61		0.05	
Control Delay							56.1		0.9		48.5	
Queue Delay							0.0		0.0		0.0	
Total Delay							56.1		0.9		48.5	
LOS							E		A		D	
Approach Delay									1.1			
Approach LOS									A			
Queue Length 50th (ft)							7		3		5	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1669	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1031	
Travel Time (s)	15.6	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	1854	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1854	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	106.0	0.0
Total Split (%)	88.3%	0.0%
Maximum Green (s)	99.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	116.2	
Actuated g/C Ratio	0.97	
v/c Ratio	0.54	
Control Delay	0.9	
Queue Delay	0.0	
Total Delay	0.9	
LOS	A	
Approach Delay	1.1	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m11		68		m9	
Internal Link Dist (ft)		1			1				926			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							133		3426		207	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.07		0.61		0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 74 (62%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 1.1

Intersection LOS: A

Intersection Capacity Utilization 56.2%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	
ø1	ø2
19 s	101 s
	
ø5	ø6
14 s	106 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	101	
Internal Link Dist (ft)	951	
Turn Bay Length (ft)		
Base Capacity (vph)	3427	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.54	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬅		↕		⬅	
Volume (vph)	0	0	0	0	0	0	119	0	2119	0	88	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		130			153				775			
Travel Time (s)		3.0			3.5				11.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	132	0	2354	0	98	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	132	0	2354	0	98	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	21.0	0.0	102.0	0.0	18.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.5%	0.0%	85.0%	0.0%	15.0%	0.0%
Maximum Green (s)							14.0		95.0		11.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lead		Lag	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							14.6		97.0		13.0	
Actuated g/C Ratio							0.12		0.81		0.11	
v/c Ratio							0.61		0.82		0.51	
Control Delay							62.0		6.0		53.6	
Queue Delay							0.0		0.1		0.0	
Total Delay							62.0		6.0		53.6	
LOS							E		A		D	
Approach Delay									9.0			
Approach LOS									A			
Queue Length 50th (ft)							97		145		76	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	1984	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	708	
Travel Time (s)	10.7	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2204	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2204	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	99.0	0.0
Total Split (%)	82.5%	0.0%
Maximum Green (s)	92.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	95.4	
Actuated g/C Ratio	0.80	
v/c Ratio	0.71	
Control Delay	2.0	
Queue Delay	0.2	
Total Delay	2.2	
LOS	A	
Approach Delay	4.4	
Approach LOS	A	
Queue Length 50th (ft)	29	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m138		334		m106	
Internal Link Dist (ft)		50			73				695			
Turn Bay Length (ft)											250	
Base Capacity (vph)							236		2861		192	
Starvation Cap Reductn							0		25		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.56		0.83		0.51	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 7 (6%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 6.8

Intersection LOS: A

Intersection Capacity Utilization 72.7%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø2	 ø1
102 s	18 s
 ø5	 ø6
21 s	99 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	49	
Internal Link Dist (ft)	628	
Turn Bay Length (ft)		
Base Capacity (vph)	3111	
Starvation Cap Reductn	260	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.77	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	0	0	174	29	2038	1836	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Frt							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	195				906	1201	
Travel Time (s)	5.3				13.7	18.2	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	193	32	2264	2040	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	225	2264	2040	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	30.0	30.0	120.0	90.0	0.0
Total Split (%)	0.0%	0.0%	25.0%	25.0%	100.0%	75.0%	0.0%
Maximum Green (s)			23.0	23.0	113.0	83.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effct Green (s)				21.5	120.0	88.5	
Actuated g/C Ratio				0.18	1.00	0.74	
v/c Ratio				0.71	0.64	0.78	
Control Delay				52.2	0.4	9.2	
Queue Delay				0.0	0.0	0.0	
Total Delay				52.2	0.4	9.2	
LOS				D	A	A	
Approach Delay					5.1	9.2	
Approach LOS					A	A	
Queue Length 50th (ft)				173	0	351	
Queue Length 95th (ft)				m205	m0	381	
Internal Link Dist (ft)	115				826	1121	
Turn Bay Length (ft)							

Lanes, Volumes, Timings
 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 Noon Peak
 10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Base Capacity (vph)				369	3539	2611	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	9	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.61	0.64	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 6.9

Intersection LOS: A

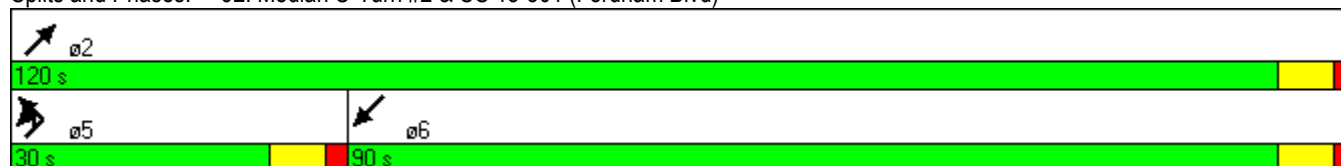
Intersection Capacity Utilization 70.3%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2023 With Site Phase 2 Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1014	110	0	1953	0	882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			218	476	
Travel Time (s)	1.4			3.3	9.3	
Peak Hour Factor	0.84	0.84	0.90	0.90	0.90	0.97
Adj. Flow (vph)	1207	131	0	2170	0	909
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1207	131	0	2170	0	909
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	89.3%			ICU Level of Service E		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	96	131	81	316	103	63	170	1480	3	131	1294	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97				0.98							
Frt		0.943			0.943						0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1690	0	3302	1718	0	1761	3522	0	1719	3550	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1657	1690	0	3302	1718	0	1761	3522	0	1719	3550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	17					17						
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	102	139	86	333	108	66	179	1558	3	139	1377	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	225	0	333	174	0	179	1561	0	139	1395	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		15.0	68.0	
Total Split (s)	33.0	33.0	0.0	35.0	35.0	0.0	27.0	89.0	0.0	23.0	85.0	0.0
Total Split (%)	18.3%	18.3%	0.0%	19.4%	19.4%	0.0%	15.0%	49.4%	0.0%	12.8%	47.2%	0.0%
Maximum Green (s)	26.7	26.7		29.2	29.2		20.8	83.2		16.7	79.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	26.7	26.7		23.8	23.8		22.0	91.4		18.1	87.5	
Actuated g/C Ratio	0.15	0.15		0.13	0.13		0.12	0.51		0.10	0.49	
v/c Ratio	0.40	0.90		0.76	0.77		0.83	0.87		0.80	0.81	
Control Delay	74.2	109.9		86.9	96.6		79.0	29.9		109.4	44.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	74.2	109.9		86.9	96.6		79.0	29.9		109.4	44.7	
LOS	E	F		F	F		E	C		F	D	
Approach Delay		98.8			90.2			35.0			50.5	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	110	263		199	202		202	679		161	735	
Queue Length 95th (ft)	177	#417		247	284		m238	#1031		#286	895	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	265	263		550	286		215	1789		183	1727	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.38	0.86		0.61	0.61		0.83	0.87		0.76	0.81	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 58 (32%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 52.7

Intersection LOS: D

Intersection Capacity Utilization 86.1%

ICU Level of Service E

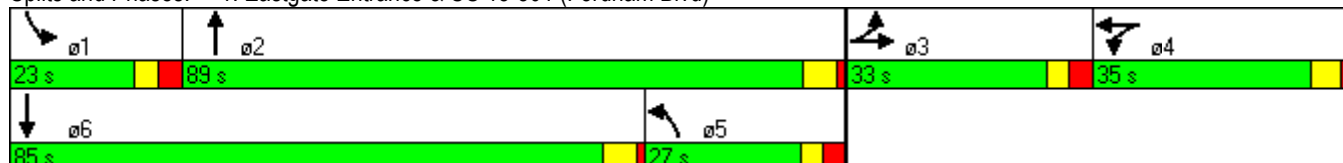
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	161	86	290	294	46	72	234	1624	301	14	31	1407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.977				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1770	3458	0	0	1770	3539
Flt Permitted	0.950			0.950			0.052				0.044	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	97	3458	0	0	82	3539
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45				45
Link Distance (ft)		423			542			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Confl. Peds. (#/hr)							3					
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	169	91	305	327	51	80	249	1728	320	15	34	1529
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	91	305	327	51	80	249	2048	0	0	49	1529
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	19.0		14.0	14.0	19.0
Total Split (s)	30.0	19.0	38.0	27.0	16.0	14.0	38.0	120.0	0.0	14.0	14.0	96.0
Total Split (%)	16.7%	10.6%	21.1%	15.0%	8.9%	7.8%	21.1%	66.7%	0.0%	7.8%	7.8%	53.3%
Maximum Green (s)	23.0	12.0	31.0	20.0	9.0	7.0	31.0	113.0		7.0	7.0	89.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	24.9	12.6	45.6	21.4	11.9	19.1	131.0	117.0			102.0	93.0
Actuated g/C Ratio	0.14	0.07	0.25	0.12	0.07	0.11	0.73	0.65			0.57	0.52
v/c Ratio	0.69	0.69	0.79	0.80	0.41	0.48	0.66	0.91			0.37	0.84
Control Delay	89.9	108.3	55.6	92.3	91.2	63.4	54.3	16.6			32.7	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8			0.0	0.2
Total Delay	89.9	108.3	55.6	92.3	91.2	63.4	54.3	18.4			32.7	15.5
LOS	F	F	E	F	F	E	D	B			C	B

Lane Group	SBR
Lane Configurations	
Volume (vph)	215
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1548
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	3
Peak Hour Factor	0.92
Adj. Flow (vph)	234
Shared Lane Traffic (%)	
Lane Group Flow (vph)	234
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	16.7%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	117.9
Actuated g/C Ratio	0.66
v/c Ratio	0.23
Control Delay	3.9
Queue Delay	0.0
Total Delay	3.9
LOS	A

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach Delay		74.4			87.1			22.3				14.5
Approach LOS		E			F			C				B
Queue Length 50th (ft)	197	106	251	196	58	70	234	1014			11	306
Queue Length 95th (ft)	286	#175	345	256	112	118	m290	630			m30	389
Internal Link Dist (ft)		343			462			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	262	145	388	420	128	168	377	2247			131	1828
Starvation Cap Reductn	0	0	0	0	0	0	0	95			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	27
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.65	0.63	0.79	0.78	0.40	0.48	0.66	0.95			0.37	0.85

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 33 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 31.1

Intersection LOS: C

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø3	 ø4
120 s	14 s	27 s	19 s
 ø6	 ø5	 ø7	 ø8
96 s	38 s	30 s	16 s



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	29
Queue Length 95th (ft)	m40
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1033
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.23
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	194	67	34	53	63	26	50	1763	55	48	1664	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.96
Frt		0.949			0.956			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1764	0	1744	1755	0	1778	3537	0	1778	3557	1591
Flt Permitted	0.360			0.681			0.061			0.034		
Satd. Flow (perm)	674	1764	0	1241	1755	0	114	3537	0	64	3557	1529
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			4	4			3		1	1		3
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	226	78	40	60	72	30	55	1937	60	51	1770	280
Shared Lane Traffic (%)												
Lane Group Flow (vph)	226	118	0	60	102	0	55	1997	0	51	1770	280
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		14.0	14.0		15.0	19.0		15.0	19.0	19.0
Total Split (s)	24.0	48.0	0.0	24.0	24.0	0.0	15.0	117.0	0.0	15.0	117.0	117.0
Total Split (%)	13.3%	26.7%	0.0%	13.3%	13.3%	0.0%	8.3%	65.0%	0.0%	8.3%	65.0%	65.0%
Maximum Green (s)	17.7	41.6		17.6	17.6		8.9	110.9		9.4	110.9	110.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		2									2	2
Act Effect Green (s)	41.1	41.1		15.7	15.7		126.5	118.0		126.4	118.0	118.0
Actuated g/C Ratio	0.23	0.23		0.09	0.09		0.70	0.66		0.70	0.66	0.66
v/c Ratio	0.81	0.29		0.56	0.67		0.35	0.86		0.41	0.76	0.28

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	83.1	59.0		97.4	100.1		13.5	16.8		39.3	12.6	8.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	1.5		0.0	0.7	0.0
Total Delay	83.1	59.0		97.4	100.1		13.5	18.3		39.3	13.2	8.5
LOS	F	E		F	F		B	B		D	B	A
Approach Delay		74.8			99.1			18.2			13.2	
Approach LOS		E			F			B			B	
Queue Length 50th (ft)	237	116		69	119		9	283		15	341	90
Queue Length 95th (ft)	#333	171		121	183		m12	m301		m26	461	m112
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	280	424		131	185		174	2319		141	2332	1002
Starvation Cap Reductn	0	0		0	0		0	0		0	242	0
Spillback Cap Reductn	0	0		0	0		0	167		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.81	0.28		0.46	0.55		0.32	0.93		0.36	0.85	0.28

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 26 (14%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 23.0

Intersection LOS: C

Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø4
117 s	15 s	48 s
 ø6	 ø5	 ø7
117 s	15 s	24 s
		 ø8
		24 s

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	137	15	463	8	10	19	5	567	1843	8	19	1664
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.98			0.98							
Frt			0.850		0.931				0.999			
Flt Protected		0.957			0.989			0.950			0.950	
Satd. Flow (prot)	0	1774	2773	0	1625	0	0	3416	3518	0	1778	3557
Flt Permitted		0.957			0.989			0.950			0.950	
Satd. Flow (perm)	0	1745	2773	0	1625	0	0	3416	3518	0	1778	3557
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	12					12						
Peak Hour Factor	0.92	0.92	0.92	0.75	0.75	0.75	0.98	0.98	0.98	0.98	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	16	503	11	13	25	5	579	1881	8	20	1715
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	165	503	0	49	0	0	584	1889	0	20	1715
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	42.0	42.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	21.0	21.0	32.0	42.0	42.0	0.0	32.0	32.0	102.0	0.0	15.0	85.0
Total Split (%)	11.7%	11.7%	17.8%	23.3%	23.3%	0.0%	17.8%	17.8%	56.7%	0.0%	8.3%	47.2%
Maximum Green (s)	14.4	14.4	25.3	35.3	35.3		25.3	25.3	95.9		8.5	78.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lane Group	SBR
Lane Configurations	
Volume (vph)	112
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1591
Flt Permitted	
Satd. Flow (perm)	1591
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.97
Heavy Vehicles (%)	2%
Adj. Flow (vph)	115
Shared Lane Traffic (%)	
Lane Group Flow (vph)	115
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	21.0
Total Split (%)	11.7%
Maximum Green (s)	14.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	1.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		16.0	62.8		11.2			45.8	131.6		9.4	89.8
Actuated g/C Ratio		0.09	0.35		0.06			0.25	0.73		0.05	0.50
v/c Ratio		1.04	0.52		0.49			0.67	0.73		0.22	0.97
Control Delay		158.6	41.1		96.9			65.3	18.7		60.4	31.8
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		158.6	41.1		96.9			65.3	18.7		60.4	31.8
LOS		F	D		F			E	B		E	C
Approach Delay		70.2			96.9				29.7			30.3
Approach LOS		E			F				C			C
Queue Length 50th (ft)		~211	227		57			328	756		22	910
Queue Length 95th (ft)		#377	265		87			395	921		m30	#1267
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		158	967		334			869	2571		99	1774
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		1.04	0.52		0.15			0.67	0.73		0.20	0.97

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 69 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 35.9

Intersection LOS: D

Intersection Capacity Utilization 108.4%

ICU Level of Service G

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.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø3	ø4
102 s	15 s	21 s	42 s
			
ø5	ø6		
32 s	85 s		



Lane Group	SBR
Act Effct Green (s)	110.8
Actuated g/C Ratio	0.62
v/c Ratio	0.12
Control Delay	2.6
Queue Delay	0.0
Total Delay	2.6
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	9
Queue Length 95th (ft)	m20
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	979
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.12
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	4	0	0	157	2	2296	103	196	1937	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor									0.98	1.00		
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1611	1770	3539	1583	1770	3539	1583
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1611	1770	3539	1550	1769	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1003			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	1.00	1.00	0.50	1.00	1.00	0.70	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	0	0	8	0	0	224	2	2469	111	204	2018	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	8	0	0	224	2	2469	111	204	2018	23
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	33.0	14.0	127.0	127.0	33.0	146.0	146.0
Total Split (%)	0.0%	0.0%	8.8%	0.0%	0.0%	20.6%	8.8%	79.4%	79.4%	20.6%	91.3%	91.3%
Maximum Green (s)			7.0			26.0	7.0	120.0	120.0	26.0	139.0	139.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)			9.0			26.4	9.0	123.6	123.6	26.4	152.4	152.4
Actuated g/C Ratio			0.06			0.16	0.06	0.77	0.77	0.16	0.95	0.95
v/c Ratio			0.09			0.85	0.02	0.90	0.09	0.70	0.60	0.02
Control Delay			74.0			91.1	62.5	10.5	1.7	76.3	2.1	0.9
Queue Delay			0.0			0.0	0.0	0.7	0.0	0.0	0.0	0.0
Total Delay			74.0			91.1	62.5	11.2	1.7	76.3	2.1	0.9
LOS			E			F	E	B	A	E	A	A
Approach Delay								10.8			8.8	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS							B			A		
Queue Length 50th (ft)			8			228	2	503	11	202	0	0
Queue Length 95th (ft)			15			246	m0	805	m14	296	255	5
Internal Link Dist (ft)		208			43			923			1513	
Turn Bay Length (ft)							150		150	200		150
Base Capacity (vph)			91			282	100	2735	1198	310	3371	1508
Starvation Cap Reductn			0			0	0	79	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.09			0.79	0.02	0.93	0.09	0.66	0.60	0.02

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 77 (48%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 13.6

Intersection LOS: B

Intersection Capacity Utilization 82.7%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Volume (vph)	0	0	16	0	0	55	105	11	2354	32	90	1832
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				801			1035
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	1.00	1.00	0.68	1.00	1.00	0.80	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	24	0	0	69	109	11	2452	33	94	1908
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	24	0	0	69	0	120	2452	33	94	1908
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	24.0	0.0	0.0	21.0	24.0	24.0	139.0	139.0	21.0	136.0
Total Split (%)	0.0%	0.0%	15.0%	0.0%	0.0%	13.1%	15.0%	15.0%	86.9%	86.9%	13.1%	85.0%
Maximum Green (s)			17.0			14.0	17.0	17.0	132.0	132.0	14.0	129.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			19.0			14.4		19.0	135.6	135.6	14.4	131.0
Actuated g/C Ratio			0.12			0.09		0.12	0.85	0.85	0.09	0.82
v/c Ratio			0.13			0.48		0.57	0.82	0.02	0.59	0.66
Control Delay			65.2			79.8		67.0	5.8	2.2	79.4	6.6
Queue Delay			0.0			0.0		0.0	0.4	0.0	0.0	0.1
Total Delay			65.2			79.8		67.0	6.1	2.2	79.4	6.7
LOS			E			E		E	A	A	E	A
Approach Delay									8.9			10.1
Approach LOS									A			B

Lane Group	SBR
Lane Configurations	
Volume (vph)	18
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	2%
Adj. Flow (vph)	19
Shared Lane Traffic (%)	
Lane Group Flow (vph)	19
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	136.0
Total Split (%)	85.0%
Maximum Green (s)	129.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	131.0
Actuated g/C Ratio	0.82
v/c Ratio	0.01
Control Delay	2.7
Queue Delay	0.0
Total Delay	2.7
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			23			69		119	367	4	95	348
Queue Length 95th (ft)			41			110		m144	438	m7	m157	397
Internal Link Dist (ft)		24			5				721			955
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			182			161		210	2999	1342	177	2898
Starvation Cap Reductn			0			0		0	150	0	0	134
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.13			0.43		0.57	0.86	0.02	0.53	0.69

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 36 (23%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 10.7

Intersection LOS: B

Intersection Capacity Utilization 79.2%

ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	3
Queue Length 95th (ft)	m5
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1296
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.01
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1152	0	0	521	0	1740	21	0	1744	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	0	0	1355	0	0	620	0	1933	23	0	1817	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1355	0	0	620	0	1933	23	0	1817	112
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			4.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	79.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.0	0.0
Total Split (%)	0.0%	0.0%	49.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.6%	0.0%
Maximum Green (s)			73.9								75.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Walk Time (s)			5.0									
Flash Dont Walk (s)			11.0									
Pedestrian Calls (#/hr)			0									
Act Effect Green (s)			74.0			160.0		160.0	160.0		76.0	160.0
Actuated g/C Ratio			0.46			1.00		1.00	1.00		0.48	1.00
v/c Ratio			1.07			0.39		0.55	0.01		1.08	0.07
Control Delay			70.1			0.3		0.4	0.0		80.9	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			70.1			0.3		0.4	0.0		80.9	0.1

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
LOS			E			A		A	A		F	A
Approach Delay								0.4			76.2	
Approach LOS								A			E	
Queue Length 50th (ft)			~885			0		0	0		~1096	0
Queue Length 95th (ft)			m#862			m0		0	m0		#1240	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1264			1580		3539	1583		1681	1568
Starvation Cap Reductn			0			0		0	0		0	0
Spillback Cap Reductn			0			12		27	0		0	0
Storage Cap Reductn			0			0		0	0		0	0
Reduced v/c Ratio			1.07			0.40		0.55	0.01		1.08	0.07

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

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

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 41.5

Intersection LOS: D

Intersection Capacity Utilization 96.8%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

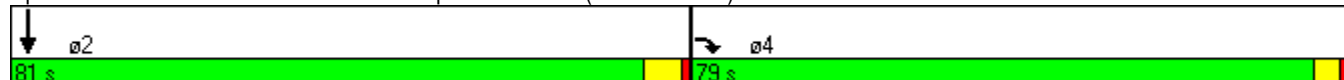
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2023 With Site Phase 2 PM Peak
10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	243	0	1517	0	0	2536	356	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	270	0	1686	0	0	2818	396	0	72
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	270	0	1686	0	0	2818	396	0	72
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 80.9% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations									
Volume (vph)	12	141	123	1	2535	172	2554	24	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					779		913		
Travel Time (s)					11.8		13.8		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.39	0.86	0.59	0.59	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	31	164	208	2	2755	187	2838	27	8
Shared Lane Traffic (%)									
Lane Group Flow (vph)	31	164	210	0	2755	187	2838	35	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	3 4	4		2		6		
Permitted Phases	3	4	4			Free		6	
Detector Phase	3	3 4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0		7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0		14.0		33.0		25.0	25.0	
Total Split (s)	14.0	32.0	18.0	0.0	128.0	0.0	128.0	128.0	0.0
Total Split (%)	8.8%	20.0%	11.3%	0.0%	80.0%	0.0%	80.0%	80.0%	0.0%
Maximum Green (s)	7.0		11.0		121.0		121.0	121.0	
Yellow Time (s)	5.0		5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0		2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	-1.6	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	2.4	5.0	5.0	4.0
Lead/Lag	Lag		Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0		2.0		2.0		2.0	2.0	
Recall Mode	None		None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	27.0	13.0		123.0	160.0	123.0	123.0	
Actuated g/C Ratio	0.06	0.17	0.08		0.77	1.00	0.77	0.77	
v/c Ratio	0.34	0.61	0.94		0.96	0.12	0.99	0.03	
Control Delay	83.3	72.5	117.4		14.1	0.1	17.7	3.6	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		13.8	0.0	15.4	0.0	
Total Delay	83.3	72.5	117.4		27.9	0.1	33.1	3.6	
LOS	F	E	F		C	A	C	A	
Approach Delay					26.1		32.7		
Approach LOS					C		C		
Queue Length 50th (ft)	32	161	126		443	0	781	5	
Queue Length 95th (ft)	30	234	114		1094	m0	#1618	m6	
Internal Link Dist (ft)					699		833		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	91	268	224		2864	1583	2864	1217	
Starvation Cap Reductn	0	0	0		183	0	139	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.34	0.61	0.94		1.03	0.12	1.04	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 158 (99%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 33.8

Intersection LOS: C

Intersection Capacity Utilization 94.8%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø2	 ø4	 ø3
128 s	18 s	14 s
 ø6		
128 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	715	0	168	15	0	24	0	1973	18	0	2263	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.999				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1770	0	1583	0	3966	0	0	3539	1583
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1593	1753	0	1583	0	*3811	0	0	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			703	
Travel Time (s)		7.4			14.0			8.8			10.7	
Confl. Peds. (#/hr)			5	5					1	1		
Peak Hour Factor	0.85	1.00	0.85	0.84	1.00	0.84	1.00	0.96	0.96	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	841	0	198	18	0	29	0	2055	19	0	2357	449
Shared Lane Traffic (%)												
Lane Group Flow (vph)	841	0	198	18	0	29	0	2074	0	0	2357	449
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				19.0			19.0	
Total Split (s)	45.0	0.0	0.0	45.0	0.0	0.0	0.0	115.0	0.0	0.0	115.0	0.0
Total Split (%)	28.1%	0.0%	0.0%	28.1%	0.0%	0.0%	0.0%	71.9%	0.0%	0.0%	71.9%	0.0%
Maximum Green (s)	38.0			38.0				108.0			108.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	-1.2	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	2.8	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	39.8		160.0	39.8		160.0		110.2			110.2	160.0
Actuated g/C Ratio	0.25		1.00	0.25		1.00		0.69			0.69	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.96		0.12	0.04		0.02		0.76			0.97	0.28
Control Delay	81.9		0.2	46.0		0.0		18.6			23.8	0.3
Queue Delay	3.1		0.0	0.0		0.0		0.0			0.0	0.0
Total Delay	85.1		0.2	46.0		0.0		18.7			23.8	0.3
LOS	F		A	D		A		B			C	A
Approach Delay								18.7			20.0	
Approach LOS								B			C	
Queue Length 50th (ft)	451		0	14		0		632			1006	0
Queue Length 95th (ft)	#524		0	35		0		709			#1289	0
Internal Link Dist (ft)		302			435			504			623	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	876		1593	443		1583		2732			2437	1583
Starvation Cap Reductn	0		0	0		0		0			0	0
Spillback Cap Reductn	18		0	0		0		21			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.98		0.12	0.04		0.02		0.77			0.97	0.28

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 30 (19%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 28.0

Intersection LOS: C

Intersection Capacity Utilization 91.3%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø3
115 s	45 s
 ø6	
115 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	556	40	224	389	554	23	164	281	562	153	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.96	1.00				0.93		1.00	0.98		0.99	
Frt		0.990				0.850			0.850		0.988	
Flt Protected	0.950			0.950				0.994		0.950	0.975	
Satd. Flow (prot)	1662	3389	0	1770	1863	1689	0	2037	1583	1625	1921	0
Flt Permitted	0.518			0.115				0.994		0.950	0.975	
Satd. Flow (perm)	873	3389	0	214	1863	1575	0	2028	1559	1625	1921	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	22		12	12		22	49					49
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	45	647	47	241	418	596	26	189	323	604	165	32
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	45	694	0	241	418	596	0	215	323	399	402	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	17.0	17.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	24.0	58.0	45.0	27.0	27.0	24.0	45.0	45.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	18.5%	44.6%	34.6%	20.8%	20.8%	18.5%	34.6%	34.6%	0.0%
Maximum Green (s)	26.7	26.7		17.2	50.7	38.3	20.3	20.3	17.2	38.3	38.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	30.3	30.3		53.0	53.0	90.9		24.1	41.9	37.9	37.9	
Actuated g/C Ratio	0.23	0.23		0.41	0.41	0.70		0.19	0.32	0.29	0.29	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.22	0.88		0.80	0.55	0.53		0.57	0.64	0.84	0.72	
Control Delay	44.8	62.0		52.3	32.8	9.1		55.8	41.3	60.0	49.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	44.8	62.0		52.3	32.8	9.1		55.8	41.3	60.0	49.1	
LOS	D	E		D	C	A		E	D	E	D	
Approach Delay		61.0			25.3			47.1			54.5	
Approach LOS		E			C			D			D	
Queue Length 50th (ft)	31	303		145	266	166		170	220	325	312	
Queue Length 95th (ft)	65	#382		#266	371	230		247	307	#488	435	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	203	789		315	760	1162		378	521	500	591	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.22	0.88		0.77	0.55	0.51		0.57	0.62	0.80	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 43.7

Intersection LOS: D

Intersection Capacity Utilization 84.0%

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: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
24 s	34 s	45 s	27 s
 ø6			
58 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	0	1541	66	0	1057	1152	0	0	356	0	0	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	1675	72	0	1149	1252	0	0	387	0	0	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1675	72	0	1149	1252	0	0	387	0	0	117
Sign Control		Free			Free			Stop			Yield	

Intersection Summary

Area Type: Other

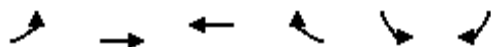
Control Type: Unsignalized

Intersection Capacity Utilization 74.7% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2023 With Site Phase 2 PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1881	2187	521	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	2090	2543	606	0	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2090	2543	606	0	25
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

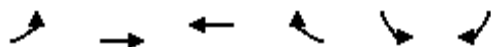
Control Type: Unsignalized

Intersection Capacity Utilization 52.3% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2023 With Site Phase 2 PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2644	2571	62	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		224	547		229	
Travel Time (s)		3.4	8.3		6.2	
Peak Hour Factor	1.00	0.94	0.91	0.91	1.00	0.67
Adj. Flow (vph)	0	2813	2825	68	0	113
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2813	2825	68	0	113
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 61.0% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	31	176	2258	73	106	2159	239	176	29	115	350	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	250	
Storage Lanes		1		0	1		1	1		1	1	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00				0.95	1.00		0.95	0.97	0.98
Frt			0.995				0.850			0.850		0.862
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1770	5049	0	1770	5085	1583	1770	1863	1583	1770	1570
Flt Permitted		0.950			0.056			0.235			0.728	
Satd. Flow (perm)	0	1768	5049	0	104	5085	1508	436	1863	1510	1311	1570
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			547			576			537			463
Travel Time (s)			8.3			8.7			14.6			12.6
Confl. Peds. (#/hr)		7		11	11		7	8		25	25	
Peak Hour Factor	0.92	0.94	0.94	0.94	0.89	0.89	0.89	0.65	0.65	0.65	0.89	0.89
Adj. Flow (vph)	34	187	2402	78	119	2426	269	271	45	177	393	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	221	2480	0	119	2426	269	271	45	177	393	376
Turn Type	Prot	Prot			pm+pt		Perm	Perm		pm+ov	Perm	
Protected Phases	5	5	2		1	6			8	1		4
Permitted Phases					6		6	8		8	4	
Detector Phase	5	5	2		1	6	6	8	8	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	13.0	27.0		13.0	26.0	26.0	41.0	41.0	13.0	39.0	39.0
Total Split (s)	22.0	22.0	94.0	0.0	16.0	88.0	88.0	50.0	50.0	16.0	50.0	50.0
Total Split (%)	13.8%	13.8%	58.8%	0.0%	10.0%	55.0%	55.0%	31.3%	31.3%	10.0%	31.3%	31.3%
Maximum Green (s)	16.4	16.4	88.4		10.6	82.1	82.1	43.6	43.6	10.6	43.5	43.5
Yellow Time (s)	3.0	3.0	3.8		3.0	4.1	4.1	3.1	3.1	3.0	3.2	3.2
All-Red Time (s)	2.6	2.6	1.8		2.4	1.8	1.8	3.3	3.3	2.4	3.3	3.3
Lost Time Adjust (s)	0.0	-0.6	-0.6	0.0	-0.4	-0.9	-0.9	-1.4	-1.4	-0.4	-1.5	-1.5
Total Lost Time (s)	5.6	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag			Lag		
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	C-Max	None	None	None	None	None
Walk Time (s)			7.0			7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)			12.0			13.0	13.0	27.0	27.0		25.0	25.0
Pedestrian Calls (#/hr)			0			0	0	0	0		0	0
Act Effect Green (s)		17.0	89.0		83.0	83.0	83.0	45.0	45.0	56.0	45.0	45.0
Actuated g/C Ratio		0.11	0.56		0.52	0.52	0.52	0.28	0.28	0.35	0.28	0.28
v/c Ratio		1.18	0.88		0.71	0.92	0.34	2.20	0.09	0.33	1.07	0.85
Control Delay		176.9	37.3		49.7	18.9	11.5	593.8	43.1	37.5	118.5	73.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	309
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	8
Peak Hour Factor	0.89
Adj. Flow (vph)	347
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay		176.9	37.3		49.7	18.9	11.5	593.8	43.1	37.5	118.5	73.0
LOS		F	D		D	B	B	F	D	D	F	E
Approach Delay			48.7			19.5			343.8			96.2
Approach LOS			D			B			F			F
Queue Length 50th (ft)		~277	769		65	359	64	~455	35	129	~452	374
Queue Length 95th (ft)		m#433	859		m95	582	m76	#428	49	134	#658	#538
Internal Link Dist (ft)			467			496			457			383
Turn Bay Length (ft)		300			250		150	150		150	250	
Base Capacity (vph)		188	2809		168	2638	782	123	524	534	369	442
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		1.18	0.88		0.71	0.92	0.34	2.20	0.09	0.33	1.07	0.85

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 41 (26%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 2.20

Intersection Signal Delay: 63.4

Intersection LOS: E

Intersection Capacity Utilization 107.8%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

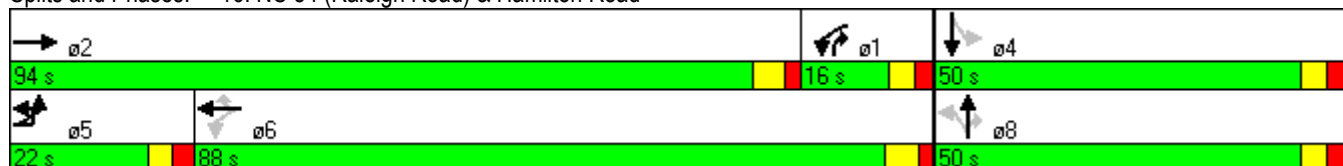
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	2708	31	169	2472	55	31	14	194	30	35	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.998			0.997				0.850		0.942	
Flt Protected	0.950			0.950				0.967			0.987	
Satd. Flow (prot)	1770	5070	0	1770	5063	0	0	1801	1583	0	1715	0
Flt Permitted	0.037			0.042				0.689			0.907	
Satd. Flow (perm)	69	5070	0	78	5063	0	0	1276	1583	0	1576	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	14		18	18		14	9					9
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.86	0.86	0.86	0.83	0.83	0.83
Adj. Flow (vph)	81	2851	33	190	2778	62	36	16	226	36	42	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	2884	0	190	2840	0	0	52	226	0	137	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	94.0	0.0	18.0	99.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	8.1%	58.8%	0.0%	11.3%	61.9%	0.0%	30.0%	30.0%	30.0%	30.0%	30.0%	0.0%
Maximum Green (s)	7.1	87.8		12.1	92.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes			Yes								
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	116.4	96.3		116.4	108.4			28.6	28.6		28.6	
Actuated g/C Ratio	0.73	0.60		0.73	0.68			0.18	0.18		0.18	
v/c Ratio	0.60	0.94		0.70	0.83			0.23	0.80		0.49	
Control Delay	35.4	18.2		76.0	7.5			56.3	82.8		63.8	
Queue Delay	0.0	0.0		0.0	0.1			0.0	0.0		0.0	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	35.4	18.2		76.0	7.5			56.3	82.8		63.8	
LOS	D	B		E	A			E	F		E	
Approach Delay		18.6			11.8			77.8			63.8	
Approach LOS		B			B			E			E	
Queue Length 50th (ft)	32	783		159	191			47	230		131	
Queue Length 95th (ft)	m45	m#1200		m200	m205			81	293		173	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	135	3052		270	3431			343	425		424	
Starvation Cap Reductn	0	0		0	44			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.60	0.94		0.70	0.84			0.15	0.53		0.32	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 42 (26%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 93.4%

ICU Level of Service F

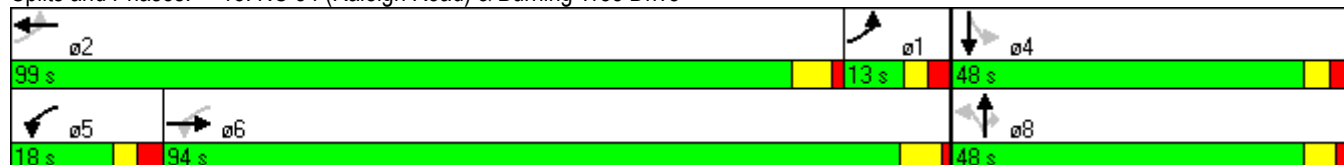
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	206	2660	41	13	2370	26	119	13	116	16	0	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.90			0.96						
Frt			0.850			0.850		0.865			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1741	5085	1583	1770	5085	1583	1770	1611	0	1770	1583	0
Flt Permitted	0.042			0.038			0.352			0.519		
Satd. Flow (perm)	77	5085	1422	71	5085	1527	656	1611	0	967	1583	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	15		22	22		15						
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.80	0.80	0.80	0.93	0.93	0.93
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	212	2742	42	14	2495	27	149	16	145	17	0	245
Shared Lane Traffic (%)												
Lane Group Flow (vph)	212	2742	42	14	2495	27	149	161	0	17	245	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	44.0	44.0	16.0	44.0	44.0	18.0	18.0		18.0	18.0	
Total Split (s)	19.0	104.0	104.0	16.0	81.0	81.0	40.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	11.9%	65.0%	65.0%	10.0%	50.6%	50.6%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%
Maximum Green (s)	12.7	97.7	97.7	9.7	74.7	74.7	33.2	33.2		32.7	32.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	110.0	109.7	109.7	113.0	96.0	96.0	35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.69	0.69	0.69	0.71	0.60	0.60	0.22	0.22		0.22	0.22	
v/c Ratio	1.07	0.79	0.04	0.10	0.82	0.03	1.03	0.46		0.08	0.71	
Control Delay	108.3	16.3	12.7	3.1	7.5	4.1	143.4	59.2		51.1	70.2	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	13%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	108.3	16.6	12.7	3.1	7.6	4.1	143.4	59.2		51.1	70.2	
LOS	F	B	B	A	A	A	F	E		D	E	
Approach Delay		23.0			7.5			99.7			69.0	
Approach LOS		C			A			F			E	
Queue Length 50th (ft)	~214	407	14	1	119	3	~167	148		14	240	
Queue Length 95th (ft)	m#234	474	m20	m1	126	m3	#267	197		38	345	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	199	3486	975	168	3051	916	144	352		212	346	
Starvation Cap Reductn	0	195	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	21	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.07	0.83	0.04	0.08	0.82	0.03	1.03	0.46		0.08	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 36 (23%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 22.4

Intersection LOS: C

Intersection Capacity Utilization 94.6%

ICU Level of Service F

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
16 s	104 s	40 s
 ø5	 ø10	 ø6
19 s	20 s	81 s
		 ø8
		40 s

Lane Group	ø10
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	2556	99	63	2082	104	139	19	486	176	10	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.95	1.00		0.98	0.99	1.00				
Frt			0.850			0.850		0.869	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (prot)	3467	5136	1599	3416	5060	1575	1648	1440	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (perm)	3466	5136	1513	3410	5060	1547	1640	1439	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	4		25	25		4	4					4
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	155	2691	104	69	2288	114	164	22	572	205	12	217
Shared Lane Traffic (%)							10%		47%			
Lane Group Flow (vph)	155	2691	104	69	2288	114	148	307	303	205	12	217
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	85.0	41.0	16.0	85.0	18.0	41.0	41.0	57.0	18.0	18.0	34.0
Total Split (%)	10.0%	53.1%	25.6%	10.0%	53.1%	11.3%	25.6%	25.6%	35.6%	11.3%	11.3%	21.3%
Maximum Green (s)	8.8	78.4	33.9	8.9	78.5	10.7	33.9	33.9		10.7	10.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	11.3	80.5	116.0	11.0	80.3	93.3	35.5	35.5	46.5	13.0	13.0	24.3
Actuated g/C Ratio	0.07	0.50	0.72	0.07	0.50	0.58	0.22	0.22	0.29	0.08	0.08	0.15
v/c Ratio	0.64	1.04	0.09	0.29	0.90	0.13	0.41	0.96	0.71	0.72	0.08	0.89

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	63.7	71.2	5.9	57.6	26.6	6.1	57.0	102.2	53.2	86.9	69.4	76.5
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	63.7	71.2	5.9	57.6	26.7	6.1	57.0	102.2	53.2	86.9	69.4	76.5
LOS	E	E	A	E	C	A	E	F	D	F	E	E
Approach Delay	68.5			26.6			73.8			81.2		
Approach LOS	E			C			E			F		
Queue Length 50th (ft)	84	~1098	16	36	816	25	140	351	234	109	12	146
Queue Length 95th (ft)	m111	#1180	m48	m50	298	m34	204	#512	306	149	34	#236
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	244	2585	1121	235	2539	904	371	324	433	283	154	244
Starvation Cap Reductn	0	0	0	0	2	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	0.64	1.04	0.09	0.29	0.90	0.13	0.40	0.95	0.70	0.72	0.08	0.89

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 152 (95%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 54.3

Intersection LOS: D

Intersection Capacity Utilization 88.7%

ICU Level of Service E

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.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

Lamp and Phase: 20-40-60 (Rough Road) and Downstream Lane									
 ø2				 ø1		 ø3		 ø4	
85 s				16 s		18 s		41 s	
 ø5				 ø6					
16 s				85 s					

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

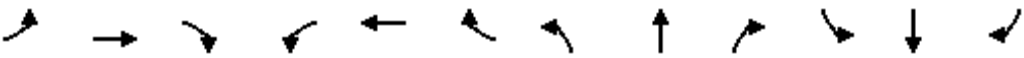
2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	2368	855	163	1969	196	286	67	43	127	89	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96			0.98						
Frt			0.850			0.850		0.967			0.986	
Flt Protected	0.950			0.950			0.950	0.979		0.950	0.994	
Satd. Flow (prot)	1761	4448	1575	1778	5111	1591	1673	1667	0	1664	1717	0
Flt Permitted	0.046			0.050			0.950	0.979		0.950	0.994	
Satd. Flow (perm)	85	4448	1505	94	5111	1553	1673	1667	0	1664	1717	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)	1		6	6		1						
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	7	2467	891	173	2095	209	318	74	48	144	101	12
Shared Lane Traffic (%)							30%			12%		
Lane Group Flow (vph)	7	2467	891	173	2095	209	223	217	0	127	130	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	91.0	32.0	17.0	92.0	20.0	32.0	32.0	0.0	20.0	20.0	0.0
Total Split (%)	10.0%	56.9%	20.0%	10.6%	57.5%	12.5%	20.0%	20.0%	0.0%	12.5%	12.5%	0.0%
Maximum Green (s)	9.2	83.5	24.8	10.0	84.5	12.8	24.8	24.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	102.0	86.0	113.3	98.0	100.2	114.9	27.3	27.3		14.7	14.7	
Actuated g/C Ratio	0.64	0.54	0.71	0.61	0.63	0.72	0.17	0.17		0.09	0.09	
v/c Ratio	0.05	1.03	0.83	0.94	0.65	0.19	0.78	0.76		0.83	0.82	
Control Delay	5.4	36.1	7.4	108.6	20.7	6.8	82.7	81.2		109.4	107.4	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 With Site Phase 2 PM Peak
10/18/2013

												
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	
Total Delay	5.4	36.1	7.4	108.6	20.8	6.8	82.7	81.2		109.4	107.4	
LOS	A	D	A	F	C	A	F	F		F	F	
Approach Delay	28.5			25.7			82.0			108.4		
Approach LOS	C			C			F			F		
Queue Length 50th (ft)	1	~1134	151	127	460	52	238	231		140	143	
Queue Length 95th (ft)	m2	m#839	m127	#284	641	110	#375	#361		#253	#256	
Internal Link Dist (ft)	929			334			420			673		
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	170	2391	1078	184	3202	1122	285	284		156	161	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	19	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	1.03	0.83	0.94	0.66	0.19	0.78	0.76		0.81	0.81	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 159 (99%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 34.2

Intersection LOS: C

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ 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.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2		 ø1		 ø3		 ø4	
91 s		17 s		20 s		32 s	
 ø5		 ø6					
16 s		92 s					

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	383	63	234	463	244	81	880	203	125	713	439
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		0.99		0.98		0.99				0.91
Frt		0.979				0.850		0.972				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1817	0	1770	1863	1583	1770	3419	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.179			0.095		
Satd. Flow (perm)	3403	1817	0	1755	1863	1549	333	3419	0	177	3539	1436
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	5		9	9		5	14		13	13		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	400	395	65	241	477	252	87	946	218	133	759	467
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	460	0	241	477	252	87	1164	0	133	759	467
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	28.0	53.0	0.0	32.0	57.0	18.0	15.0	67.0	0.0	18.0	70.0	28.0
Total Split (%)	16.5%	31.2%	0.0%	18.8%	33.5%	10.6%	8.8%	39.4%	0.0%	10.6%	41.2%	16.5%
Maximum Green (s)	22.1	47.1		26.4	51.4	12.1	8.8	61.3		12.1	64.6	22.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	22.4	45.7		25.6	48.9	61.9	65.7	65.7		69.4	69.4	91.8
Actuated g/C Ratio	0.13	0.27		0.15	0.29	0.36	0.39	0.39		0.41	0.41	0.54
v/c Ratio	0.88	0.94		0.91	0.89	0.44	0.42	0.88		0.69	0.53	0.59
Control Delay	93.8	88.7		96.8	69.6	23.9	41.5	57.9		80.2	40.5	28.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	93.8	88.7		96.8	69.6	23.9	41.5	57.9		80.2	40.5	28.1
LOS	F	F		F	E	C	D	E		F	D	C
Approach Delay		91.1			64.5			56.8			40.1	
Approach LOS		F			E			E			D	
Queue Length 50th (ft)	228	496		274	530	143	65	657		99	349	327
Queue Length 95th (ft)	#313	#700		#408	#546	188	109	#796		#174	418	437
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	464	513		281	570	567	213	1322		194	1444	800
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.86	0.90		0.86	0.84	0.44	0.41	0.88		0.69	0.53	0.58

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 156 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 60.0

Intersection LOS: E

Intersection Capacity Utilization 91.7%

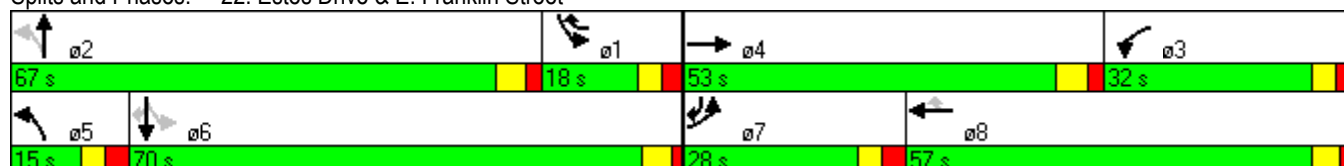
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

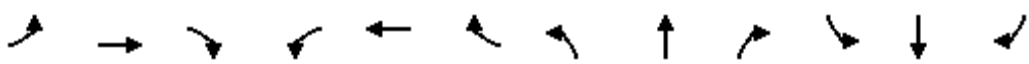
2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	255	446	9	6	518	66	14	9	14	100	11	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.983			0.949				0.850
Flt Protected	0.950			0.950				0.981			0.957	
Satd. Flow (prot)	1770	3527	0	1770	3463	0	0	1718	0	0	1765	1568
Flt Permitted	0.313			0.479				0.842			0.750	
Satd. Flow (perm)	580	3527	0	880	3463	0	0	1474	0	0	1369	1548
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		11	11		8	1		11	11		1
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.69	0.69	0.69	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	268	469	9	7	595	76	20	13	20	105	12	394
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	478	0	7	671	0	0	53	0	0	117	394
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	24.0	56.0	0.0	32.0	32.0	0.0	29.0	29.0	0.0	29.0	29.0	24.0
Total Split (%)	28.2%	65.9%	0.0%	37.6%	37.6%	0.0%	34.1%	34.1%	0.0%	34.1%	34.1%	28.2%
Maximum Green (s)	18.9	50.9		26.8	26.8		23.3	23.3		23.2	23.2	18.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	65.3	66.3		44.6	44.6			12.3			12.3	26.4
Actuated g/C Ratio	0.77	0.78		0.52	0.52			0.14			0.14	0.31
v/c Ratio	0.40	0.17		0.02	0.37			0.25			0.59	0.81
Control Delay	4.4	2.5		14.2	14.5			33.4			45.4	37.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	4.4	2.5		14.2	14.5			33.4			45.4	37.3
LOS	A	A		B	B			C			D	D

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		3.2			14.5			33.4			39.1	
Approach LOS		A			B			C			D	
Queue Length 50th (ft)	33	30		2	108			26			60	173
Queue Length 95th (ft)	m45	m40		10	179			41			105	219
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	712	2749		461	1815			416			387	546
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.38	0.17		0.02	0.37			0.13			0.30	0.72

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 13 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 17.1

Intersection LOS: B

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2023 With Site Phase 2 PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	278	18	1	143	11	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.949	
Flt Protected					0.970	
Satd. Flow (prot)	1848	0	0	1863	1715	0
Flt Permitted					0.970	
Satd. Flow (perm)	1848	0	0	1863	1715	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Confl. Peds. (#/hr)						11
Peak Hour Factor	0.62	0.62	0.62	0.62	0.85	0.85
Adj. Flow (vph)	448	29	2	231	13	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	477	0	0	233	21	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.8%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2023 With Site Phase 2 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	56	10	0	41	3	11	2	0	4	2	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		0.980			0.991						0.919	
Flt Protected		0.997						0.959			0.988	
Satd. Flow (prot)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Flt Permitted		0.997						0.959			0.988	
Satd. Flow (perm)	0	1820	0	0	1846	0	0	1786	0	0	1612	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.65	0.65	0.65	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%
Adj. Flow (vph)	5	60	11	0	44	3	17	3	0	5	3	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	47	0	0	20	0	0	20	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	17.8%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		 	 			 	 
Volume (vph)	0	310	2107	93	5	119	1749
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	697		659				801
Travel Time (s)	19.0		10.0				12.1
Peak Hour Factor	1.00	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	344	2341	103	6	132	1943
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	344	2341	103	0	138	1943
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	32.0	128.0	128.0	32.0	32.0	160.0
Total Split (%)	0.0%	20.0%	80.0%	80.0%	20.0%	20.0%	100.0%
Maximum Green (s)		25.0	121.0	121.0	25.0	25.0	153.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		25.1	124.9	124.9		25.1	160.0
Actuated g/C Ratio		0.16	0.78	0.78		0.16	1.00
v/c Ratio		0.79	0.85	0.08		0.26	0.55
Control Delay		78.2	8.3	3.0		54.8	0.5
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		78.2	8.3	3.0		54.8	0.5
LOS		E	A	A		D	A
Approach Delay			8.1				4.1
Approach LOS			A				A
Queue Length 50th (ft)		197	221	11		56	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		261	585	28		94	0
Internal Link Dist (ft)	617		579				721
Turn Bay Length (ft)						300	
Base Capacity (vph)		470	2762	1236		579	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	0	0		0	176
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.73	0.85	0.08		0.24	0.58

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 69 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 11.3

Intersection LOS: B

Intersection Capacity Utilization 77.4%

ICU Level of Service D

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)





Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations				↰↰	↰↰	↰
Volume (vph)	0	0	0	2602	1517	1069
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	100
Storage Lanes	0	0	0	2	2	1
Taper Length (ft)	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	666		536		1194	
Travel Time (s)	15.1		8.1		18.1	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2602	1686	1188
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2602	1686	1188
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 94.4% ICU Level of Service F

Analysis Period (min) 15

Lanes, Volumes, Timings
46: NC 54 EB Off Ramp &

2023 With Site Phase 2 PM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1069	0	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			666	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1188	0	249
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1188	0	249
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	59.6%			ICU Level of Service B		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	6	0	2403	0	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		120			134				1035			
Travel Time (s)		2.7			3.0				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	7	0	2670	0	3	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	7	0	2670	0	3	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	132.0	0.0	28.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%	0.0%	82.5%	0.0%	17.5%	0.0%
Maximum Green (s)							7.0		125.0		21.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		156.2		9.0	
Actuated g/C Ratio							0.06		0.98		0.06	
v/c Ratio							0.07		0.77		0.03	
Control Delay							72.3		1.4		69.0	
Queue Delay							0.0		0.1		0.0	
Total Delay							72.3		1.5		69.0	
LOS							E		A		E	
Approach Delay									1.7			
Approach LOS									A			
Queue Length 50th (ft)							7		15		3	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1938	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Fr		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1003	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2153	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2153	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	146.0	0.0
Total Split (%)	91.3%	0.0%
Maximum Green (s)	139.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	156.2	
Actuated g/C Ratio	0.98	
v/c Ratio	0.62	
Control Delay	1.2	
Queue Delay	0.0	
Total Delay	1.2	
LOS	A	
Approach Delay	1.3	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m10		70		m6	
Internal Link Dist (ft)		40			54				955			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							100		3455		254	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		73		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.07		0.79		0.01	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 57 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 1.5

Intersection LOS: A

Intersection Capacity Utilization 70.6%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	
ø1	ø2
28 s	132 s
	
ø5	ø6
14 s	146 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	137	
Internal Link Dist (ft)	923	
Turn Bay Length (ft)		
Base Capacity (vph)	3455	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.62	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	131	0	2581	0	70	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		100			69				703			
Travel Time (s)		2.3			1.6				10.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	146	0	2868	0	78	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	146	0	2868	0	78	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	27.0	0.0	145.0	0.0	15.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.9%	0.0%	90.6%	0.0%	9.4%	0.0%
Maximum Green (s)							20.0		138.0		8.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lead		Lag	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							19.2		140.0		10.0	
Actuated g/C Ratio							0.12		0.88		0.06	
v/c Ratio							0.69		0.93		0.70	
Control Delay							82.5		10.0		77.9	
Queue Delay							0.0		0.6		0.0	
Total Delay							82.5		10.6		77.9	
LOS							F		B		E	
Approach Delay									14.1			
Approach LOS									B			
Queue Length 50th (ft)							145		611		82	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2619	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.91	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	5085	0
Flt Permitted		
Satd. Flow (perm)	5085	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	779	
Travel Time (s)	11.8	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2910	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2910	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	133.0	0.0
Total Split (%)	83.1%	0.0%
Maximum Green (s)	126.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	130.8	
Actuated g/C Ratio	0.82	
v/c Ratio	0.70	
Control Delay	2.2	
Queue Delay	1.0	
Total Delay	3.2	
LOS	A	
Approach Delay	5.1	
Approach LOS	A	
Queue Length 50th (ft)	166	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
 10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m182		632		m85	
Internal Link Dist (ft)		20			1				623			
Turn Bay Length (ft)											250	
Base Capacity (vph)							243		3097		111	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		54		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.60		0.94		0.70	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 21 (13%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 9.6

Intersection LOS: A

Intersection Capacity Utilization 85.5%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 Ø2	 Ø1
145 s	15 s
 Ø5	 Ø6
27 s	133 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	m228	
Internal Link Dist (ft)	699	
Turn Bay Length (ft)		
Base Capacity (vph)	4156	
Starvation Cap Reductn	890	
Spillback Cap Reductn	200	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.89	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak

10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↔	↔	
Volume (vph)	0	0	97	25	2586	2604	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	221				913	1194	
Travel Time (s)	6.0				13.8	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	108	28	2873	2893	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	136	2873	2893	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	19.0	19.0	160.0	141.0	0.0
Total Split (%)	0.0%	0.0%	11.9%	11.9%	100.0%	88.1%	0.0%
Maximum Green (s)			12.0	12.0	153.0	134.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				14.0	160.0	136.0	
Actuated g/C Ratio				0.09	1.00	0.85	
v/c Ratio				0.88	0.81	0.96	
Control Delay				88.6	3.0	13.0	
Queue Delay				0.0	0.0	3.1	
Total Delay				88.6	3.0	16.1	
LOS				F	A	B	
Approach Delay					6.9	16.1	
Approach LOS					A	B	
Queue Length 50th (ft)				149	30	720	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 With Site Phase 2 PM Peak
10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m161	31	m597	
Internal Link Dist (ft)	141				833	1114	
Turn Bay Length (ft)				250			
Base Capacity (vph)				155	3539	3008	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	81	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.88	0.81	0.99	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 148 (93%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 11.4

Intersection LOS: B

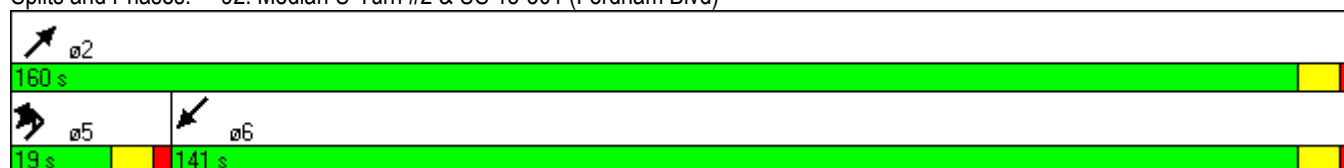
Intersection Capacity Utilization 87.1%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2023 With Site Phase 2 PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1638	243	0	2708	0	1069
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			224	476	
Travel Time (s)	1.4			3.4	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1950	289	0	3009	0	1102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1950	289	0	3009	0	1102
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	118.1%			ICU Level of Service H		
Analysis Period (min)	15					

2023 With Site Phase 2 Mitigated

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Volume (vph)	27	63	34	221	75	51	83	1206	4	166	1408	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99							
Frt		0.947			0.940						0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1697	0	3208	1683	0	1744	3487	0	1702	3519	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1699	1697	0	3208	1683	0	1744	3487	0	1702	3519	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	32	74	40	235	80	54	88	1283	4	189	1600	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	114	0	235	134	0	88	1287	0	189	1616	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	20.0	20.0		33.0	33.0		20.0	80.0		18.0	68.0	
Total Split (s)	26.0	26.0	0.0	33.0	33.0	0.0	22.0	90.0	0.0	41.0	109.0	0.0
Total Split (%)	13.7%	13.7%	0.0%	17.4%	17.4%	0.0%	11.6%	47.4%	0.0%	21.6%	57.4%	0.0%
Maximum Green (s)	19.7	19.7		27.2	27.2		15.8	84.2		34.7	103.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Mitigated AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	17.6	17.6		20.6	20.6		17.0	105.9		25.9	114.9	
Actuated g/C Ratio	0.09	0.09		0.11	0.11		0.09	0.56		0.14	0.60	
v/c Ratio	0.20	0.73		0.68	0.74		0.56	0.66		0.81	0.76	
Control Delay	81.2	108.8		90.9	104.3		78.7	20.0		104.7	31.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	81.2	108.8		90.9	104.3		78.7	20.0		104.7	31.8	
LOS	F	F		F	F		E	B		F	C	
Approach Delay		102.8			95.8			23.7			39.4	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	38	141		148	165		109	381		233	762	
Queue Length 95th (ft)	73	203		192	240		m151	711		309	931	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	188	188		473	248		156	1944		322	2127	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.61		0.50	0.54		0.56	0.66		0.59	0.76	

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 10 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 41.7

Intersection LOS: D

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
41 s	90 s	26 s	33 s
 ø6	 ø5		
109 s	22 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	51	76	124	276	27	85	141	1361	156	16	31	1449
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.985				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1719	1810	1487	3433	1863	1583	1752	3452	0	0	1752	3505
Flt Permitted	0.950			0.950			0.082				0.084	
Satd. Flow (perm)	1719	1810	1487	3433	1863	1583	151	3452	0	0	155	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			405			800				1344
Travel Time (s)		8.2			11.0			12.1				20.4
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	61	90	148	307	30	94	158	1529	175	18	35	1628
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	90	148	307	30	94	158	1704	0	0	53	1628
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	20.0	20.0	30.0	14.0	20.0	15.0	30.0	135.0		15.0	15.0	115.0
Total Split (s)	20.0	20.0	30.0	20.0	20.0	15.0	30.0	135.0	0.0	15.0	15.0	120.0
Total Split (%)	10.5%	10.5%	15.8%	10.5%	10.5%	7.9%	15.8%	71.1%	0.0%	7.9%	7.9%	63.2%
Maximum Green (s)	13.0	13.0	23.0	13.0	13.0	8.0	23.0	128.0		8.0	8.0	113.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	22.0	13.4	27.5	16.6	10.8	18.3	143.0	130.7			135.2	125.8
Actuated g/C Ratio	0.12	0.07	0.14	0.09	0.06	0.10	0.75	0.69			0.71	0.66
v/c Ratio	0.31	0.71	0.69	1.02	0.28	0.61	0.68	0.72			0.28	0.70
Control Delay	84.4	114.4	74.6	137.4	92.0	78.6	47.9	12.9			3.6	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	84.4	114.4	74.6	137.4	92.0	78.6	47.9	12.9			3.6	8.5

Lane Group	SBR
Lane Configurations	
Volume (vph)	92
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1535
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Peak Hour Factor	0.89
Heavy Vehicles (%)	3%
Adj. Flow (vph)	103
Shared Lane Traffic (%)	
Lane Group Flow (vph)	103
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	10.5%
Maximum Green (s)	13.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	147.8
Actuated g/C Ratio	0.78
v/c Ratio	0.09
Control Delay	2.0
Queue Delay	0.0
Total Delay	2.0

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Mitigated AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
LOS	F	F	E	F	F	E	D	B			A	A
Approach Delay		88.6			121.5			15.8				8.0
Approach LOS		F			F			B				A
Queue Length 50th (ft)	72	111	149	~227	37	94	69	319			2	430
Queue Length 95th (ft)	121	168	194	#337	76	151	164	225			m5	263
Internal Link Dist (ft)		343			325			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	199	143	300	301	147	159	326	2374			195	2322
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.31	0.63	0.49	1.02	0.20	0.59	0.48	0.72			0.27	0.70

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 177 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 190

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 28.0

Intersection LOS: C

Intersection Capacity Utilization 76.8%

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.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø4	 ø3
15 s	135 s	20 s	20 s
 ø5	 ø6	 ø8	 ø7
30 s	120 s	20 s	20 s



Lane Group	SBR
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	17
Queue Length 95th (ft)	m22
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1198
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.09
Intersection Summary	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Mitigated AM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		  		 		
Volume (vph)	25	106	222	15	2957	254	2012	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	0.91	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850		0.988			0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	5521	0	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	0	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					774		916		
Travel Time (s)					11.7		13.9		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.61	0.52	0.47	0.47	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	41	204	472	32	3080	265	2313	6	1
Shared Lane Traffic (%)									
Lane Group Flow (vph)	41	204	504	0	3345	0	2313	7	0
Turn Type	custom	custom	custom					Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3			6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0	25.0	
Total Split (s)	14.0	26.0	26.0	0.0	80.0	0.0	80.0	80.0	0.0
Total Split (%)	11.7%	21.7%	21.7%	0.0%	66.7%	0.0%	66.7%	66.7%	0.0%
Maximum Green (s)	7.0	19.0	19.0		73.0		73.0	73.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes								
Vehicle Extension (s)	3.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	23.1	23.1		82.9		75.7	75.7	
Actuated g/C Ratio	0.08	0.19	0.19		0.69		0.63	0.63	
v/c Ratio	0.34	0.67	0.95		0.90		0.98	0.01	
Control Delay	60.8	57.8	76.9		9.1		21.9	3.3	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Mitigated AM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		8.7		3.4	0.0	
Total Delay	60.8	57.8	76.9		17.8		25.3	3.3	
LOS	E	E	E		B		C	A	
Approach Delay					17.8		25.3		
Approach LOS					B		C		
Queue Length 50th (ft)	31	151	~240		425		731	1	
Queue Length 95th (ft)	46	125	138		m305		#978	m1	
Internal Link Dist (ft)					694		836		
Turn Bay Length (ft)								100	
Base Capacity (vph)	121	306	532		3709		2349	998	
Starvation Cap Reductn	0	0	0		384		40	0	
Spillback Cap Reductn	0	0	0		0		0	0	
Storage Cap Reductn	0	0	0		0		0	0	
Reduced v/c Ratio	0.34	0.67	0.95		1.01		1.00	0.01	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 62 (52%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 26.7

Intersection LOS: C

Intersection Capacity Utilization 82.2%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 Ø2	 Ø3	 Ø4
80 s	14 s	26 s
 Ø6		
80 s		

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	792	13	0	1363	1037	0	0	388	0	0	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	861	14	0	1482	1127	0	0	422	0	0	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	861	14	0	1482	1127	0	0	422	0	0	209
Turn Type			Free			Free			custom			Free
Protected Phases		2			6 8				8			
Permitted Phases			Free			Free			8			Free
Detector Phase		2			6 8				8			
Switch Phase												
Minimum Initial (s)		10.0							7.0			
Minimum Split (s)		17.0							14.0			
Total Split (s)	0.0	40.0	0.0	0.0	85.0	0.0	0.0	0.0	45.0	0.0	0.0	0.0
Total Split (%)	0.0%	47.1%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	52.9%	0.0%	0.0%	0.0%
Maximum Green (s)		33.0							38.0			
Yellow Time (s)		5.0							5.0			
All-Red Time (s)		2.0							2.0			
Lost Time Adjust (s)	0.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	2.0	4.0	7.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0			
Recall Mode		C-Max							None			
Act Effct Green (s)		38.9	85.0		85.0	85.0			36.1			85.0
Actuated g/C Ratio		0.46	1.00		1.00	1.00			0.42			1.00
v/c Ratio		0.53	0.01		0.42	0.71			0.62			0.13
Control Delay		19.0	0.0		0.1	7.4			22.8			0.2
Queue Delay		0.0	0.0		0.0	0.0			0.0			0.0
Total Delay		19.0	0.0		0.1	7.4			22.8			0.2
LOS		B	A		A	A			C			A
Approach Delay		18.7			3.3							
Approach LOS		B			A							
Queue Length 50th (ft)		180	0		0	1006			157			0

Lane Group	ø6
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	17.0
Total Split (s)	40.0
Total Split (%)	47%
Maximum Green (s)	33.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 Mitigated AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		243	0		m0	m1108			244			0
Internal Link Dist (ft)		388			354			518			588	
Turn Bay Length (ft)			275									
Base Capacity (vph)		1620	1583		3474	1583			758			1611
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		0.53	0.01		0.43	0.71			0.56			0.13

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 79 (93%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 8.4

Intersection LOS: A

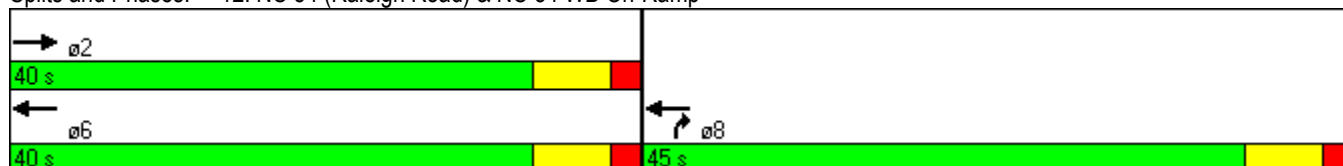
Intersection Capacity Utilization 54.3%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp



Lane Group	ø6
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Mitigated AM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	226	1929	202	67	2378	313	196	38	107	172	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	350	
Storage Lanes		2		0	1		1	1		1	2	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	0.97	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor		1.00	1.00		1.00		0.97	0.98		0.98	0.99	
Frt			0.986				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3401	4944	0	1736	4988	1553	1736	1827	1553	3335	1810
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3398	4944	0	1734	4988	1499	1701	1827	1521	3307	1810
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			565			576			537			568
Travel Time (s)			8.6			8.7			14.6			15.5
Confl. Peds. (#/hr)		9		6	6		9	13		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86
Heavy Vehicles (%)	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%
Adj. Flow (vph)	11	257	2192	230	75	2672	352	302	58	165	200	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	268	2422	0	75	2672	352	302	58	165	200	33
Turn Type	Prot	Prot			Prot		pm+ov	Prot		pm+ov	Prot	
Protected Phases	5!	5	2		1	6	7	3	8	1	7	4
Permitted Phases							6			8		
Detector Phase	5	5	2		1	6	7	3	8	1	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0	27.0		13.0	26.0	14.0	14.0	41.0	13.0	14.0	39.0
Total Split (s)	16.0	16.0	88.0	0.0	13.0	85.0	21.0	30.0	48.0	13.0	21.0	39.0
Total Split (%)	9.4%	9.4%	51.8%	0.0%	7.6%	50.0%	12.4%	17.6%	28.2%	7.6%	12.4%	22.9%
Maximum Green (s)	9.0	9.0	82.4		7.6	79.1	14.0	23.0	41.6	7.6	14.0	32.5
Yellow Time (s)	5.0	5.0	3.8		3.0	4.1	5.0	5.0	3.1	3.0	5.0	3.2
All-Red Time (s)	2.0	2.0	1.8		2.4	1.8	2.0	2.0	3.3	2.4	2.0	3.3
Lost Time Adjust (s)	0.0	-2.0	-0.6	0.0	-0.4	-0.9	-2.0	-2.0	-1.4	-0.4	-2.0	-1.5
Total Lost Time (s)	7.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	3.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Dont Walk (s)			12.0			13.0			27.0			25.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		25.9	109.7		8.0	91.7	114.5	25.0	12.3	18.6	22.7	10.0
Actuated g/C Ratio		0.15	0.65		0.05	0.54	0.67	0.15	0.07	0.11	0.13	0.06
v/c Ratio		0.52	0.76		0.91	0.99	0.35	1.18	0.44	0.98	0.45	0.31
Control Delay		69.6	22.5		112.9	30.6	3.1	174.4	85.1	137.1	71.7	83.4

Lane Group	SBR
Lane Configurations	
Volume (vph)	153
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.97
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1538
Flt Permitted	
Satd. Flow (perm)	1488
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	13
Peak Hour Factor	0.86
Heavy Vehicles (%)	5%
Adj. Flow (vph)	178
Shared Lane Traffic (%)	
Lane Group Flow (vph)	178
Turn Type	pm+ov
Protected Phases	5!
Permitted Phases	4
Detector Phase	5
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	16.0
Total Split (%)	9.4%
Maximum Green (s)	9.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-1.5
Total Lost Time (s)	5.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	33.4
Actuated g/C Ratio	0.20
v/c Ratio	0.59
Control Delay	68.6

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Mitigated AM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		69.6	22.5		112.9	30.6	3.1	174.4	85.1	137.1	71.7	83.4
LOS		E	C		F	C	A	F	F	F	E	F
Approach Delay			27.2			29.5			152.8			71.3
Approach LOS			C			C			F			E
Queue Length 50th (ft)		148	664		84	1007	32	~402	63	178	108	36
Queue Length 95th (ft)		194	715		m#111	#1224	m64	#356	80	178	145	70
Internal Link Dist (ft)			485			496			457			488
Turn Bay Length (ft)		300			250		150	150		150	350	
Base Capacity (vph)		519	3189		82	2691	1017	255	462	168	446	362
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.52	0.76		0.91	0.99	0.35	1.18	0.13	0.98	0.45	0.09

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 66 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 40.8

Intersection LOS: D

Intersection Capacity Utilization 92.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

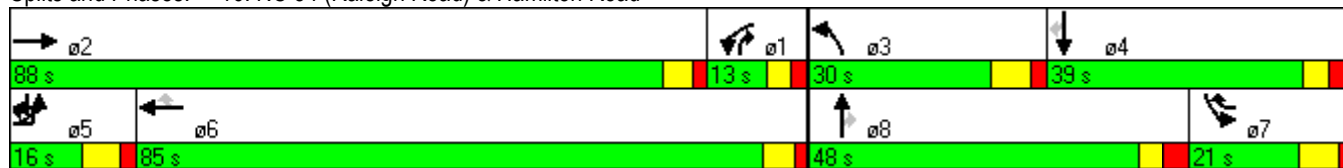
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Queue Delay	0.0
Total Delay	68.6
LOS	E
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	176
Queue Length 95th (ft)	238
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	300
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.59
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	1781	189	569	2617	164	97	17	53	62	27	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor			0.98	1.00				1.00		1.00		
Frt			0.850			0.850		0.986	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.970		0.950		
Satd. Flow (prot)	3434	5086	1584	3383	5011	1560	1427	1374	1276	3451	1872	1591
Flt Permitted	0.950			0.950			0.950	0.970		0.950		
Satd. Flow (perm)	3434	5086	1545	3379	5011	1560	1427	1374	1276	3441	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)			7	7					1	1		
Peak Hour Factor	0.86	0.86	0.86	0.94	0.94	0.94	0.78	0.78	0.78	0.79	0.79	0.79
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	19%	19%	19%	3%	3%	3%
Adj. Flow (vph)	148	2071	220	605	2784	174	124	22	68	78	34	171
Shared Lane Traffic (%)							38%		10%			
Lane Group Flow (vph)	148	2071	220	605	2784	174	77	76	61	78	34	171
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	83.0	18.0	48.0	115.0	21.0	18.0	18.0	66.0	21.0	21.0	37.0
Total Split (%)	9.4%	48.8%	10.6%	28.2%	67.6%	12.4%	10.6%	10.6%	38.8%	12.4%	12.4%	21.8%
Maximum Green (s)	8.8	76.4	10.9	40.9	108.5	13.7	10.9	10.9		13.7	13.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	0.0	-2.3	-2.3	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.1	5.0	5.0	7.3
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	10.7	78.4	91.2	43.0	110.7	131.5	12.8	12.8	51.6	15.8	15.8	21.8
Actuated g/C Ratio	0.06	0.46	0.54	0.25	0.65	0.77	0.08	0.08	0.30	0.09	0.09	0.13
v/c Ratio	0.69	0.88	0.26	0.71	0.85	0.14	0.71	0.73	0.16	0.24	0.20	0.83

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	74.2	44.7	18.5	39.1	6.4	3.3	109.7	112.6	28.8	73.6	74.2	86.4
Queue Delay	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.2	44.7	18.5	39.1	7.0	3.3	109.7	112.6	28.8	73.6	74.2	86.4
LOS	E	D	B	D	A	A	F	F	C	E	E	F
Approach Delay	44.1			12.2			87.7			81.4		
Approach LOS	D			B			F			F		
Queue Length 50th (ft)	84	615	127	315	409	31	89	92	38	42	36	155
Queue Length 95th (ft)	119	663	196	m281	m217	m31	#138	#148	62	62	66	#203
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	222	2346	834	856	3263	1209	109	105	389	325	176	210
Starvation Cap Reductn	0	0	0	0	174	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	0.67	0.88	0.26	0.71	0.90	0.14	0.71	0.72	0.16	0.24	0.19	0.81

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 157 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 29.7

Intersection LOS: C

Intersection Capacity Utilization 79.4%

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.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

			
ø2	ø1	ø3	ø4
83 s	48 s	21 s	18 s
			
ø5	ø6		
16 s	115 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	9	1720	150	34	2727	201	568	106	71	156	30	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.971			0.978	
Flt Protected	0.950			0.950			0.950	0.975		0.950	0.973	
Satd. Flow (prot)	1761	4448	1575	1761	5061	1576	1656	1651	0	1664	1667	0
Flt Permitted	0.043			0.047			0.950	0.975		0.950	0.973	
Satd. Flow (perm)	80	4448	1523	87	5061	1576	1656	1651	0	1664	1667	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	10	1849	161	36	2871	212	598	112	75	188	36	18
Shared Lane Traffic (%)							34%			36%		
Lane Group Flow (vph)	10	1849	161	36	2871	212	395	390	0	120	122	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	92.0	42.0	16.0	92.0	20.0	42.0	42.0	0.0	20.0	20.0	0.0
Total Split (%)	9.4%	54.1%	24.7%	9.4%	54.1%	11.8%	24.7%	24.7%	0.0%	11.8%	11.8%	0.0%
Maximum Green (s)	9.2	84.5	34.8	9.0	84.5	12.8	34.8	34.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	101.0	90.2	127.4	99.0	97.5	117.2	37.2	37.2		14.8	14.8	
Actuated g/C Ratio	0.59	0.53	0.75	0.58	0.57	0.69	0.22	0.22		0.09	0.09	
v/c Ratio	0.07	0.78	0.14	0.23	0.99	0.20	1.09	1.08		0.83	0.84	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Mitigated AM Peak
10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.2	4.0	0.7	36.4	49.3	10.8	133.0	130.1		115.3	117.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	2.2	4.0	0.7	36.4	49.3	10.8	133.0	130.1		115.3	117.4	
LOS	A	A	A	D	D	B	F	F		F	F	
Approach Delay		3.7			46.6			131.5			116.3	
Approach LOS		A			D			F			F	
Queue Length 50th (ft)	0	57	4	16	1030	70	~521	~510		141	143	
Queue Length 95th (ft)	m1	61	m5	32	#1369	135	#754	#741		#229	#236	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	157	2360	1153	159	2902	1089	362	361		147	147	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.06	0.78	0.14	0.23	0.99	0.19	1.09	1.08		0.82	0.83	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 165 (97%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 46.1

Intersection LOS: D

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

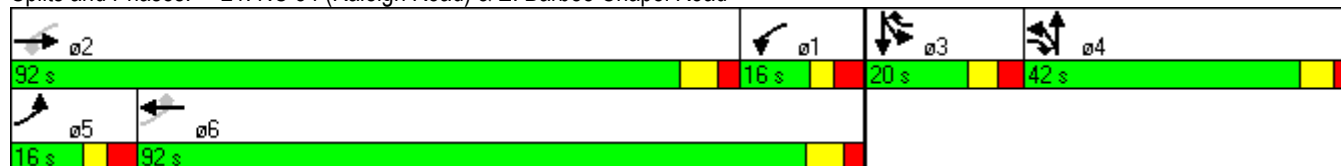
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road



Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Mitigated AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	406	430	65	157	271	92	55	455	109	82	651	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.98		1.00		1.00		0.95
Frt		0.980				0.850		0.971				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	3427	0	1719	1810	1538	1703	3296	0	1703	3406	1524
Flt Permitted	0.950			0.950			0.304			0.327		
Satd. Flow (perm)	3210	3427	0	1714	1810	1511	545	3296	0	585	3406	1444
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	3		4	4		3	7		4	4		7
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Parking (#/hr)	0											
Adj. Flow (vph)	441	467	71	169	291	99	59	484	116	88	700	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	441	538	0	169	291	99	59	600	0	88	700	290
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	34.0	63.0	0.0	27.0	56.0	15.0	15.0	45.0	0.0	15.0	45.0	34.0
Total Split (%)	22.7%	42.0%	0.0%	18.0%	37.3%	10.0%	10.0%	30.0%	0.0%	10.0%	30.0%	22.7%
Maximum Green (s)	28.1	57.1		21.4	50.4	9.1	8.8	39.3		9.1	39.6	28.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	25.6	36.7		18.6	29.6	39.5	73.6	64.9		76.9	68.7	94.3
Actuated g/C Ratio	0.17	0.24		0.12	0.20	0.26	0.49	0.43		0.51	0.46	0.63
v/c Ratio	0.80	0.64		0.79	0.81	0.25	0.18	0.42		0.24	0.45	0.31

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Mitigated AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	70.8	53.8		86.1	65.2	24.3	21.8	33.1		21.9	31.9	9.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.8	53.8		86.1	65.2	24.3	21.8	33.1		21.9	31.9	9.7
LOS	E	D		F	E	C	C	C		C	C	A
Approach Delay		61.5			64.3			32.1			25.1	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)	216	252		161	257	50	27	211		42	250	84
Queue Length 95th (ft)	266	282		m238	324	m57	64	326		89	374	152
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	635	1325		252	615	409	350	1427		383	1560	953
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.69	0.41		0.67	0.47	0.24	0.17	0.42		0.23	0.45	0.30

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 16 (11%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 44.0

Intersection LOS: D

Intersection Capacity Utilization 74.8%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
15 s	45 s	27 s	63 s
 ø5	 ø6	 ø8	 ø7
15 s	45 s	56 s	34 s

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Mitigated AM Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↑↑↑	↑↑	
Volume (vph)	0	0	93	111	2824	2144	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	128				916	1192	
Travel Time (s)	3.5				13.9	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	103	123	3138	2382	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	226	3138	2382	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	23.0	23.0	
Total Split (s)	0.0	0.0	25.0	25.0	120.0	95.0	0.0
Total Split (%)	0.0%	0.0%	20.8%	20.8%	100.0%	79.2%	0.0%
Maximum Green (s)			18.0	18.0	113.0	88.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effct Green (s)				19.2	120.0	90.8	
Actuated g/C Ratio				0.16	1.00	0.76	
v/c Ratio				0.80	0.62	0.89	
Control Delay				49.1	0.3	10.8	
Queue Delay				0.0	0.0	1.0	
Total Delay				49.1	0.3	11.8	
LOS				D	A	B	
Approach Delay					3.6	11.8	
Approach LOS					A	B	
Queue Length 50th (ft)				170	0	470	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Mitigated AM Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m191	0	m498	
Internal Link Dist (ft)	48				836	1112	
Turn Bay Length (ft)				250			
Base Capacity (vph)				295	5085	2678	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	114	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.77	0.62	0.93	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 37 (31%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 7.0

Intersection LOS: A

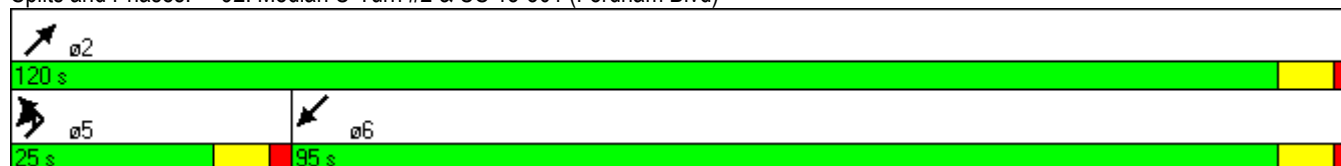
Intersection Capacity Utilization 78.9%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Volume (vph)	95	117	80	269	89	57	176	1158	4	149	1057	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99				0.99							
Frt		0.939			0.942						0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1682	0	3270	1716	0	1744	3487	0	1686	3478	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1691	1682	0	3270	1716	0	1744	3487	0	1686	3478	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	109	134	92	299	99	63	191	1259	4	159	1124	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	226	0	299	162	0	191	1263	0	159	1150	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		18.0	68.0	
Total Split (s)	36.0	36.0	0.0	35.0	35.0	0.0	31.0	81.0	0.0	28.0	78.0	0.0
Total Split (%)	20.0%	20.0%	0.0%	19.4%	19.4%	0.0%	17.2%	45.0%	0.0%	15.6%	43.3%	0.0%
Maximum Green (s)	29.7	29.7		29.2	29.2		24.8	75.2		21.7	72.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.0	3.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effct Green (s)	28.7	28.7		23.4	23.4		26.0	85.7		22.2	81.9	
Actuated g/C Ratio	0.16	0.16		0.13	0.13		0.14	0.48		0.12	0.46	
v/c Ratio	0.40	0.84		0.70	0.73		0.76	0.76		0.76	0.73	
Control Delay	72.0	99.1		83.8	93.3		70.2	26.1		98.8	44.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	72.0	99.1		83.8	93.3		70.2	26.1		98.8	44.5	
LOS	E	F		F	F		E	C		F	D	
Approach Delay		90.3			87.2			31.9			51.1	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	116	259		177	187		210	313		183	591	
Queue Length 95th (ft)	178	#357		223	266		#334	655		#292	728	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	293	290		545	286		252	1661		224	1583	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.37	0.78		0.55	0.57		0.76	0.76		0.71	0.73	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 79 (44%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 160

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 51.6

Intersection LOS: D

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
28 s	81 s	36 s	35 s
 ø6	 ø5		
78 s	31 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	157	81	312	281	37	79	276	1205	226	11	31	1084
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Frt			0.850			0.850		0.976				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1752	3421	0	0	1752	3505
Flt Permitted	0.950			0.950			0.104				0.056	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	192	3421	0	0	103	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			451			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Peak Hour Factor	0.81	0.81	0.81	0.90	0.90	0.90	0.95	0.95	0.95	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	194	100	385	312	41	88	291	1268	238	11	32	1129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	100	385	312	41	88	291	1506	0	0	43	1129
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	15.0	14.0	19.0		15.0	15.0	19.0
Total Split (s)	37.0	24.0	51.0	30.0	17.0	16.0	51.0	110.0	0.0	16.0	16.0	75.0
Total Split (%)	20.6%	13.3%	28.3%	16.7%	9.4%	8.9%	28.3%	61.1%	0.0%	8.9%	8.9%	41.7%
Maximum Green (s)	30.0	17.0	44.0	23.0	10.0	9.0	44.0	103.0		9.0	9.0	68.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	2.0	2.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	30.2	15.5	61.2	22.7	10.8	23.7	126.8	111.1			86.8	76.1
Actuated g/C Ratio	0.17	0.09	0.34	0.13	0.06	0.13	0.70	0.62			0.48	0.42
v/c Ratio	0.65	0.62	0.74	0.72	0.37	0.42	0.55	0.71			0.29	0.76
Control Delay	81.5	95.7	40.5	85.4	90.3	76.6	41.8	17.7			39.0	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4			0.0	0.0
Total Delay	81.5	95.7	40.5	85.4	90.3	76.6	41.8	18.2			39.0	20.6
LOS	F	F	D	F	F	E	D	B			D	C
Approach Delay		60.3			84.1			22.0				18.3

Lane Group	SBR
Lane Configurations	
Volume (vph)	218
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	3%
Adj. Flow (vph)	227
Shared Lane Traffic (%)	
Lane Group Flow (vph)	227
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	37.0
Total Split (%)	20.6%
Maximum Green (s)	30.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	None
Act Effct Green (s)	111.3
Actuated g/C Ratio	0.62
v/c Ratio	0.23
Control Delay	2.8
Queue Delay	0.0
Total Delay	2.8
LOS	A
Approach Delay	

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Mitigated Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach LOS	E			F			C			B		
Queue Length 50th (ft)	220	116	280	184	47	95	209	695			12	578
Queue Length 95th (ft)	274	164	305	240	93	157	m311	m550			m26	498
Internal Link Dist (ft)	343			371			720			1264		
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	319	197	523	477	124	211	534	2112			151	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	211			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.61	0.51	0.74	0.65	0.33	0.42	0.54	0.79			0.28	0.76

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 70 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 33.2

Intersection LOS: C

Intersection Capacity Utilization 77.5%

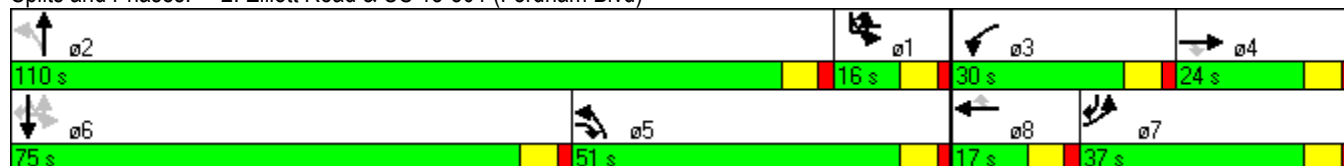
ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Approach LOS	
Queue Length 50th (ft)	22
Queue Length 95th (ft)	m29
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	960
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.24
Intersection Summary	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Mitigated Phase 2 Noon Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations									
Volume (vph)	31	215	99	3	2067	197	1942	21	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1563	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					708		906		
Travel Time (s)					10.7		13.7		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.70	0.77	0.72	0.72	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	44	279	138	4	2297	219	2044	22	11
Shared Lane Traffic (%)									
Lane Group Flow (vph)	44	279	142	0	2297	219	2044	33	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	36.0	17.0	17.0		33.0		25.0	25.0	
Total Split (s)	36.0	17.0	17.0	0.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	30.0%	14.2%	14.2%	0.0%	55.8%	0.0%	55.8%	55.8%	0.0%
Maximum Green (s)	29.0	10.0	10.0		60.0		60.0	60.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lead	Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	10.4	12.0	12.0		94.0	120.0	85.4	85.4	
Actuated g/C Ratio	0.09	0.10	0.10		0.78	1.00	0.71	0.71	
v/c Ratio	0.31	1.75	0.51		0.79	0.14	0.77	0.03	
Control Delay	57.0	396.4	58.4		4.1	0.1	6.2	3.4	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Mitigated Phase 2 Noon Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.2	0.0	0.1	0.0	
Total Delay	57.0	396.4	58.4		4.3	0.1	6.3	3.4	
LOS	E	F	E		A	A	A	A	
Approach Delay					3.9		6.3		
Approach LOS					A		A		
Queue Length 50th (ft)	33	~322	60		110	0	108	3	
Queue Length 95th (ft)	54	#404	77		185	m0	299	m6	
Internal Link Dist (ft)					628		826		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	416	159	276		2923	1583	2651	1127	
Starvation Cap Reductn	0	0	0		121	0	73	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.11	1.75	0.51		0.82	0.14	0.79	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 18 (15%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.75

Intersection Signal Delay: 28.5

Intersection LOS: C

Intersection Capacity Utilization 78.9%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 Ø2	 Ø4	 Ø3
67 s	17 s	36 s
 Ø6		
67 s		

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	777	31	0	760	754	0	0	359	0	0	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	845	34	0	826	820	0	0	390	0	0	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	845	34	0	826	820	0	0	390	0	0	177
Turn Type			Free			Free			custom			Free
Protected Phases		2			6 8				8			
Permitted Phases			Free			Free			8			Free
Detector Phase		2			6 8				8			
Switch Phase												
Minimum Initial (s)		12.0							7.0			
Minimum Split (s)		19.0							14.0			
Total Split (s)	0.0	36.0	0.0	0.0	75.0	0.0	0.0	0.0	39.0	0.0	0.0	0.0
Total Split (%)	0.0%	48.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	52.0%	0.0%	0.0%	0.0%
Maximum Green (s)		29.0							32.0			
Yellow Time (s)		5.0							5.0			
All-Red Time (s)		2.0							2.0			
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	4.0	4.0	7.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0			
Recall Mode		C-Max							None			
Act Effct Green (s)		37.0	75.0		75.0	75.0			28.0			75.0
Actuated g/C Ratio		0.49	1.00		1.00	1.00			0.37			1.00
v/c Ratio		0.48	0.02		0.23	0.52			0.65			0.11
Control Delay		15.0	0.0		0.1	1.9			24.1			0.1
Queue Delay		0.0	0.0		0.0	0.0			0.0			0.0
Total Delay		15.0	0.0		0.1	1.9			24.1			0.1
LOS		B	A		A	A			C			A
Approach Delay		14.4			1.0							
Approach LOS		B			A							
Queue Length 50th (ft)		134	0		0	2			142			0

Lane Group	ø6
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	19.0
Total Split (s)	36.0
Total Split (%)	48%
Maximum Green (s)	29.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 Mitigated Phase 2 Noon Peak

10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		210	0		m0	m18			205			0
Internal Link Dist (ft)		388			354			518			588	
Turn Bay Length (ft)			275									
Base Capacity (vph)		1748	1583		3464	1583			730			1611
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		0.48	0.02		0.24	0.52			0.53			0.11

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 6 (8%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 7.7

Intersection LOS: A

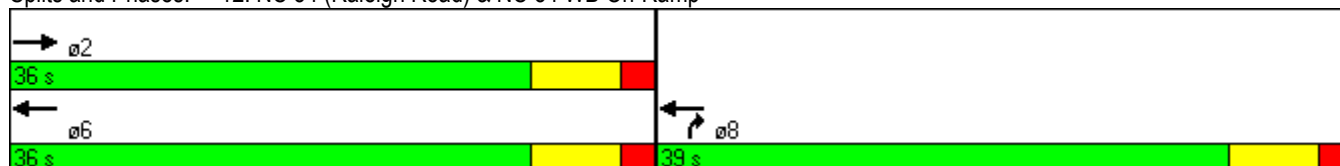
Intersection Capacity Utilization 52.0%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp



Lane Group	ø6
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	34	159	1511	41	105	1550	210	161	19	90	226	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	350	
Storage Lanes		2		0	1		1	1		1	2	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	0.97	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor		1.00	1.00		1.00		0.99	0.99		0.98	0.99	
Frt			0.996				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3378	4963	0	1752	5036	1568	1752	1845	1568	3367	1827
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3377	4963	0	1751	5036	1546	1740	1845	1537	3341	1827
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			553			576			537			611
Travel Time (s)			8.4			8.7			14.6			16.7
Confl. Peds. (#/hr)		1		3	3		1	5		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82
Heavy Vehicles (%)	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%	4%	4%
Adj. Flow (vph)	37	181	1717	47	114	1685	228	185	22	103	276	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	218	1764	0	114	1685	228	185	22	103	276	22
Turn Type	Prot	Prot			Prot		pm+ov	Prot		pm+ov	Prot	
Protected Phases	5!	5	2		1	6	7	3	8	1	7	4
Permitted Phases							6			8		
Detector Phase	5	5	2		1	6	7	3	8	1	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0	28.0		29.0	26.0	14.0	14.0	41.0	29.0	14.0	39.0
Total Split (s)	20.0	20.0	60.0	0.0	29.0	69.0	20.0	22.0	41.0	29.0	20.0	39.0
Total Split (%)	13.3%	13.3%	40.0%	0.0%	19.3%	46.0%	13.3%	14.7%	27.3%	19.3%	13.3%	26.0%
Maximum Green (s)	13.0	13.0	54.4		23.6	63.1	13.0	15.0	34.6	23.6	13.0	32.5
Yellow Time (s)	5.0	5.0	3.8		3.0	4.1	5.0	5.0	3.1	3.0	5.0	3.2
All-Red Time (s)	2.0	2.0	1.8		2.4	1.8	2.0	2.0	3.3	2.4	2.0	3.3
Lost Time Adjust (s)	0.0	-2.0	-0.6	0.0	-0.4	-0.9	-2.0	-2.0	-1.4	-0.4	-2.0	-1.5
Total Lost Time (s)	7.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	1.0	1.0	3.0		1.0	3.0	3.0	3.0	1.0	1.0	3.0	1.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Dont Walk (s)			12.0			13.0			27.0			25.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		23.5	96.2		13.6	86.3	102.1	17.0	9.8	20.0	15.8	8.6
Actuated g/C Ratio		0.16	0.64		0.09	0.58	0.68	0.11	0.07	0.13	0.11	0.06
v/c Ratio		0.41	0.55		0.72	0.58	0.22	0.93	0.18	0.50	0.78	0.21
Control Delay		55.0	16.1		99.3	8.9	3.3	112.7	69.4	63.1	80.9	72.3

Lane Group	SBR
Lane Configurations	
Volume (vph)	191
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1553
Flt Permitted	
Satd. Flow (perm)	1524
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Peak Hour Factor	0.82
Heavy Vehicles (%)	4%
Adj. Flow (vph)	233
Shared Lane Traffic (%)	
Lane Group Flow (vph)	233
Turn Type	pm+ov
Protected Phases	5!
Permitted Phases	4
Detector Phase	5
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	20.0
Total Split (%)	13.3%
Maximum Green (s)	13.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	1.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	28.7
Actuated g/C Ratio	0.19
v/c Ratio	0.79
Control Delay	74.4

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		55.0	16.1		99.3	8.9	3.3	112.7	69.4	63.1	80.9	72.3
LOS		D	B		F	A	A	F	E	E	F	E
Approach Delay			20.4			13.4			93.1			77.7
Approach LOS			C			B			F			E
Queue Length 50th (ft)		95	352		115	130	27	182	21	88	138	21
Queue Length 95th (ft)		121	419		181	115	32	#320	49	135	172	47
Internal Link Dist (ft)			473			496			457			531
Turn Bay Length (ft)		300			250		150	150		150	350	
Base Capacity (vph)		529	3182		280	2897	1055	199	443	317	355	414
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.41	0.55		0.41	0.58	0.22	0.93	0.05	0.32	0.78	0.05

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 75 (50%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 28.4

Intersection LOS: C

Intersection Capacity Utilization 73.9%

ICU Level of Service D

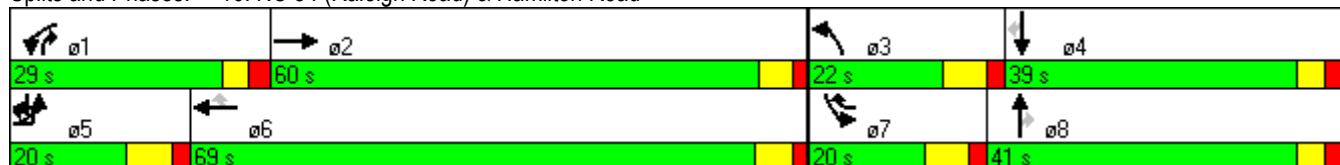
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Queue Delay	0.0
Total Delay	74.4
LOS	E
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	210
Queue Length 95th (ft)	251
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	296
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.79
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	1480	77	65	1392	75	76	35	104	141	26	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00		0.99	1.00	1.00				
Frt			0.850			0.850		0.935	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.995		0.950		
Satd. Flow (prot)	3401	5037	1568	3350	4963	1545	1648	1546	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.995		0.950		
Satd. Flow (perm)	3400	5037	1520	3338	4963	1524	1645	1546	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	1		12	12		1	1					1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.65	0.65	0.65	0.83	0.83	0.83
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	145	1591	83	68	1450	78	117	54	160	170	31	216
Shared Lane Traffic (%)							10%		32%			
Lane Group Flow (vph)	145	1591	83	68	1450	78	105	117	109	170	31	216
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	42.0	15.0	15.0	42.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	18.0	74.0	31.0	15.0	71.0	30.0	31.0	31.0	46.0	30.0	30.0	48.0
Total Split (%)	12.0%	49.3%	20.7%	10.0%	47.3%	20.0%	20.7%	20.7%	30.7%	20.0%	20.0%	32.0%
Maximum Green (s)	10.8	67.4	23.9	7.9	64.5	22.7	23.9	23.9		22.7	22.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	13.0	88.5	105.4	10.0	85.5	100.1	16.9	16.9	31.9	14.6	14.6	27.6
Actuated g/C Ratio	0.09	0.59	0.70	0.07	0.57	0.67	0.11	0.11	0.21	0.10	0.10	0.18
v/c Ratio	0.49	0.54	0.08	0.30	0.51	0.08	0.57	0.67	0.35	0.50	0.17	0.73

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	73.9	16.4	2.1	66.7	11.3	4.2	74.0	81.9	52.4	68.4	61.8	55.5
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	73.9	16.4	2.1	66.7	11.3	4.2	74.0	81.9	52.4	68.4	61.8	55.5
LOS	E	B	A	E	B	A	E	F	D	E	E	E
Approach Delay	20.3			13.3			69.7			61.2		
Approach LOS	C			B			E			E		
Queue Length 50th (ft)	73	274	15	33	131	18	104	123	96	84	29	158
Queue Length 95th (ft)	116	123	6	64	225	20	115	134	105	106	55	175
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300		200	300		200			450	250		
Base Capacity (vph)	295	2972	1169	223	2829	1067	286	268	403	581	315	407
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	0.54	0.07	0.30	0.51	0.07	0.37	0.44	0.27	0.29	0.10	0.53

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 7 (5%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 25.7

Intersection LOS: C

Intersection Capacity Utilization 57.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø4	 ø3
74 s	15 s	31 s	30 s
 ø6	 ø5		
71 s	18 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	11	1515	228	41	1360	113	173	55	60	100	44	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96				1.00	1.00			1.00	
Frt			0.850			0.850		0.936			0.971	
Flt Protected	0.950			0.950			0.950	0.991		0.950	0.988	
Satd. Flow (prot)	1727	4363	1545	1761	5061	1576	1656	1617	0	1648	1660	0
Flt Permitted	0.135			0.070			0.950	0.991		0.950	0.988	
Satd. Flow (perm)	245	4363	1490	130	5061	1576	1654	1617	0	1648	1660	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	12	1612	243	43	1432	119	188	60	65	111	49	17
Shared Lane Traffic (%)							15%			20%		
Lane Group Flow (vph)	12	1612	243	43	1432	119	160	153	0	89	88	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	27.0	15.0	14.0	29.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	14.0	82.0	31.0	14.0	82.0	23.0	31.0	31.0	0.0	23.0	23.0	0.0
Total Split (%)	9.3%	54.7%	20.7%	9.3%	54.7%	15.3%	20.7%	20.7%	0.0%	15.3%	15.3%	0.0%
Maximum Green (s)	7.2	74.5	23.8	7.0	74.5	15.8	23.8	23.8		15.8	15.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	1.8	5.0	5.0	1.8
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	97.1	87.9	109.5	95.1	93.5	112.7	21.7	21.7		14.3	14.3	
Actuated g/C Ratio	0.65	0.59	0.73	0.63	0.62	0.75	0.14	0.14		0.10	0.10	
v/c Ratio	0.05	0.63	0.22	0.24	0.45	0.10	0.67	0.65		0.57	0.56	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	3.5	6.3	2.2	14.0	17.4	6.8	74.1	73.5		78.4	77.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	3.5	6.3	2.2	14.0	17.4	6.8	74.1	73.5		78.4	77.7	
LOS	A	A	A	B	B	A	E	E		E	E	
Approach Delay		5.7			16.5			73.8			78.1	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	1	124	32	14	236	24	156	149		89	88	
Queue Length 95th (ft)	m3	147	38	33	385	64	237	229		150	149	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	247	2556	1141	180	3153	1173	287	280		198	199	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	0.63	0.21	0.24	0.45	0.10	0.56	0.55		0.45	0.44	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 18.7

Intersection LOS: B

Intersection Capacity Utilization 57.1%

ICU Level of Service B

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø1	 ø2	 ø4	 ø3
14 s	82 s	31 s	23 s
 ø6	 ø5		
82 s	14 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

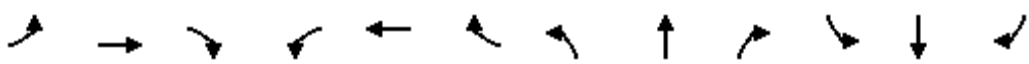
2023 Mitigated Phase 2 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	309	33	214	330	253	52	626	185	144	506	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.97	0.99	0.99				0.96
Frt		0.985				0.850		0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	3447	0	1719	1810	1538	1736	3333	0	1752	3505	1568
Flt Permitted	0.950			0.950			0.409			0.189		
Satd. Flow (perm)	3183	3447	0	1714	1810	1498	741	3333	0	349	3505	1501
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	8		3	3		8	5		10	10		5
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Parking (#/hr)	0											
Adj. Flow (vph)	373	351	38	238	367	281	54	652	193	155	544	287
Shared Lane Traffic (%)												
Lane Group Flow (vph)	373	389	0	238	367	281	54	845	0	155	544	287
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	29.0	38.0	0.0	37.0	46.0	20.0	15.0	55.0	0.0	20.0	60.0	29.0
Total Split (%)	19.3%	25.3%	0.0%	24.7%	30.7%	13.3%	10.0%	36.7%	0.0%	13.3%	40.0%	19.3%
Maximum Green (s)	23.1	32.1		31.4	40.4	14.1	8.8	49.3		14.1	54.6	23.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	21.7	30.9		25.3	34.5	47.0	69.8	61.4		78.2	68.0	89.6
Actuated g/C Ratio	0.14	0.21		0.17	0.23	0.31	0.47	0.41		0.52	0.45	0.60
v/c Ratio	0.80	0.55		0.82	0.88	0.60	0.13	0.62		0.52	0.34	0.32

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Mitigated Phase 2 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	75.2	56.0		76.4	70.4	29.1	21.2	39.6		26.9	29.6	11.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	75.2	56.0		76.4	70.4	29.1	21.2	39.6		26.9	29.6	11.2
LOS	E	E		E	E	C	C	D		C	C	B
Approach Delay	65.4			58.9			38.5			23.8		
Approach LOS	E			E			D			C		
Queue Length 50th (ft)	183	178		209	312	157	26	350		79	188	96
Queue Length 95th (ft)	234	227		313	392	181	56	470		136	262	158
Internal Link Dist (ft)	718			652			519			599		
Turn Bay Length (ft)	250									200		
Base Capacity (vph)	520	766		367	495	498	419	1363		324	1588	928
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.72	0.51		0.65	0.74	0.56	0.13	0.62		0.48	0.34	0.31

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 11 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 45.3

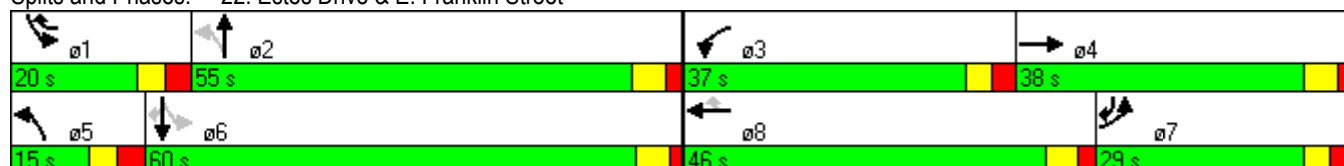
Intersection LOS: D

Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Mitigated Phase 2 Noon Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	0	0	174	29	2038	1836	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Frt							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	195				906	1201	
Travel Time (s)	5.3				13.7	18.2	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	193	32	2264	2040	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	225	2264	2040	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	30.0	30.0	120.0	90.0	0.0
Total Split (%)	0.0%	0.0%	25.0%	25.0%	100.0%	75.0%	0.0%
Maximum Green (s)			23.0	23.0	113.0	83.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effct Green (s)				21.5	120.0	88.5	
Actuated g/C Ratio				0.18	1.00	0.74	
v/c Ratio				0.71	0.64	0.78	
Control Delay				52.2	0.4	9.2	
Queue Delay				0.0	0.0	0.0	
Total Delay				52.2	0.4	9.2	
LOS				D	A	A	
Approach Delay					5.1	9.2	
Approach LOS					A	A	
Queue Length 50th (ft)				173	0	351	
Queue Length 95th (ft)				m205	m0	381	
Internal Link Dist (ft)	115				826	1121	
Turn Bay Length (ft)							

Lanes, Volumes, Timings
 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Mitigated Phase 2 Noon Peak
 10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Base Capacity (vph)				369	3539	2611	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	9	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.61	0.64	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 6.9

Intersection LOS: A

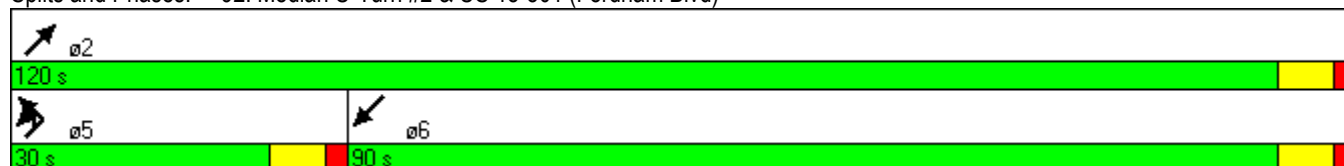
Intersection Capacity Utilization 70.3%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	96	131	81	316	103	63	170	1480	3	131	1294	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97				0.98							
Frt		0.943			0.943						0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1690	0	3302	1718	0	1761	3522	0	1719	3550	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1657	1690	0	3302	1718	0	1761	3522	0	1719	3550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	17					17						
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	102	139	86	333	108	66	179	1558	3	139	1377	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	225	0	333	174	0	179	1561	0	139	1395	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		15.0	68.0	
Total Split (s)	33.0	33.0	0.0	35.0	35.0	0.0	27.0	89.0	0.0	23.0	85.0	0.0
Total Split (%)	18.3%	18.3%	0.0%	19.4%	19.4%	0.0%	15.0%	49.4%	0.0%	12.8%	47.2%	0.0%
Maximum Green (s)	26.7	26.7		29.2	29.2		20.8	83.2		16.7	79.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2023 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	26.7	26.7		23.8	23.8		22.0	91.4		18.1	87.5	
Actuated g/C Ratio	0.15	0.15		0.13	0.13		0.12	0.51		0.10	0.49	
v/c Ratio	0.40	0.90		0.76	0.77		0.83	0.87		0.80	0.81	
Control Delay	74.2	109.9		86.9	96.6		79.0	29.9		109.4	44.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	74.2	109.9		86.9	96.6		79.0	29.9		109.4	44.7	
LOS	E	F		F	F		E	C		F	D	
Approach Delay		98.8			90.2			35.0			50.5	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	110	263		199	202		202	679		161	735	
Queue Length 95th (ft)	177	#417		247	284		m238	#1031		#286	895	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	265	263		550	286		215	1789		183	1727	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.38	0.86		0.61	0.61		0.83	0.87		0.76	0.81	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 58 (32%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 52.7

Intersection LOS: D

Intersection Capacity Utilization 86.1%

ICU Level of Service E

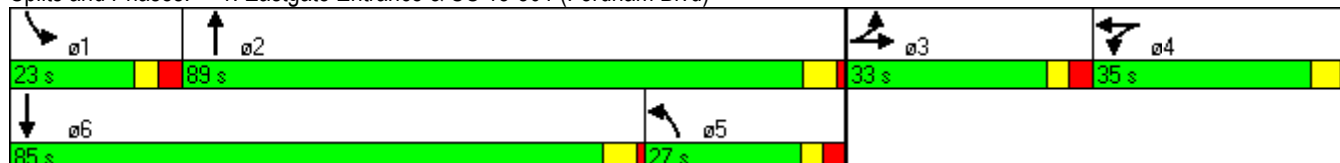
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	161	86	290	294	46	72	234	1624	301	14	31	1407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.977				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1770	3458	0	0	1770	3539
Flt Permitted	0.950			0.950			0.052				0.044	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	97	3458	0	0	82	3539
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45				45
Link Distance (ft)		423			542			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Confl. Peds. (#/hr)							3					
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	169	91	305	327	51	80	249	1728	320	15	34	1529
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	91	305	327	51	80	249	2048	0	0	49	1529
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	19.0		14.0	14.0	19.0
Total Split (s)	30.0	19.0	38.0	27.0	16.0	14.0	38.0	120.0	0.0	14.0	14.0	96.0
Total Split (%)	16.7%	10.6%	21.1%	15.0%	8.9%	7.8%	21.1%	66.7%	0.0%	7.8%	7.8%	53.3%
Maximum Green (s)	23.0	12.0	31.0	20.0	9.0	7.0	31.0	113.0		7.0	7.0	89.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	24.9	12.6	45.6	21.4	11.9	19.1	131.0	117.0			102.0	93.0
Actuated g/C Ratio	0.14	0.07	0.25	0.12	0.07	0.11	0.73	0.65			0.57	0.52
v/c Ratio	0.69	0.69	0.79	0.80	0.41	0.48	0.66	0.91			0.37	0.84
Control Delay	89.9	108.3	55.6	92.3	91.2	63.4	54.3	16.6			32.7	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8			0.0	0.2
Total Delay	89.9	108.3	55.6	92.3	91.2	63.4	54.3	18.4			32.7	15.5
LOS	F	F	E	F	F	E	D	B			C	B

Lane Group	SBR
Lane Configurations	
Volume (vph)	215
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1548
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	3
Peak Hour Factor	0.92
Adj. Flow (vph)	234
Shared Lane Traffic (%)	
Lane Group Flow (vph)	234
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	16.7%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	117.9
Actuated g/C Ratio	0.66
v/c Ratio	0.23
Control Delay	3.9
Queue Delay	0.0
Total Delay	3.9
LOS	A

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2023 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach Delay		74.4			87.1			22.3				14.5
Approach LOS		E			F			C				B
Queue Length 50th (ft)	197	106	251	196	58	70	234	1014			11	306
Queue Length 95th (ft)	286	#175	345	256	112	118	m290	630			m30	389
Internal Link Dist (ft)		343			462			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	262	145	388	420	128	168	377	2247			131	1828
Starvation Cap Reductn	0	0	0	0	0	0	0	95			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	27
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.65	0.63	0.79	0.78	0.40	0.48	0.66	0.95			0.37	0.85

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 33 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 31.1

Intersection LOS: C

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø3	 ø4
120 s	14 s	27 s	19 s
 ø6	 ø5	 ø7	 ø8
96 s	38 s	30 s	16 s



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	29
Queue Length 95th (ft)	m40
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1033
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.23
Intersection Summary	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Mitigated PM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		  		 		
Volume (vph)	12	141	123	1	2535	172	2554	24	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			0		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	0.91	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850		0.990			0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	5532	0	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	0	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					779		913		
Travel Time (s)					11.8		13.8		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.39	0.86	0.59	0.59	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	31	164	208	2	2755	187	2838	27	8
Shared Lane Traffic (%)									
Lane Group Flow (vph)	31	164	210	0	2942	0	2838	35	0
Turn Type	custom	custom	custom					Perm	
Protected Phases	3	3 4	4		2		6		
Permitted Phases	3	4	4					6	
Detector Phase	3	3 4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0		7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0		14.0		33.0		25.0	25.0	
Total Split (s)	14.0	30.0	16.0	0.0	110.0	0.0	110.0	110.0	0.0
Total Split (%)	10.0%	21.4%	11.4%	0.0%	78.6%	0.0%	78.6%	78.6%	0.0%
Maximum Green (s)	7.0		9.0		103.0		103.0	103.0	
Yellow Time (s)	5.0		5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0		2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	-1.6	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	2.4	5.0	5.0	4.0
Lead/Lag	Lag		Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0		2.0		2.0		2.0	2.0	
Recall Mode	None		None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	25.0	11.0		105.0		105.0	105.0	
Actuated g/C Ratio	0.06	0.18	0.08		0.75		0.75	0.75	
v/c Ratio	0.30	0.58	0.97		0.71		1.02	0.03	
Control Delay	70.3	61.9	116.8		5.8		25.1	3.3	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2023 Mitigated PM Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.7		15.5	0.0	
Total Delay	70.3	61.9	116.8		6.5		40.7	3.3	
LOS	E	E	F		A		D	A	
Approach Delay					6.5		40.2		
Approach LOS					A		D		
Queue Length 50th (ft)	27	138	110		158		~1196	5	
Queue Length 95th (ft)	27	207	101		280		m#1442	m5	
Internal Link Dist (ft)					699		833		
Turn Bay Length (ft)								100	
Base Capacity (vph)	104	283	217		4149		2794	1187	
Starvation Cap Reductn	0	0	0		747		110	0	
Spillback Cap Reductn	0	0	0		0		0	0	
Storage Cap Reductn	0	0	0		0		0	0	
Reduced v/c Ratio	0.30	0.58	0.97		0.86		1.06	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 117 (84%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 27.6

Intersection LOS: C

Intersection Capacity Utilization 94.8%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 02	 04	 03
110 s	16 s	14 s
 06		
110 s		

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	1541	66	0	1057	1152	0	0	356	0	0	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	1675	72	0	1149	1252	0	0	387	0	0	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1675	72	0	1149	1252	0	0	387	0	0	117
Turn Type			Free			Free			custom			Free
Protected Phases		2			6 8				8			
Permitted Phases			Free			Free			8			Free
Detector Phase		2			6 8				8			
Switch Phase												
Minimum Initial (s)		12.0							7.0			
Minimum Split (s)		20.0							14.0			
Total Split (s)	0.0	112.0	0.0	0.0	180.0	0.0	0.0	0.0	68.0	0.0	0.0	0.0
Total Split (%)	0.0%	62.2%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	37.8%	0.0%	0.0%	0.0%
Maximum Green (s)		105.0							61.0			
Yellow Time (s)		5.0							5.0			
All-Red Time (s)		2.0							2.0			
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	4.0	4.0	7.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0			
Recall Mode		C-Max							None			
Act Effct Green (s)		114.8	180.0		180.0	180.0			55.2			180.0
Actuated g/C Ratio		0.64	1.00		1.00	1.00			0.31			1.00
v/c Ratio		0.74	0.05		0.32	0.79			0.78			0.07
Control Delay		26.2	0.1		0.1	12.4			68.1			0.1
Queue Delay		0.0	0.0		0.0	0.0			0.0			0.0
Total Delay		26.2	0.1		0.1	12.4			68.1			0.1
LOS		C	A		A	B			E			A
Approach Delay		25.1			6.5							
Approach LOS		C			A							
Queue Length 50th (ft)		705	0		0	415			415			0

Lane Group	ø6
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	112.0
Total Split (%)	62%
Maximum Green (s)	105.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2023 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		875	0		m0	m463			526			0
Internal Link Dist (ft)		388			354			518			588	
Turn Bay Length (ft)			275									
Base Capacity (vph)		2257	1583		3511	1583			564			1611
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		0.74	0.05		0.33	0.79			0.69			0.07

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 165 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 18.5

Intersection LOS: B

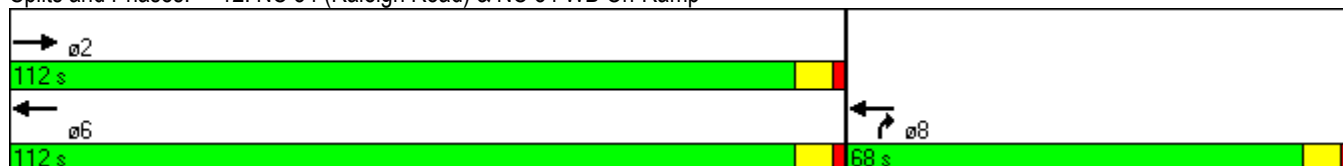
Intersection Capacity Utilization 73.0%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp



Lane Group	ø6
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Mitigated PM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	31	176	2258	73	106	2159	239	176	29	115	350	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	350	
Storage Lanes		2		0	1		1	1		1	2	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	0.97	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor		1.00	1.00		1.00		0.97	0.99		0.95	0.96	
Frt			0.995				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3433	5049	0	1770	5085	1583	1770	1863	1583	3433	1863
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3429	5049	0	1767	5085	1535	1747	1863	1503	3305	1863
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			547			576			537			628
Travel Time (s)			8.3			8.7			14.6			17.1
Confl. Peds. (#/hr)		7		11	11		7	8		25	25	
Peak Hour Factor	0.92	0.94	0.94	0.94	0.89	0.89	0.89	0.65	0.65	0.65	0.89	0.89
Adj. Flow (vph)	34	187	2402	78	119	2426	269	271	45	177	393	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	221	2480	0	119	2426	269	271	45	177	393	29
Turn Type	Prot	Prot			Prot		pm+ov	Prot		pm+ov	Prot	
Protected Phases	5!	5	2		1	6	7	3	8	1	7	4
Permitted Phases							6			8		
Detector Phase	5	5	2		1	6	7	3	8	1	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0	27.0		13.0	26.0	14.0	14.0	41.0	13.0	14.0	39.0
Total Split (s)	18.0	18.0	93.0	0.0	17.0	92.0	29.0	31.0	41.0	17.0	29.0	39.0
Total Split (%)	10.0%	10.0%	51.7%	0.0%	9.4%	51.1%	16.1%	17.2%	22.8%	9.4%	16.1%	21.7%
Maximum Green (s)	11.0	11.0	87.4		11.6	86.1	22.0	24.0	34.6	11.6	22.0	32.5
Yellow Time (s)	5.0	5.0	3.8		3.0	4.1	5.0	5.0	3.1	3.0	5.0	3.2
All-Red Time (s)	2.0	2.0	1.8		2.4	1.8	2.0	2.0	3.3	2.4	2.0	3.3
Lost Time Adjust (s)	0.0	-2.0	-0.6	0.0	-0.4	-0.9	-2.0	-2.0	-1.4	-0.4	-2.0	-1.5
Total Lost Time (s)	7.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	3.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Dont Walk (s)			12.0			13.0			27.0			25.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		36.2	114.8		12.0	90.6	115.0	26.0	11.5	21.8	24.4	9.9
Actuated g/C Ratio		0.20	0.64		0.07	0.50	0.64	0.14	0.06	0.12	0.14	0.06
v/c Ratio		0.32	0.77		1.01	0.95	0.27	1.06	0.38	0.94	0.84	0.28
Control Delay		65.1	20.3		122.0	23.3	7.7	142.5	89.2	113.2	92.6	88.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	309
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.97
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1543
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	8
Peak Hour Factor	0.89
Adj. Flow (vph)	347
Shared Lane Traffic (%)	
Lane Group Flow (vph)	347
Turn Type	pm+ov
Protected Phases	5!
Permitted Phases	4
Detector Phase	5
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	18.0
Total Split (%)	10.0%
Maximum Green (s)	11.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-1.5
Total Lost Time (s)	5.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	43.5
Actuated g/C Ratio	0.24
v/c Ratio	0.91
Control Delay	93.0
Queue Delay	0.0

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2023 Mitigated PM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay		65.1	20.3		122.0	23.3	7.7	142.5	89.2	113.2	92.6	88.0
LOS		E	C		F	C	A	F	F	F	F	F
Approach Delay			24.0			26.0			127.1			92.6
Approach LOS			C			C			F			F
Queue Length 50th (ft)		103	783		~141	823	93	~350	52	162	238	34
Queue Length 95th (ft)		153	720		m#220	#1000	m132	306	70	159	#316	71
Internal Link Dist (ft)			467			496			457			548
Turn Bay Length (ft)		300			250		150	150		150	350	
Base Capacity (vph)		690	3220		118	2560	987	256	373	188	466	352
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.32	0.77		1.01	0.95	0.27	1.06	0.12	0.94	0.84	0.08

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 38 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 40.1

Intersection LOS: D

Intersection Capacity Utilization 94.4%

ICU Level of Service F

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.

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

! Phase conflict between lane groups.

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

			
ø2	ø1	ø3	ø4
93 s	17 s	31 s	39 s
			
ø5	ø6	ø7	ø8
18 s	92 s	29 s	41 s



Lane Group	SBR
Total Delay	93.0
LOS	F
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	378
Queue Length 95th (ft)	#552
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	381
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.91
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	2556	99	55	2082	104	139	19	357	176	10	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.94	1.00		0.98	0.99	1.00				
Fr't			0.850			0.850		0.875	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (prot)	3467	5136	1599	3416	5060	1575	1648	1450	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (perm)	3466	5136	1504	3409	5060	1546	1639	1449	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	4		25	25		4	4					4
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	155	2691	104	60	2288	114	164	22	420	205	12	217
Shared Lane Traffic (%)							10%		46%			
Lane Group Flow (vph)	155	2691	104	60	2288	114	148	231	227	205	12	217
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	17.0	102.0	44.0	16.0	101.0	18.0	44.0	44.0	60.0	18.0	18.0	35.0
Total Split (%)	9.4%	56.7%	24.4%	8.9%	56.1%	10.0%	24.4%	24.4%	33.3%	10.0%	10.0%	19.4%
Maximum Green (s)	9.8	95.4	36.9	8.9	94.5	10.7	36.9	36.9		10.7	10.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	14.9	102.6	136.0	11.0	98.8	111.8	33.4	33.4	44.4	13.0	13.0	27.9
Actuated g/C Ratio	0.08	0.57	0.76	0.06	0.55	0.62	0.19	0.19	0.25	0.07	0.07	0.16
v/c Ratio	0.54	0.92	0.09	0.29	0.82	0.12	0.49	0.86	0.62	0.81	0.09	0.87

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2023 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	72.8	49.4	7.3	69.2	23.1	6.2	70.1	98.7	58.6	105.8	79.7	81.9
Queue Delay	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	49.8	7.3	69.2	23.2	6.2	70.1	98.7	58.6	105.8	79.7	81.9
LOS	E	D	A	E	C	A	E	F	E	F	E	F
Approach Delay	49.5			23.5			76.7			93.1		
Approach LOS	D			C			E			F		
Queue Length 50th (ft)	96	1000	40	36	873	28	165	291	205	125	14	174
Queue Length 95th (ft)	m127	1081	m52	m56	311	m38	226	376	263	#177	36	#278
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	286	2929	1180	209	2777	962	357	314	410	252	137	249
Starvation Cap Reductn	0	0	0	0	24	0	0	0	0	0	0	0
Spillback Cap Reductn	0	40	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	0.54	0.93	0.09	0.29	0.83	0.12	0.41	0.74	0.55	0.81	0.09	0.87

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 168 (93%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 45.1

Intersection LOS: D

Intersection Capacity Utilization 86.6%

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.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø3	 ø4
102 s	16 s	18 s	44 s
 ø5	 ø6		
17 s	101 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	7	2368	726	163	1969	196	278	67	43	127	89	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.95			0.98						
Frt			0.850			0.850		0.967			0.986	
Flt Protected	0.950			0.950			0.950	0.979		0.950	0.994	
Satd. Flow (prot)	1761	4448	1575	1778	5111	1591	1673	1667	0	1664	1717	0
Flt Permitted	0.051			0.041			0.950	0.979		0.950	0.994	
Satd. Flow (perm)	95	4448	1500	77	5111	1553	1673	1667	0	1664	1717	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)	1		6	6		1						
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	7	2467	756	173	2095	209	309	74	48	144	101	12
Shared Lane Traffic (%)							30%			12%		
Lane Group Flow (vph)	7	2467	756	173	2095	209	216	215	0	127	130	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	108.0	34.0	18.0	110.0	20.0	34.0	34.0	0.0	20.0	20.0	0.0
Total Split (%)	8.9%	60.0%	18.9%	10.0%	61.1%	11.1%	18.9%	18.9%	0.0%	11.1%	11.1%	0.0%
Maximum Green (s)	9.2	100.5	26.8	11.0	102.5	12.8	26.8	26.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	120.0	103.0	132.0	116.0	118.2	133.2	29.0	29.0		15.0	15.0	
Actuated g/C Ratio	0.67	0.57	0.73	0.64	0.66	0.74	0.16	0.16		0.08	0.08	
v/c Ratio	0.05	0.97	0.68	1.01	0.62	0.18	0.80	0.80		0.91	0.91	
Control Delay	5.6	24.9	4.7	133.9	19.5	6.6	94.2	94.2		135.4	133.5	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2023 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	2.3	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.6	27.2	4.8	133.9	19.5	6.6	94.2	94.2		135.4	133.5	
LOS	A	C	A	F	B	A	F	F		F	F	
Approach Delay		21.9			26.4			94.2			134.4	
Approach LOS		C			C			F			F	
Queue Length 50th (ft)	1	1057	128	~154	478	55	263	262		160	163	
Queue Length 95th (ft)	m2	#875	m123	#330	650	112	#404	#403		#297	#300	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	166	2545	1112	172	3358	1153	270	269		139	143	
Starvation Cap Reductn	0	45	23	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	28	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.99	0.69	1.01	0.63	0.18	0.80	0.80		0.91	0.91	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 175 (97%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 33.1

Intersection LOS: C

Intersection Capacity Utilization 84.7%

ICU Level of Service E

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ 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.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2	 ø1	 ø3	 ø4
108 s	18 s	20 s	34 s
 ø5	 ø6		
16 s	110 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Mitigated PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	383	63	234	463	244	81	880	203	125	713	439
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		0.99		0.98		0.99				0.92
Frt		0.979				0.850		0.972				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3452	0	1770	1863	1583	1770	3420	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.242			0.067		
Satd. Flow (perm)	3406	3452	0	1757	1863	1550	451	3420	0	125	3539	1450
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	5		9	9		5	14		13	13		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	400	395	65	241	477	252	87	946	218	133	759	467
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	460	0	241	477	252	87	1164	0	133	759	467
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	26.0	38.0	0.0	36.0	48.0	16.0	15.0	60.0	0.0	16.0	61.0	26.0
Total Split (%)	17.3%	25.3%	0.0%	24.0%	32.0%	10.7%	10.0%	40.0%	0.0%	10.7%	40.7%	17.3%
Maximum Green (s)	20.1	32.1		30.4	42.4	10.1	8.8	54.3		10.1	55.6	20.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	20.8	36.8		24.8	40.9	51.3	66.9	57.9		69.8	59.3	80.1
Actuated g/C Ratio	0.14	0.25		0.17	0.27	0.34	0.45	0.39		0.47	0.40	0.53
v/c Ratio	0.84	0.54		0.82	0.94	0.47	0.31	0.88		0.77	0.54	0.59
Control Delay	79.2	52.4		78.3	73.2	23.8	24.8	52.5		60.2	37.4	19.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2023 Mitigated PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	79.2	52.4		78.3	73.2	23.8	24.8	52.5		60.2	37.4	19.7
LOS	E	D		E	E	C	C	D		E	D	B
Approach Delay		64.9			61.6			50.6			33.5	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)	199	204		217	472	123	46	574		79	306	217
Queue Length 95th (ft)	#276	276		m315	#634	m176	81	#713		#185	378	296
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	491	847		366	534	538	292	1321		179	1400	800
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.81	0.54		0.66	0.89	0.47	0.30	0.88		0.74	0.54	0.58

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 8 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 50.6

Intersection LOS: D

Intersection Capacity Utilization 90.1%

ICU Level of Service E

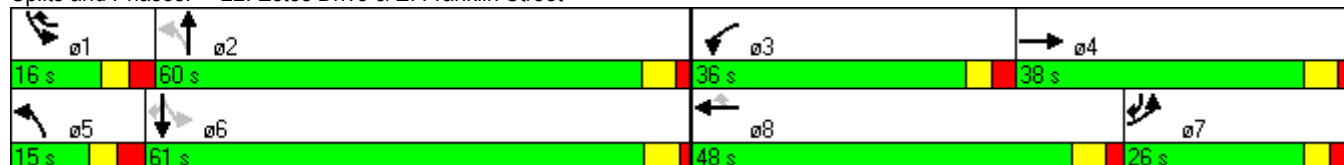
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Mitigated PM Peak
10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	←←←	←←	
Volume (vph)	0	0	97	25	2586	2604	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	221				913	1194	
Travel Time (s)	6.0				13.8	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	108	28	2873	2893	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	136	2873	2893	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	17.0	17.0	140.0	123.0	0.0
Total Split (%)	0.0%	0.0%	12.1%	12.1%	100.0%	87.9%	0.0%
Maximum Green (s)			10.0	10.0	133.0	116.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effct Green (s)				12.0	140.0	118.0	
Actuated g/C Ratio				0.09	1.00	0.84	
v/c Ratio				0.89	0.56	0.97	
Control Delay				95.8	0.3	11.0	
Queue Delay				0.0	0.0	0.0	
Total Delay				95.8	0.3	11.0	
LOS				F	A	B	
Approach Delay					4.6	11.0	
Approach LOS					A	B	
Queue Length 50th (ft)				125	0	550	

Lanes, Volumes, Timings
 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2023 Mitigated PM Peak
 10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m#224	0	m421	
Internal Link Dist (ft)	141				833	1114	
Turn Bay Length (ft)				250			
Base Capacity (vph)				152	5085	2983	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	0	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.89	0.56	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 102 (73%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 7.8

Intersection LOS: A

Intersection Capacity Utilization 87.1%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



2028 Without Site Phase 3

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	67	36	221	75	51	87	1276	4	166	1486	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99							
Frt		0.948			0.940							0.999
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1698	0	3208	1683	0	1744	3487	0	1702	3519	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1699	1698	0	3208	1683	0	1744	3487	0	1702	3519	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	34	79	42	235	80	54	93	1357	4	189	1689	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	121	0	235	134	0	93	1361	0	189	1706	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	20.0	20.0		33.0	33.0		20.0	80.0		18.0	68.0	
Total Split (s)	25.0	25.0	0.0	33.0	33.0	0.0	21.0	95.0	0.0	37.0	111.0	0.0
Total Split (%)	13.2%	13.2%	0.0%	17.4%	17.4%	0.0%	11.1%	50.0%	0.0%	19.5%	58.4%	0.0%
Maximum Green (s)	18.7	18.7		27.2	27.2		14.8	89.2		30.7	105.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	17.6	17.6		20.6	20.6		16.0	106.3		25.5	115.8	
Actuated g/C Ratio	0.09	0.09		0.11	0.11		0.08	0.56		0.13	0.61	
v/c Ratio	0.22	0.77		0.68	0.74		0.63	0.70		0.83	0.80	
Control Delay	82.0	113.2		90.9	104.3		83.1	20.2		107.3	33.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	82.0	113.2		90.9	104.3		83.1	20.2		107.3	33.0	
LOS	F	F		F	F		F	C		F	C	
Approach Delay		106.4			95.8			24.2			40.4	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	40	149		148	165		116	514		233	842	
Queue Length 95th (ft)	77	215		192	240		m156	770		313	1001	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	179	179		473	248		147	1951		288	2145	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.68		0.50	0.54		0.63	0.70		0.66	0.80	

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 15 (8%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 42.2

Intersection LOS: D

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
37 s	95 s	25 s	33 s
 ø6	 ø5		
111 s	21 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	54	76	131	276	27	85	149	1446	156	17	31	1533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.985				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1719	1810	1487	3433	1863	1583	1752	3452	0	0	1752	3505
Flt Permitted	0.950			0.950			0.063				0.070	
Satd. Flow (perm)	1719	1810	1487	3433	1863	1583	116	3452	0	0	129	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			405			800				1344
Travel Time (s)		8.2			11.0			12.1				20.4
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	64	90	156	307	30	94	167	1625	175	19	35	1722
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	90	156	307	30	94	167	1800	0	0	54	1722
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	20.0	20.0	30.0	14.0	20.0	15.0	30.0	135.0		15.0	15.0	115.0
Total Split (s)	20.0	20.0	30.0	20.0	20.0	15.0	30.0	135.0	0.0	15.0	15.0	120.0
Total Split (%)	10.5%	10.5%	15.8%	10.5%	10.5%	7.9%	15.8%	71.1%	0.0%	7.9%	7.9%	63.2%
Maximum Green (s)	13.0	13.0	23.0	13.0	13.0	8.0	23.0	128.0		8.0	8.0	113.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effect Green (s)	22.0	13.4	30.0	16.6	10.8	18.3	143.7	130.7			132.6	123.3
Actuated g/C Ratio	0.12	0.07	0.16	0.09	0.06	0.10	0.76	0.69			0.70	0.65
v/c Ratio	0.32	0.71	0.66	1.02	0.28	0.61	0.72	0.76			0.32	0.76
Control Delay	84.8	114.4	70.4	137.4	92.0	78.6	65.4	14.0			9.8	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.1
Total Delay	84.8	114.4	70.4	137.4	92.0	78.6	65.4	14.0			9.8	6.7

Lane Group	SBR
Lane Configurations	
Volume (vph)	96
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1535
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Peak Hour Factor	0.89
Heavy Vehicles (%)	3%
Adj. Flow (vph)	108
Shared Lane Traffic (%)	
Lane Group Flow (vph)	108
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	10.5%
Maximum Green (s)	13.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	145.3
Actuated g/C Ratio	0.76
v/c Ratio	0.09
Control Delay	1.8
Queue Delay	0.0
Total Delay	1.8

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
LOS	F	F	E	F	F	E	E	B			A	A
Approach Delay		86.1			121.5			18.3				6.5
Approach LOS		F			F			B				A
Queue Length 50th (ft)	76	111	154	~227	37	94	111	422			4	168
Queue Length 95th (ft)	126	168	198	#337	76	151	207	249			m8	196
Internal Link Dist (ft)		343			325			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	199	143	300	301	147	159	304	2374			176	2275
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	68
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.32	0.63	0.52	1.02	0.20	0.59	0.55	0.76			0.31	0.78

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 181 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 190

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 79.1%

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.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø1	 ø2		 ø4	 ø3
15 s	135 s		20 s	20 s
 ø5	 ø6		 ø8	 ø7
30 s	120 s		20 s	20 s



Lane Group	SBR
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	16
Queue Length 95th (ft)	m22
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1178
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.09
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	27	25	54	62	18	60	1408	10	7	1572	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.927			0.966			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1735	0	1761	1790	0	1778	3553	0	1778	3557	1591
Flt Permitted	0.366			0.715			0.077			0.116		
Satd. Flow (perm)	685	1735	0	1325	1790	0	144	3553	0	217	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Peak Hour Factor	0.81	0.81	0.81	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88
Adj. Flow (vph)	95	33	31	66	76	22	65	1514	11	8	1786	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	64	0	66	98	0	65	1525	0	8	1786	184
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		33.0	33.0		15.0	90.0		15.0	80.0	80.0
Total Split (s)	15.0	51.0	0.0	36.0	36.0	0.0	15.0	124.0	0.0	15.0	124.0	124.0
Total Split (%)	7.9%	26.8%	0.0%	18.9%	18.9%	0.0%	7.9%	65.3%	0.0%	7.9%	65.3%	65.3%
Maximum Green (s)	8.7	44.6		29.6	29.6		8.9	117.9		9.4	117.9	117.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	0.0	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	6.4	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	31.3	31.3		14.9	16.3		143.7	143.7		133.7	133.7	133.7
Actuated g/C Ratio	0.16	0.16		0.08	0.09		0.76	0.76		0.70	0.70	0.70
v/c Ratio	0.56	0.22		0.63	0.64		0.33	0.57		0.04	0.71	0.16
Control Delay	82.1	69.6		110.2	101.8		9.9	3.6		6.9	10.6	7.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.4	0.0
Total Delay	82.1	69.6		110.2	101.8		9.9	3.6		6.9	11.1	7.0

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	E		F	F		A	A		A	B	A
Approach Delay		77.1			105.2			3.9			10.7	
Approach LOS		E			F			A			B	
Queue Length 50th (ft)	106	70		82	121		4	47		2	350	48
Queue Length 95th (ft)	148	106		125	169		m8	84		m3	m420	m92
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	170	420		206	292		195	2687		235	2503	1120
Starvation Cap Reductn	0	0		0	0		0	0		0	274	0
Spillback Cap Reductn	0	0		0	0		0	6		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.56	0.15		0.32	0.34		0.33	0.57		0.03	0.80	0.16

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 182 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 14.6

Intersection LOS: B

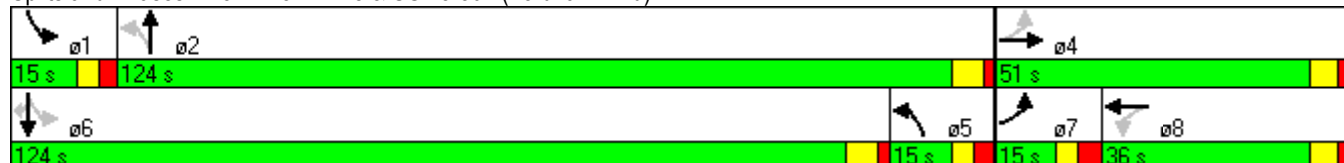
Intersection Capacity Utilization 69.1%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	53	4	368	8	8	15	5	346	1659	6	16	1746
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99			0.99							
Frt			0.850		0.934				0.999			
Flt Protected		0.955			0.987			0.950			0.950	
Satd. Flow (prot)	0	1703	2668	0	1502	0	0	3383	3484	0	1744	3489
Flt Permitted		0.955			0.987			0.950			0.950	
Satd. Flow (perm)	0	1678	2668	0	1502	0	0	3383	3484	0	1744	3489
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	10					10						
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	2%	3%	3%	3%	4%	4%
Adj. Flow (vph)	59	4	409	11	11	21	5	380	1823	7	19	2030
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	409	0	43	0	0	385	1830	0	19	2030
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	20.0	20.0	45.0	41.0	41.0		45.0	45.0	59.0		15.0	19.0
Total Split (s)	20.0	20.0	45.0	41.0	41.0	0.0	45.0	45.0	114.0	0.0	15.0	84.0
Total Split (%)	10.5%	10.5%	23.7%	21.6%	21.6%	0.0%	23.7%	23.7%	60.0%	0.0%	7.9%	44.2%
Maximum Green (s)	13.4	13.4	38.3	34.3	34.3		38.3	38.3	107.9		8.5	77.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

Lane Group	SBR
Lane Configurations	
Volume (vph)	78
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1561
Flt Permitted	
Satd. Flow (perm)	1561
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	4%
Adj. Flow (vph)	91
Shared Lane Traffic (%)	
Lane Group Flow (vph)	91
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	10.5%
Maximum Green (s)	13.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		12.1	44.3		11.2			27.2	145.4		9.4	122.2
Actuated g/C Ratio		0.06	0.23		0.06			0.14	0.77		0.05	0.64
v/c Ratio		0.58	0.66		0.48			0.79	0.69		0.22	0.91
Control Delay		106.4	70.5		103.5			90.9	15.5		73.4	21.4
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		106.4	70.5		103.5			90.9	15.5		73.4	21.4
LOS		F	E		F			F	B		E	C
Approach Delay		75.3			103.5				28.6			21.0
Approach LOS		E			F				C			C
Queue Length 50th (ft)		78	265		53			243	655		22	593
Queue Length 95th (ft)		134	313		80			297	877		m34	#1435
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		137	802		285			712	2666		92	2243
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.46	0.51		0.15			0.54	0.69		0.21	0.91

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 24 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 30.5

Intersection LOS: C

Intersection Capacity Utilization 100.0%

ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

 ø2		 ø1	 ø4	 ø3
114 s		15 s	41 s	20 s
 ø5	 ø6			
45 s	84 s			



Lane Group	SBR
Act Effect Green (s)	135.3
Actuated g/C Ratio	0.71
v/c Ratio	0.08
Control Delay	2.7
Queue Delay	0.0
Total Delay	2.7
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	7
Queue Length 95th (ft)	m22
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1138
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.08
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	9	0	0	121	0	1885	21	67	2017	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected										0.950		
Satd. Flow (prot)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Flt Permitted										0.950		
Satd. Flow (perm)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1002			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.71	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	13	0	0	170	0	2027	23	78	2345	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	13	0	0	170	0	2027	23	78	2345	15
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	32.0	14.0	108.0	108.0	32.0	126.0	126.0
Total Split (%)	0.0%	0.0%	10.0%	0.0%	0.0%	22.9%	10.0%	77.1%	77.1%	22.9%	90.0%	90.0%
Maximum Green (s)			7.0			25.0	7.0	101.0	101.0	25.0	119.0	119.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			21.7		108.3	108.3	21.7	132.4	132.4
Actuated g/C Ratio			0.06			0.16		0.77	0.77	0.16	0.95	0.95
v/c Ratio			0.12			0.69		0.75	0.02	0.29	0.71	0.01
Control Delay			64.8			70.2		6.7	2.1	53.6	3.4	1.0
Queue Delay			0.0			0.0		0.1	0.0	0.0	0.0	0.0
Total Delay			64.8			70.2		6.8	2.1	53.6	3.4	1.0
LOS			E			E		A	A	D	A	A
Approach Delay								6.7			5.0	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			11			148		240	2	63	0	0
Queue Length 95th (ft)			27			168		464	m3	105	346	4
Internal Link Dist (ft)		208			43			922			1513	
Turn Bay Length (ft)									150	200		150
Base Capacity (vph)			104			305		2710	1213	338	3315	1483
Starvation Cap Reductn			0			0		93	0	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.13			0.56		0.77	0.02	0.23	0.71	0.01

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 78 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 8.3

Intersection LOS: A

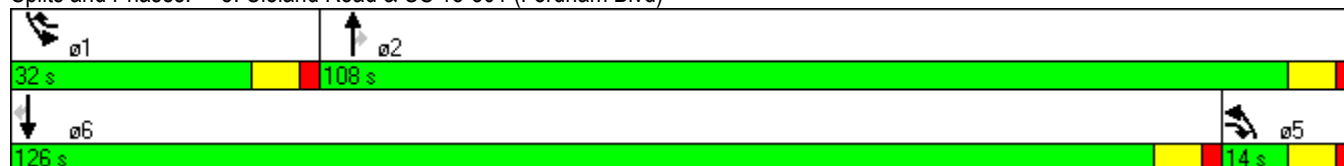
Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Volume (vph)	0	0	26	0	0	57	42	15	2039	28	44	1891
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				797			1036
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.80	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	38	0	0	71	46	16	2241	31	51	2199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	38	0	0	71	0	62	2241	31	51	2199
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	15.0	0.0	0.0	19.0	15.0	15.0	121.0	121.0	19.0	125.0
Total Split (%)	0.0%	0.0%	10.7%	0.0%	0.0%	13.6%	10.7%	10.7%	86.4%	86.4%	13.6%	89.3%
Maximum Green (s)			8.0			12.0	8.0	8.0	114.0	114.0	12.0	118.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			9.8			12.4		9.8	117.6	117.6	12.4	124.0
Actuated g/C Ratio			0.07			0.09		0.07	0.84	0.84	0.09	0.89
v/c Ratio			0.34			0.50		0.50	0.76	0.02	0.33	0.71
Control Delay			70.5			72.5		75.9	3.4	1.1	59.8	4.0
Queue Delay			0.0			0.0		0.0	0.0	0.0	0.0	0.0
Total Delay			70.5			72.5		75.9	3.4	1.1	59.8	4.0
LOS			E			E		E	A	A	E	A
Approach Delay									5.3			5.3
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	6
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	3%
Adj. Flow (vph)	7
Shared Lane Traffic (%)	
Lane Group Flow (vph)	7
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	125.0
Total Split (%)	89.3%
Maximum Green (s)	118.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	124.0
Actuated g/C Ratio	0.89
v/c Ratio	0.01
Control Delay	1.5
Queue Delay	0.0
Total Delay	1.5
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			34			62		57	97	2	44	302
Queue Length 95th (ft)			55			101		m85	103	m4	m68	266
Internal Link Dist (ft)		24			5				717			956
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			115			161		125	2944	1317	175	3104
Starvation Cap Reductn			0			0		0	0	0	0	12
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.33			0.44		0.50	0.76	0.02	0.29	0.71

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 42 (30%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 6.8

Intersection LOS: A

Intersection Capacity Utilization 70.5%

ICU Level of Service C

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)

	ø1		ø2
19 s		121 s	
	ø5		ø6
15 s		125 s	



Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m1
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1389
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.01
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1097	0	0	395	0	1628	30	0	1567	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	1291	0	0	470	0	1809	33	0	1632	211
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1291	0	0	470	0	1809	33	0	1632	211
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.0	0.0
Total Split (%)	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%
Maximum Green (s)			64.9								64.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			1.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			65.0			140.0		140.0	140.0		65.0	140.0
Actuated g/C Ratio			0.46			1.00		1.00	1.00		0.46	1.00
v/c Ratio			1.02			0.30		0.52	0.02		1.00	0.13
Control Delay			66.8			0.5		0.4	0.0		55.2	0.2
Queue Delay			11.9			0.0		0.0	0.0		0.0	0.0
Total Delay			78.8			0.5		0.4	0.0		55.2	0.2
LOS			E			A		A	A		E	A
Approach Delay								0.4			48.9	
Approach LOS								A			D	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			~705			0		0	0		~778	0
Queue Length 95th (ft)			#770			0		0	m0		#947	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1269			1580		3505	1583		1627	1568
Starvation Cap Reductn			42			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			1.05			0.30		0.52	0.02		1.00	0.13

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 93 (66%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 35.4

Intersection LOS: D

Intersection Capacity Utilization 90.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

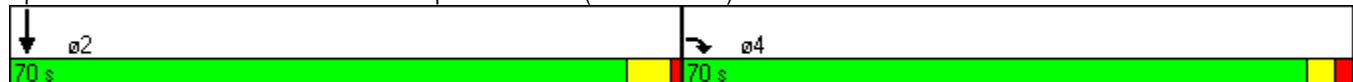
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2028 Without Site AM Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	79	0	1579	0	0	2257	407	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	88	0	1754	0	0	2508	452	0	14
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	88	0	1754	0	0	2508	452	0	14
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 72.4% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations									
Volume (vph)	27	115	236	16	3126	269	2131	6	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	0.91	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850		0.988			0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	5521	0	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1566	2759	0	*3787	0	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					709		916		
Travel Time (s)					10.7		13.9		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.61	0.52	0.47	0.47	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	44	221	502	34	3256	280	2449	7	1
Shared Lane Traffic (%)									
Lane Group Flow (vph)	44	221	536	0	3536	0	2449	8	0
Turn Type	custom	custom	custom					Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3			6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0	25.0	
Total Split (s)	14.0	31.0	31.0	0.0	95.0	0.0	95.0	95.0	0.0
Total Split (%)	10.0%	22.1%	22.1%	0.0%	67.9%	0.0%	67.9%	67.9%	0.0%
Maximum Green (s)	7.0	24.0	24.0		88.0		88.0	88.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes								
Vehicle Extension (s)	3.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effect Green (s)	9.0	28.4	28.4		97.6		90.4	90.4	
Actuated g/C Ratio	0.06	0.20	0.20		0.70		0.65	0.65	
v/c Ratio	0.42	0.69	0.96		0.94		1.02	0.01	
Control Delay	75.9	64.8	84.1		13.9		31.0	5.6	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		54.7		12.8	0.0	
Total Delay	75.9	64.8	84.1		68.7		43.8	5.6	
LOS	E	E	F		E		D	A	
Approach Delay					68.7		43.7		
Approach LOS					E		D		
Queue Length 50th (ft)	39	193	~300		643		~1179	1	
Queue Length 95th (ft)	54	151	167		m367		#1213	m1	
Internal Link Dist (ft)					629		836		
Turn Bay Length (ft)								100	
Base Capacity (vph)	104	322	559		3760		2406	1022	
Starvation Cap Reductn	0	0	0		611		80	0	
Spillback Cap Reductn	0	0	0		0		0	0	
Storage Cap Reductn	0	0	0		0		0	0	
Reduced v/c Ratio	0.42	0.69	0.96		1.12		1.05	0.01	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 60.8

Intersection LOS: E

Intersection Capacity Utilization 86.1%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø2	 ø3	 ø4
95 s	14 s	31 s
 ø6		
95 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	335	0	41	18	0	54	0	2942	9	0	1407	1081
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99								
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3434	0	1584	1752	0	1568	0	4010	0	0	3438	1538
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1564	1744	0	1568	0	*3811	0	0	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			774	
Travel Time (s)		7.4			14.0			8.8			11.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.88	1.00	0.88	0.68	1.00	0.68	1.00	0.94	0.94	1.00	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Parking (#/hr)										0		
Adj. Flow (vph)	381	0	47	26	0	79	0	3130	10	0	1481	1138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	381	0	47	26	0	79	0	3140	0	0	1481	1138
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				23.4			19.0	
Total Split (s)	32.0	0.0	0.0	32.0	0.0	0.0	0.0	108.0	0.0	0.0	108.0	0.0
Total Split (%)	22.9%	0.0%	0.0%	22.9%	0.0%	0.0%	0.0%	77.1%	0.0%	0.0%	77.1%	0.0%
Maximum Green (s)	25.0			25.0				101.0			101.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	21.0		140.0	21.0		140.0		109.0			109.0	140.0

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.15		1.00	0.15		1.00		0.78			0.78	1.00
v/c Ratio	0.74		0.03	0.10		0.05		1.01			0.55	0.74
Control Delay	65.7		0.0	50.3		0.1		33.6			5.7	3.1
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.2	0.0
Total Delay	65.7		0.0	50.3		0.1		33.6			5.9	3.1
LOS	E		A	D		A		C			A	A
Approach Delay								33.6			4.7	
Approach LOS								C			A	
Queue Length 50th (ft)	173		0	21		0		~1230			181	8
Queue Length 95th (ft)	214		0	36		0		#1581			215	7
Internal Link Dist (ft)		302			435			504			694	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	662		1564	338		1568		3123			2677	1538
Starvation Cap Reductn	0		0	0		0		0			468	0
Spillback Cap Reductn	0		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.58		0.03	0.08		0.05		1.01			0.67	0.74

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 98 (70%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 74.9%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

~ 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: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø3
108 s	32 s
 ø6	
108 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	237	36	576	454	536	36	64	122	428	157	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00		0.96		1.00	0.98	1.00	1.00	
Frt		0.980				0.850			0.850		0.993	
Flt Protected	0.950			0.950				0.982		0.950	0.979	
Satd. Flow (prot)	1517	3060	0	1752	1845	1672	0	1883	1482	1625	1948	0
Flt Permitted	0.481			0.387				0.982		0.950	0.979	
Satd. Flow (perm)	760	3060	0	711	1845	1613	0	1880	1456	1620	1945	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	7		3	3		7	6		3	3		6
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.79	0.79	0.79	0.88	0.88	0.88
Heavy Vehicles (%)	15%	15%	15%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	14	269	41	633	499	589	46	81	154	486	178	15
Shared Lane Traffic (%)										31%		
Lane Group Flow (vph)	14	310	0	633	499	589	0	127	154	335	344	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	33.0	33.0	0.0	35.0	68.0	37.0	25.0	25.0	35.0	37.0	37.0	0.0
Total Split (%)	25.4%	25.4%	0.0%	26.9%	52.3%	28.5%	19.2%	19.2%	26.9%	28.5%	28.5%	0.0%
Maximum Green (s)	25.7	25.7		28.2	60.7	30.3	18.3	18.3	28.2	30.3	30.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	28.0	28.0		63.0	63.0	94.0		21.0	51.0	31.0	31.0	
Actuated g/C Ratio	0.22	0.22		0.48	0.48	0.72		0.16	0.39	0.24	0.24	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.09	0.47		1.08	0.56	0.50		0.42	0.27	0.87	0.74	
Control Delay	42.6	47.3		89.2	26.7	7.5		54.3	25.6	69.8	56.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.6	47.3		89.2	26.7	7.5		54.3	25.6	69.8	56.3	
LOS	D	D		F	C	A		D	C	E	E	
Approach Delay		47.1			43.1			38.6			63.0	
Approach LOS		D			D			D			E	
Queue Length 50th (ft)	10	121		~434	290	152		98	82	284	281	
Queue Length 95th (ft)	28	164		#671	399	210		142	115	#431	387	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	164	659		585	894	1193		305	578	400	480	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.09	0.47		1.08	0.56	0.49		0.42	0.27	0.84	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 47.6

Intersection LOS: D

Intersection Capacity Utilization 100.6%

ICU Level of Service G

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: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
35 s	33 s	37 s	25 s
 ø6			
68 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	836	13	0	1444	1097	0	0	407	0	0	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	909	14	0	1570	1192	0	0	442	0	0	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	909	14	0	1570	1192	0	0	442	0	0	221
Turn Type			Free			Free			custom			Free
Protected Phases		2			6 8				8			
Permitted Phases			Free			Free			8			Free
Detector Phase		2			6 8				8			
Switch Phase												
Minimum Initial (s)		10.0							7.0			
Minimum Split (s)		17.0							14.0			
Total Split (s)	0.0	80.0	0.0	0.0	170.0	0.0	0.0	0.0	90.0	0.0	0.0	0.0
Total Split (%)	0.0%	47.1%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	52.9%	0.0%	0.0%	0.0%
Maximum Green (s)		73.0							83.0			
Yellow Time (s)		5.0							5.0			
All-Red Time (s)		2.0							2.0			
Lost Time Adjust (s)	0.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	2.0	4.0	7.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0			
Recall Mode		C-Max							None			
Act Effct Green (s)		92.3	170.0		170.0	170.0			67.7			170.0
Actuated g/C Ratio		0.54	1.00		1.00	1.00			0.40			1.00
v/c Ratio		0.47	0.01		0.44	0.75			0.69			0.14
Control Delay		26.8	0.0		0.1	9.7			47.2			0.2
Queue Delay		0.0	0.0		0.0	0.0			0.0			0.0
Total Delay		26.8	0.0		0.1	9.7			47.2			0.2
LOS		C	A		A	A			D			A
Approach Delay		26.3			4.2							
Approach LOS		C			A							
Queue Length 50th (ft)		323	0		0	203			405			0

Lane Group	ø6
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	17.0
Total Split (s)	80.0
Total Split (%)	47%
Maximum Green (s)	73.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		463	0		m0	m213			452			0
Internal Link Dist (ft)		388			354			518			588	
Turn Bay Length (ft)			275									
Base Capacity (vph)		1921	1583		3514	1583			806			1611
Starvation Cap Reductn		0	0		0	0			0			0
Spillback Cap Reductn		0	0		0	0			0			0
Storage Cap Reductn		0	0		0	0			0			0
Reduced v/c Ratio		0.47	0.01		0.45	0.75			0.55			0.14

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 66 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 13.1

Intersection LOS: B

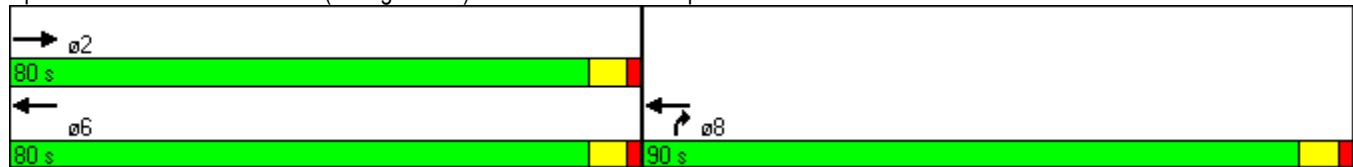
Intersection Capacity Utilization 56.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp



Lane Group	ø6
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2028 Without Site AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1247	2482	395	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1386	2886	459	0	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1386	2886	459	0	35
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 58.0% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2028 Without Site AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2576	2910	37	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		206	565		229	
Travel Time (s)		3.1	8.6		6.2	
Peak Hour Factor	1.00	1.00	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2576	3163	40	0	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2576	3163	40	0	48
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 66.2% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	226	2047	214	71	2520	313	208	38	114	172	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	350	
Storage Lanes		2		0	1		1	1		1	2	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	0.97	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor		1.00	1.00		1.00		0.97	0.98		0.98	0.99	
Frt			0.986				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3401	4944	0	1736	4988	1553	1736	1827	1553	3335	1810
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3399	4944	0	1734	4988	1499	1701	1827	1521	3307	1810
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			565			576			537			683
Travel Time (s)			8.6			8.7			14.6			18.6
Confl. Peds. (#/hr)		9		6	6		9	13		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86
Heavy Vehicles (%)	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%
Adj. Flow (vph)	11	257	2326	243	80	2831	352	320	58	175	200	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	268	2569	0	80	2831	352	320	58	175	200	33
Turn Type	Prot	Prot			Prot		pm+ov	Prot		pm+ov	Prot	
Protected Phases	5!	5	2		1	6	7	3	8	1	7	4
Permitted Phases							6			8		
Detector Phase	5	5	2		1	6	7	3	8	1	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0	27.0		13.0	26.0	14.0	14.0	41.0	13.0	14.0	39.0
Total Split (s)	16.0	16.0	88.0	0.0	13.0	85.0	21.0	30.0	48.0	13.0	21.0	39.0
Total Split (%)	9.4%	9.4%	51.8%	0.0%	7.6%	50.0%	12.4%	17.6%	28.2%	7.6%	12.4%	22.9%
Maximum Green (s)	9.0	9.0	82.4		7.6	79.1	14.0	23.0	41.6	7.6	14.0	32.5
Yellow Time (s)	5.0	5.0	3.8		3.0	4.1	5.0	5.0	3.1	3.0	5.0	3.2
All-Red Time (s)	2.0	2.0	1.8		2.4	1.8	2.0	2.0	3.3	2.4	2.0	3.3
Lost Time Adjust (s)	0.0	-2.0	-0.6	0.0	-0.4	-0.9	-2.0	-2.0	-1.4	-0.4	-2.0	-1.5
Total Lost Time (s)	7.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	3.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Dont Walk (s)			12.0			13.0			27.0			25.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		25.9	109.7		8.0	91.7	114.5	25.0	12.3	18.6	22.7	10.0
Actuated g/C Ratio		0.15	0.65		0.05	0.54	0.67	0.15	0.07	0.11	0.13	0.06
v/c Ratio		0.52	0.81		0.98	1.05	0.35	1.25	0.44	1.04	0.45	0.31
Control Delay		74.3	21.9		120.3	48.8	3.0	197.9	85.1	150.0	71.7	83.4

Lane Group	SBR
Lane Configurations	
Volume (vph)	153
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.97
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1538
Flt Permitted	
Satd. Flow (perm)	1488
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	13
Peak Hour Factor	0.86
Heavy Vehicles (%)	5%
Adj. Flow (vph)	178
Shared Lane Traffic (%)	
Lane Group Flow (vph)	178
Turn Type	pm+ov
Protected Phases	5!
Permitted Phases	4
Detector Phase	5
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	16.0
Total Split (%)	9.4%
Maximum Green (s)	9.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-1.5
Total Lost Time (s)	5.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	33.4
Actuated g/C Ratio	0.20
v/c Ratio	0.59
Control Delay	68.6

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		74.3	21.9		120.3	48.8	3.0	197.9	85.1	150.0	71.7	83.4
LOS		E	C		F	D	A	F	F	F	E	F
Approach Delay			26.8			45.6			170.9			71.3
Approach LOS			C			D			F			E
Queue Length 50th (ft)		150	597		90	~1253	40	~444	63	190	108	36
Queue Length 95th (ft)		196	629		m#111	#1353	m61	#388	80	189	145	70
Internal Link Dist (ft)			485			496			457			603
Turn Bay Length (ft)		300			250		150	150		150	350	
Base Capacity (vph)		519	3189		82	2691	1017	255	462	168	446	362
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.52	0.81		0.98	1.05	0.35	1.25	0.13	1.04	0.45	0.09

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 67 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 49.4

Intersection LOS: D

Intersection Capacity Utilization 95.7%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

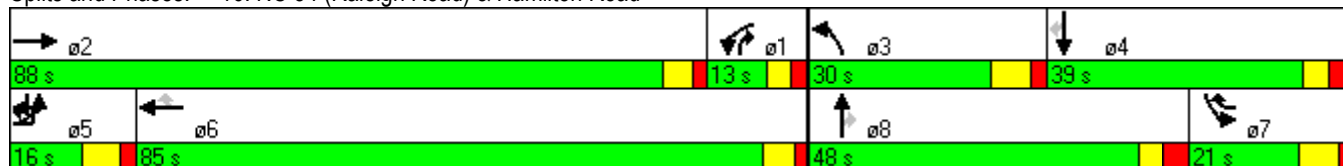
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Queue Delay	0.0
Total Delay	68.6
LOS	E
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	176
Queue Length 95th (ft)	238
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	300
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.59
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

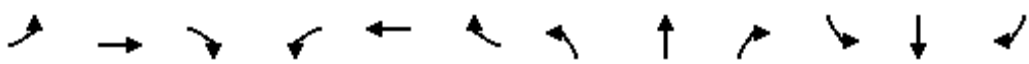
2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	2281	44	111	2805	17	18	5	203	36	8	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99	0.99		0.99	
Frt		0.997			0.999				0.850		0.936	
Flt Protected	0.950			0.950				0.962			0.979	
Satd. Flow (prot)	1770	5065	0	1736	4981	0	0	1775	1568	0	1688	0
Flt Permitted	0.035			0.037				0.796			0.860	
Satd. Flow (perm)	65	5065	0	68	4981	0	0	1458	1547	0	1482	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	6		8	8		6	9		1	1		9
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	31	2427	47	123	3117	19	22	6	251	47	10	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	2474	0	123	3136	0	0	28	251	0	109	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	101.0	0.0	21.0	109.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	7.6%	59.4%	0.0%	12.4%	64.1%	0.0%	28.2%	28.2%	28.2%	28.2%	28.2%	0.0%
Maximum Green (s)	7.1	94.8		15.1	102.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	0.0	-0.9	-1.2	0.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	122.8	109.2		121.8	116.4			33.2	33.2		33.2	
Actuated g/C Ratio	0.72	0.64		0.72	0.68			0.20	0.20		0.20	
v/c Ratio	0.24	0.76		0.72	0.92			0.10	0.83		0.38	
Control Delay	14.7	10.3		66.2	12.3			53.5	87.5		61.5	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.3			0.0	0.0		0.0	
Total Delay	14.7	10.3		66.2	12.6			53.5	87.5		61.5	
LOS	B	B		E	B			D	F		E	
Approach Delay		10.3			14.7			84.0			61.5	
Approach LOS		B			B			F			E	
Queue Length 50th (ft)	4	208		85	704			26	272		107	
Queue Length 95th (ft)	m7	m482		m104	m#1383			48	314		135	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	127	3254		207	3410			369	391		375	
Starvation Cap Reductn	0	0		0	47			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.24	0.76		0.59	0.93			0.08	0.64		0.29	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 54 (32%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 16.9

Intersection LOS: B

Intersection Capacity Utilization 90.2%

ICU Level of Service E

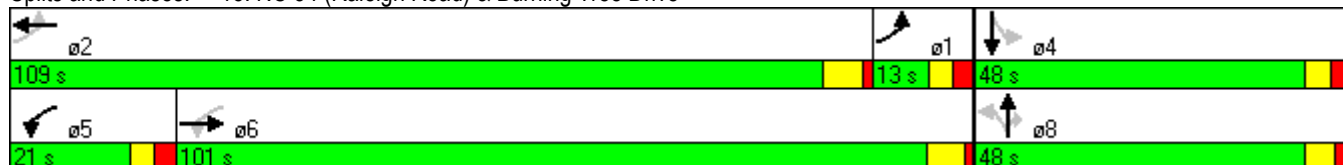
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	239	2192	145	134	2835	29	29	0	6	11	15	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.94			0.97						
Frt			0.850			0.850		0.850			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1724	5036	1568	1736	4988	1553	1770	1583	0	1736	1577	0
Flt Permitted	0.033			0.046			0.250			0.752		
Satd. Flow (perm)	60	5036	1474	84	4988	1511	466	1583	0	1374	1577	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	8		10	10		8						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.73	0.73	0.73	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	257	2357	156	144	3048	31	40	0	8	12	16	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	257	2357	156	144	3048	31	40	8	0	12	179	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	28.0	28.0	14.0	19.0	19.0	14.0	14.0		15.0	15.0	
Total Split (s)	22.0	126.0	126.0	23.0	100.0	100.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	12.9%	74.1%	74.1%	13.5%	58.8%	58.8%	12.4%	12.4%	0.0%	12.4%	12.4%	0.0%
Maximum Green (s)	15.7	119.7	119.7	16.7	93.7	93.7	14.2	14.2		13.7	13.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	-1.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)	139.0	125.8	125.8	139.0	122.0	122.0	16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.82	0.74	0.74	0.82	0.72	0.72	0.09	0.09		0.09	0.09	
v/c Ratio	1.20	0.63	0.14	0.73	0.85	0.03	0.91	0.05		0.09	1.21	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	16%
Maximum Green (s)	23.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	153.5	12.0	8.9	56.5	4.4	2.6	183.1	71.3		72.4	201.3	
Queue Delay	0.0	0.1	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	153.5	12.1	8.9	56.5	5.4	2.6	183.1	71.3		72.4	201.3	
LOS	F	B	A	E	A	A	F	E		E	F	
Approach Delay	25.0			7.6			164.5			193.2		
Approach LOS	C			A			F			F		
Queue Length 50th (ft)	~297	334	47	99	143	3	45	8		12	~242	
Queue Length 95th (ft)	m#486	502	m95	m116	142	m4	#97	22		36	#410	
Internal Link Dist (ft)	767			1857			371			455		
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	215	3726	1090	245	3580	1084	44	149		129	148	
Starvation Cap Reductn	0	290	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	275	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.20	0.69	0.14	0.59	0.92	0.03	0.91	0.05		0.09	1.21	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 26 (15%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 22.3

Intersection LOS: C

Intersection Capacity Utilization 100.9%

ICU Level of Service G

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
23 s	126 s	21 s
 ø5	 ø10	 ø6
22 s	27 s	100 s
		 ø8
		21 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	1882	200	602	2760	174	101	18	57	65	29	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor			0.98	1.00				1.00		1.00		
Frt			0.850			0.850		0.987	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.970		0.950		
Satd. Flow (prot)	3434	5086	1584	3383	5011	1560	1427	1375	1276	3451	1872	1591
Flt Permitted	0.950			0.950			0.950	0.970		0.950		
Satd. Flow (perm)	3434	5086	1545	3379	5011	1560	1427	1375	1276	3441	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)			7	7					1	1		
Peak Hour Factor	0.86	0.86	0.86	0.94	0.94	0.94	0.78	0.78	0.78	0.79	0.79	0.79
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	19%	19%	19%	3%	3%	3%
Adj. Flow (vph)	156	2188	233	640	2936	185	129	23	73	82	37	181
Shared Lane Traffic (%)							38%		10%			
Lane Group Flow (vph)	156	2188	233	640	2936	185	80	79	66	82	37	181
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	88.0	19.0	41.0	113.0	22.0	19.0	19.0	60.0	22.0	22.0	38.0
Total Split (%)	9.4%	51.8%	11.2%	24.1%	66.5%	12.9%	11.2%	11.2%	35.3%	12.9%	12.9%	22.4%
Maximum Green (s)	8.8	81.4	11.9	33.9	106.5	14.7	11.9	11.9		14.7	14.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	0.0	-2.3	-2.3	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.1	5.0	5.0	7.3
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	10.8	83.6	97.3	36.0	108.9	130.6	13.6	13.6	45.4	16.7	16.7	22.9
Actuated g/C Ratio	0.06	0.49	0.57	0.21	0.64	0.77	0.08	0.08	0.27	0.10	0.10	0.13
v/c Ratio	0.72	0.87	0.26	0.89	0.92	0.15	0.70	0.72	0.19	0.24	0.20	0.85

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	73.8	42.5	16.4	46.4	7.8	3.2	105.5	108.7	32.5	72.6	73.3	85.2
Queue Delay	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.8	42.5	16.4	46.4	9.9	3.2	105.5	108.7	32.5	72.6	73.3	85.2
LOS	E	D	B	D	A	A	F	F	C	E	E	F
Approach Delay	42.0			15.8			85.2			80.3		
Approach LOS	D			B			F			F		
Queue Length 50th (ft)	87	618	118	348	537	33	92	95	45	44	39	162
Queue Length 95th (ft)	123	699	199	m314	m240	m31	136	#143	69	64	70	#214
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	222	2502	891	716	3208	1201	118	113	344	345	187	219
Starvation Cap Reductn	0	0	0	0	162	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	0.70	0.87	0.26	0.89	0.96	0.15	0.68	0.70	0.19	0.24	0.20	0.83

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 156 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 30.7

Intersection LOS: C

Intersection Capacity Utilization 82.7%

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.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø3	 ø4
88 s	41 s	22 s	19 s
 ø5	 ø6		
16 s	113 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	10	1818	158	36	2878	213	601	113	75	166	31	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.971			0.978	
Flt Protected	0.950			0.950			0.950	0.975		0.950	0.973	
Satd. Flow (prot)	1761	4448	1575	1761	5061	1576	1656	1651	0	1664	1667	0
Flt Permitted	0.043			0.047			0.950	0.975		0.950	0.973	
Satd. Flow (perm)	80	4448	1523	87	5061	1576	1656	1651	0	1664	1667	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	11	1955	170	38	3029	224	633	119	79	200	37	19
Shared Lane Traffic (%)							34%			36%		
Lane Group Flow (vph)	11	1955	170	38	3029	224	418	413	0	128	128	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	92.0	42.0	16.0	92.0	20.0	42.0	42.0	0.0	20.0	20.0	0.0
Total Split (%)	9.4%	54.1%	24.7%	9.4%	54.1%	11.8%	24.7%	24.7%	0.0%	11.8%	11.8%	0.0%
Maximum Green (s)	9.2	84.5	34.8	9.0	84.5	12.8	34.8	34.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effect Green (s)	101.0	90.2	127.3	99.0	97.5	117.4	37.1	37.1		14.9	14.9	
Actuated g/C Ratio	0.59	0.53	0.75	0.58	0.57	0.69	0.22	0.22		0.09	0.09	
v/c Ratio	0.08	0.83	0.15	0.25	1.04	0.21	1.16	1.15		0.88	0.88	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.5	6.5	1.7	37.9	64.5	10.8	154.1	150.8		121.8	121.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	2.5	6.5	1.7	37.9	64.5	10.8	154.1	150.8		121.8	121.8	
LOS	A	A	A	D	E	B	F	F		F	F	
Approach Delay		6.0			60.5			152.5			121.8	
Approach LOS		A			E			F			F	
Queue Length 50th (ft)	0	90	10	17	1171	74	~576	~566		151	150	
Queue Length 95th (ft)	m1	99	m13	34	#1498	143	#814	#802		#253	#253	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	157	2360	1151	159	2902	1089	361	360		147	147	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.07	0.83	0.15	0.24	1.04	0.21	1.16	1.15		0.87	0.87	

Intersection Summary

Area Type: Other
Cycle Length: 170
Actuated Cycle Length: 170
Offset: 164 (96%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 56.8
Intersection Capacity Utilization 95.9%
Analysis Period (min) 15
Description: NC 54 & Barbee Chapel Road
* User Entered Value
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

			
ø2	ø1	ø3	ø4
92 s	16 s	20 s	42 s
			
ø5	ø6		
16 s	92 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	431	454	69	166	286	98	58	483	115	87	691	287
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.98		1.00		1.00		0.95
Frt		0.980				0.850		0.971				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	3427	0	1719	1810	1538	1703	3296	0	1703	3406	1524
Flt Permitted	0.950			0.950			0.271			0.300		
Satd. Flow (perm)	3212	3427	0	1715	1810	1512	486	3296	0	537	3406	1447
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	3		4	4		3	7		4	4		7
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Parking (#/hr)	0											
Adj. Flow (vph)	468	493	75	178	308	105	62	514	122	94	743	309
Shared Lane Traffic (%)												
Lane Group Flow (vph)	468	568	0	178	308	105	62	636	0	94	743	309
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	34.0	47.0	0.0	29.0	42.0	15.0	15.0	49.0	0.0	15.0	49.0	34.0
Total Split (%)	24.3%	33.6%	0.0%	20.7%	30.0%	10.7%	10.7%	35.0%	0.0%	10.7%	35.0%	24.3%
Maximum Green (s)	28.1	41.1		23.4	36.4	9.1	8.8	43.3		9.1	43.6	28.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	25.0	34.8		18.9	28.7	38.0	65.6	57.0		68.0	60.3	85.3
Actuated g/C Ratio	0.18	0.25		0.14	0.20	0.27	0.47	0.41		0.49	0.43	0.61
v/c Ratio	0.81	0.67		0.77	0.83	0.25	0.20	0.47		0.28	0.51	0.35

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	66.8	51.0		69.3	53.7	17.5	22.4	34.0		22.8	33.4	10.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	66.8	51.0		69.3	53.7	17.5	22.4	34.0		22.8	33.4	10.2
LOS	E	D		E	D	B	C	C		C	C	B
Approach Delay	58.1			52.0			33.0			26.3		
Approach LOS	E			D			C			C		
Queue Length 50th (ft)	212	246		137	225	55	28	224		44	265	89
Queue Length 95th (ft)	267	290		250	282	66	64	325		91	385	160
Internal Link Dist (ft)	718			652			519			599		
Turn Bay Length (ft)	250									200		
Base Capacity (vph)	669	1028		295	478	423	319	1342		348	1467	930
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.70	0.55		0.60	0.64	0.25	0.19	0.47		0.27	0.51	0.33

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 63 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 41.5

Intersection LOS: D

Intersection Capacity Utilization 76.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
15 s	49 s	29 s	47 s
 ø5	 ø6	 ø8	 ø7
15 s	49 s	42 s	34 s

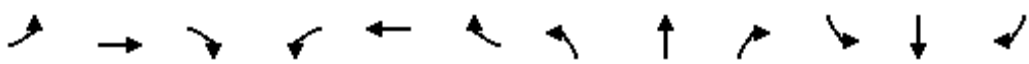
Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	196	343	7	6	347	51	16	3	8	38	3	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.981			0.961				0.850
Flt Protected	0.950			0.950				0.971			0.956	
Satd. Flow (prot)	1719	3426	0	1752	3422	0	0	1727	0	0	1730	1538
Flt Permitted	0.458			0.517				0.788			0.775	
Satd. Flow (perm)	824	3426	0	945	3422	0	0	1400	0	0	1389	1519
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	4		4	4		4	1		6	6		1
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.60	0.60	0.60	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	223	390	8	7	386	57	27	5	13	45	4	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	398	0	7	443	0	0	45	0	0	49	298
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	51.0	105.0	0.0	54.0	54.0	0.0	35.0	35.0	0.0	35.0	35.0	51.0
Total Split (%)	36.4%	75.0%	0.0%	38.6%	38.6%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	36.4%
Maximum Green (s)	45.9	99.9		48.8	48.8		29.3	29.3		29.2	29.2	45.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	122.4	123.4		92.8	92.8			10.1			10.1	33.2
Actuated g/C Ratio	0.87	0.88		0.66	0.66			0.07			0.07	0.24
v/c Ratio	0.25	0.13		0.01	0.20			0.45			0.49	0.82
Control Delay	5.0	1.9		11.7	10.7			75.3			78.0	66.1
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	5.0	1.9		11.7	10.7			75.3			78.0	66.1
LOS	A	A		B	B			E			E	E

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		3.0			10.7			75.3			67.8	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	12	10		2	78			40			44	246
Queue Length 95th (ft)	89	52		10	131			53			81	290
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	1015	3021		626	2268			300			298	598
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.22	0.13		0.01	0.20			0.15			0.16	0.50

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 50.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2028 Without Site AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	79	5	2	113	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1812	0	0	1825	1770	0
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1812	0	0	1825	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.82	0.82	0.77	0.77	0.45	0.45
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	96	6	3	147	22	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	150	22	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	17.5%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	57	6	1	39	1	15	1	0	0	2	0
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			0.997							
Flt Protected		0.999			0.999			0.956				
Satd. Flow (prot)	0	1769	0	0	1855	0	0	1781	0	0	1863	0
Flt Permitted		0.999			0.999			0.956				
Satd. Flow (perm)	0	1769	0	0	1855	0	0	1781	0	0	1863	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.83	0.83	0.83	0.79	0.79	0.79	0.65	0.65	0.65	0.50	0.50	0.50
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	69	7	1	49	1	23	2	0	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	0	51	0	0	25	0	0	4	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.1%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↔↔	↔↔	↔		↔↔	↔↔
Volume (vph)	0	127	1806	168	13	192	1723
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	30		45				45
Link Distance (ft)	449		664				797
Travel Time (s)	10.2		10.1				12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	141	2007	187	14	213	1914
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	141	2007	187	0	227	1914
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	22.0	118.0	118.0	22.0	22.0	140.0
Total Split (%)	0.0%	15.7%	84.3%	84.3%	15.7%	15.7%	100.0%
Maximum Green (s)		15.0	111.0	111.0	15.0	15.0	133.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		17.0	113.0	113.0		17.0	140.0
Actuated g/C Ratio		0.12	0.81	0.81		0.12	1.00
v/c Ratio		0.42	0.70	0.15		0.54	0.54
Control Delay		61.1	2.9	1.5		58.0	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		61.1	2.9	1.5		58.0	0.4
LOS		E	A	A		E	A
Approach Delay			2.8				6.5
Approach LOS			A				A
Queue Length 50th (ft)		68	103	16		102	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
 10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		107	110	20		146	0
Internal Link Dist (ft)	369		584				717
Turn Bay Length (ft)						300	
Base Capacity (vph)		338	2856	1278		417	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	43	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.42	0.71	0.15		0.54	0.54

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 35 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 6.4

Intersection LOS: A

Intersection Capacity Utilization 74.1%

ICU Level of Service D

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
118 s	22 s
 ø6	
140 s	

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2028 Without Site AM Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations				↰↰	↰↰	↰
Volume (vph)	0	0	0	2270	1579	1408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	665		536		1192	
Travel Time (s)	15.1		8.1		18.1	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2270	1754	1564
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2270	1754	1564
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 90.5% ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings
60: NC 54 EB Off Ramp &

2028 Without Site AM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1408	0	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			665	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1564	0	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1564	0	88
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	77.4%			ICU Level of Service D		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	11	0	2085	0	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		59			59				1036			
Travel Time (s)		1.3			1.3				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	12	0	2317	0	9	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	12	0	2317	0	9	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	126.0	0.0	14.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	90.0%	0.0%	10.0%	0.0%
Maximum Green (s)							7.0		119.0		7.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		136.2		9.0	
Actuated g/C Ratio							0.06		0.97		0.06	
v/c Ratio							0.11		0.67		0.08	
Control Delay							70.1		0.8		64.1	
Queue Delay							0.0		0.0		0.0	
Total Delay							70.1		0.8		64.1	
LOS							E		A		E	
Approach Delay									1.1			
Approach LOS									A			
Queue Length 50th (ft)							11		0		8	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	2018	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Fr		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1002	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2242	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2242	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	126.0	0.0
Total Split (%)	90.0%	0.0%
Maximum Green (s)	119.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	132.4	
Actuated g/C Ratio	0.95	
v/c Ratio	0.67	
Control Delay	1.2	
Queue Delay	0.0	
Total Delay	1.2	
LOS	A	
Approach Delay	1.4	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m15		38		m12	
Internal Link Dist (ft)		1			1				956			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							114		3443		114	
Starvation Cap Reductn							0		15		0	
Spillback Cap Reductn							0		16		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.11		0.68		0.08	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 1.3

Intersection LOS: A

Intersection Capacity Utilization 61.8%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

 ø1	 ø2
14 s	126 s
 ø5	 ø6
14 s	126 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	63	
Internal Link Dist (ft)	922	
Turn Bay Length (ft)		
Base Capacity (vph)	3347	
Starvation Cap Reductn	20	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.67	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	256	0	3075	0	197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		125			103				774			
Travel Time (s)		2.8			2.3				11.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	284	0	3417	0	219	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	284	0	3417	0	219	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	32.0	0.0	121.0	0.0	19.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.9%	0.0%	86.4%	0.0%	13.6%	0.0%
Maximum Green (s)							25.0		114.0		12.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							26.0		116.0		14.0	
Actuated g/C Ratio							0.19		0.83		0.10	
v/c Ratio							0.86		1.17		1.24	
Control Delay							73.9		87.9		169.1	
Queue Delay							0.0		20.1		0.0	
Total Delay							73.9		108.0		169.1	
LOS							E		F		F	
Approach Delay									105.4			
Approach LOS									F			
Queue Length 50th (ft)							274		~1941		~254	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
 10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2197	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	709	
Travel Time (s)	10.7	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2441	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2441	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	108.0	0.0
Total Split (%)	77.1%	0.0%
Maximum Green (s)	101.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	104.0	
Actuated g/C Ratio	0.74	
v/c Ratio	0.84	
Control Delay	4.3	
Queue Delay	0.9	
Total Delay	5.2	
LOS	A	
Approach Delay	18.6	
Approach LOS	B	
Queue Length 50th (ft)	213	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m281		m#1936		m#254	
Internal Link Dist (ft)		45			23				694			
Turn Bay Length (ft)											250	
Base Capacity (vph)							341		2932		177	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		109		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.83		1.21		1.24	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 109 (78%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 69.1

Intersection LOS: E

Intersection Capacity Utilization 104.2%

ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

	ø1		ø2
19 s		121 s	
	ø5		ø6
32 s		108 s	



Lane Group	SWT	SWR
Queue Length 95th (ft)	m211	
Internal Link Dist (ft)	629	
Turn Bay Length (ft)		
Base Capacity (vph)	2905	
Starvation Cap Reductn	213	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.91	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↑↑↑	↑↑	
Volume (vph)	0	0	99	117	2968	2270	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	128				916	1192	
Travel Time (s)	3.5				13.9	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	110	130	3298	2522	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	240	3298	2522	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	23.0	23.0	
Total Split (s)	0.0	0.0	28.0	28.0	140.0	112.0	0.0
Total Split (%)	0.0%	0.0%	20.0%	20.0%	100.0%	80.0%	0.0%
Maximum Green (s)			21.0	21.0	133.0	105.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				22.3	140.0	107.7	
Actuated g/C Ratio				0.16	1.00	0.77	
v/c Ratio				0.85	0.65	0.93	
Control Delay				61.3	0.3	12.9	
Queue Delay				0.0	0.0	0.0	
Total Delay				61.3	0.3	12.9	
LOS				E	A	B	
Approach Delay					4.4	12.9	
Approach LOS					A	B	
Queue Length 50th (ft)				221	0	580	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Without Site AM Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m243	0	m578	
Internal Link Dist (ft)	48				836	1112	
Turn Bay Length (ft)				250			
Base Capacity (vph)				291	5085	2724	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	4	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.82	0.65	0.93	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 93 (66%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 8.0

Intersection LOS: A

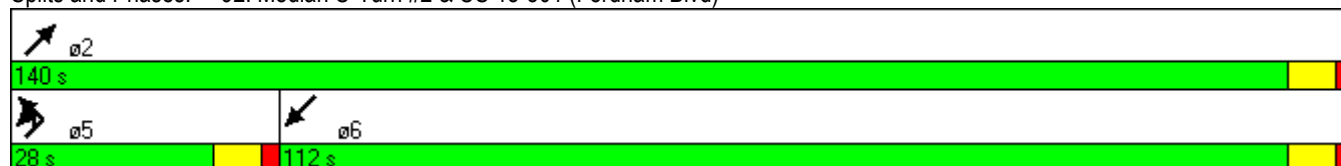
Intersection Capacity Utilization 83.0%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2028 Without Site AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1168	79	0	2877	0	1408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			206	476	
Travel Time (s)	1.4			3.1	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1390	94	0	3197	0	1452
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1390	94	0	3197	0	1452
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	126.1%			ICU Level of Service H		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	125	85	269	89	57	187	1225	4	149	1118	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99				0.99							
Frt		0.939			0.942							0.997
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1682	0	3270	1716	0	1744	3487	0	1686	3478	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1691	1682	0	3270	1716	0	1744	3487	0	1686	3478	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	115	144	98	299	99	63	203	1332	4	159	1189	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	242	0	299	162	0	203	1336	0	159	1216	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		18.0	68.0	
Total Split (s)	36.0	36.0	0.0	35.0	35.0	0.0	31.0	81.0	0.0	28.0	78.0	0.0
Total Split (%)	20.0%	20.0%	0.0%	19.4%	19.4%	0.0%	17.2%	45.0%	0.0%	15.6%	43.3%	0.0%
Maximum Green (s)	29.7	29.7		29.2	29.2		24.8	75.2		21.7	72.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.0	3.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	29.5	29.5		23.4	23.4		26.0	84.9		22.2	81.1	
Actuated g/C Ratio	0.16	0.16		0.13	0.13		0.14	0.47		0.12	0.45	
v/c Ratio	0.41	0.88		0.70	0.73		0.81	0.81		0.76	0.78	
Control Delay	71.9	103.1		83.8	93.3		74.3	29.3		98.8	47.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	71.9	103.1		83.8	93.3		74.3	29.3		98.8	47.1	
LOS	E	F		F	F		E	C		F	D	
Approach Delay		93.0			87.2			35.3			53.1	
Approach LOS		F			F			D			D	
Queue Length 50th (ft)	122	281		177	187		219	374		183	643	
Queue Length 95th (ft)	186	#404		223	266		m#354	785		#292	791	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	293	290		545	286		252	1645		224	1568	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.39	0.83		0.55	0.57		0.81	0.81		0.71	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 79 (44%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 160

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 53.8

Intersection LOS: D

Intersection Capacity Utilization 78.4%

ICU Level of Service D

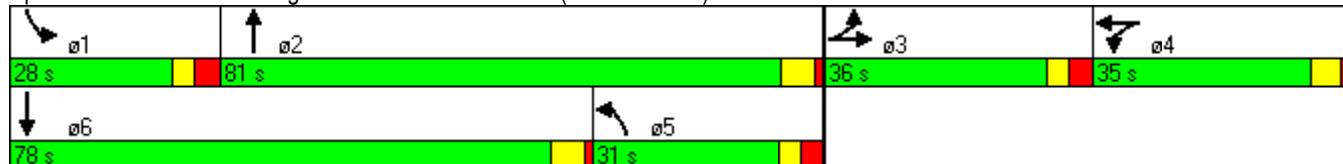
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	167	81	330	281	37	79	293	1282	226	12	31	1156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Frt			0.850			0.850		0.978				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1752	3428	0	0	1752	3505
Flt Permitted	0.950			0.950			0.081				0.054	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	149	3428	0	0	100	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			451			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Peak Hour Factor	0.81	0.81	0.81	0.90	0.90	0.90	0.95	0.95	0.95	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	206	100	407	312	41	88	308	1349	238	12	32	1204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	100	407	312	41	88	308	1587	0	0	44	1204
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	15.0	14.0	19.0		15.0	15.0	19.0
Total Split (s)	37.0	24.0	51.0	30.0	17.0	16.0	51.0	110.0	0.0	16.0	16.0	75.0
Total Split (%)	20.6%	13.3%	28.3%	16.7%	9.4%	8.9%	28.3%	61.1%	0.0%	8.9%	8.9%	41.7%
Maximum Green (s)	30.0	17.0	44.0	23.0	10.0	9.0	44.0	103.0		9.0	9.0	68.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	2.0	2.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	30.2	15.5	61.2	22.7	10.8	23.7	126.8	111.1			86.8	76.1
Actuated g/C Ratio	0.17	0.09	0.34	0.13	0.06	0.13	0.70	0.62			0.48	0.42
v/c Ratio	0.69	0.62	0.78	0.72	0.37	0.42	0.60	0.75			0.30	0.81
Control Delay	83.9	95.7	43.1	85.4	90.3	76.6	45.9	17.7			39.2	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7			0.0	0.0
Total Delay	83.9	95.7	43.1	85.4	90.3	76.6	45.9	18.3			39.2	22.2
LOS	F	F	D	F	F	E	D	B			D	C
Approach Delay		62.3			84.1			22.8				19.6

Lane Group	SBR
Lane Configurations	
Volume (vph)	231
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	3%
Adj. Flow (vph)	241
Shared Lane Traffic (%)	
Lane Group Flow (vph)	241
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	37.0
Total Split (%)	20.6%
Maximum Green (s)	30.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	None
Act Effct Green (s)	111.3
Actuated g/C Ratio	0.62
v/c Ratio	0.25
Control Delay	3.3
Queue Delay	0.0
Total Delay	3.3
LOS	A
Approach Delay	

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach LOS	E			F			C			B		
Queue Length 50th (ft)	236	116	302	184	47	95	258	697			12	632
Queue Length 95th (ft)	291	164	328	240	93	157	m358	m528			m26	616
Internal Link Dist (ft)	343			371			720			1264		
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	319	197	523	477	124	211	515	2116			149	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	218			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.65	0.51	0.78	0.65	0.33	0.42	0.60	0.84			0.30	0.81

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 70 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 33.9

Intersection LOS: C

Intersection Capacity Utilization 80.2%

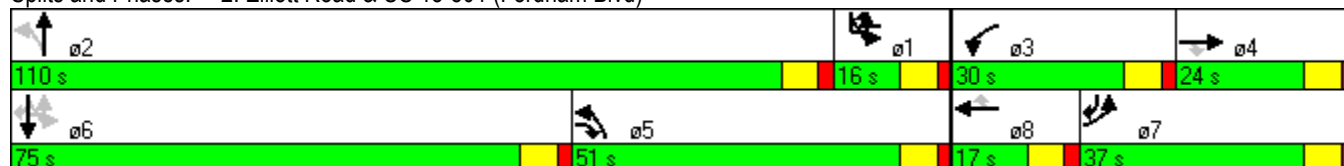
ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Approach LOS	
Queue Length 50th (ft)	24
Queue Length 95th (ft)	m41
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	960
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.25
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

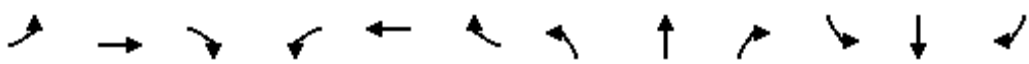
2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	287	63	46	36	59	17	70	1535	34	35	1493	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.97
Frt		0.937			0.966			0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1738	0	1761	1790	0	1744	3476	0	1744	3489	1561
Flt Permitted	0.377			0.674			0.095			0.049		
Satd. Flow (perm)	706	1738	0	1238	1790	0	174	3476	0	90	3489	1520
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			5	5			1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.93	0.93	0.93	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	342	75	55	46	75	22	75	1651	37	36	1539	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	130	0	46	97	0	75	1688	0	36	1539	351
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	20.0	32.4		30.0	30.0		15.0	104.0		15.0	104.0	104.0
Total Split (s)	31.0	61.0	0.0	30.0	30.0	0.0	15.0	104.0	0.0	15.0	104.0	104.0
Total Split (%)	17.2%	33.9%	0.0%	16.7%	16.7%	0.0%	8.3%	57.8%	0.0%	8.3%	57.8%	57.8%
Maximum Green (s)	24.7	54.6		23.6	23.6		9.0	97.9		9.4	97.9	97.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.0	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.0	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effct Green (s)	46.6	46.6		15.6	15.6		113.2	113.2		108.4	108.4	108.4
Actuated g/C Ratio	0.26	0.26		0.09	0.09		0.63	0.63		0.60	0.60	0.60
v/c Ratio	1.01	0.29		0.43	0.63		0.38	0.77		0.29	0.73	0.38

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	111.9	54.5		88.9	96.2		25.4	19.6		18.2	15.0	12.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.3		0.0	0.5	0.0
Total Delay	111.9	54.5		88.9	96.2		25.4	19.9		18.2	15.4	12.0
LOS	F	D		F	F		C	B		B	B	B
Approach Delay		96.1			93.9			20.1			14.9	
Approach LOS		F			F			C			B	
Queue Length 50th (ft)	~381	124		53	113		23	275		10	347	143
Queue Length 95th (ft)	#505	170		86	154		m37	936		m16	440	m194
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	338	541		172	249		197	2185		146	2101	915
Starvation Cap Reductn	0	0		0	0		0	0		0	189	0
Spillback Cap Reductn	0	0		0	0		0	104		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.01	0.24		0.27	0.39		0.38	0.81		0.25	0.80	0.38

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 63 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 28.5

Intersection LOS: C

Intersection Capacity Utilization 84.4%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

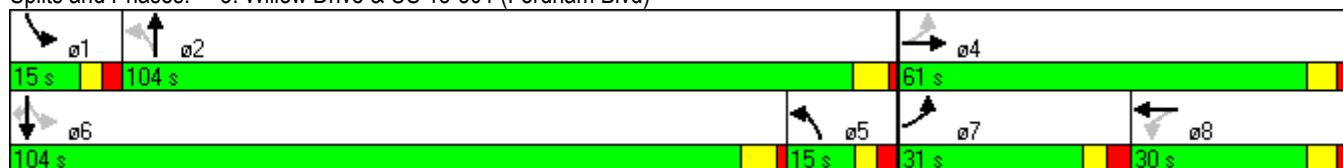
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	139	7	458	5	6	7	7	529	1452	8	17	1405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99			0.99				1.00		1.00	
Frt			0.850		0.949				0.999			
Flt Protected		0.954			0.986			0.950			0.950	
Satd. Flow (prot)	0	1751	2746	0	1647	0	0	3383	3483	0	1761	3522
Flt Permitted		0.954			0.986			0.950			0.950	
Satd. Flow (perm)	0	1733	2746	0	1647	0	0	3383	3483	0	1759	3522
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	7					7				1	1	
Peak Hour Factor	0.85	0.85	0.85	0.75	0.75	0.75	0.96	0.96	0.96	0.96	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	164	8	539	7	8	9	7	551	1512	8	19	1544
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	539	0	24	0	0	558	1520	0	19	1544
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	41.0	41.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	24.0	24.0	34.0	41.0	41.0	0.0	34.0	34.0	100.0	0.0	15.0	81.0
Total Split (%)	13.3%	13.3%	18.9%	22.8%	22.8%	0.0%	18.9%	18.9%	55.6%	0.0%	8.3%	45.0%
Maximum Green (s)	17.4	17.4	27.3	34.3	34.3		27.3	27.3	93.9		8.5	74.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	3.0	1.0	1.0		3.0	3.0	6.0		3.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lane Group	SBR
Lane Configurations	
Volume (vph)	138
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1576
Flt Permitted	
Satd. Flow (perm)	1576
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	3%
Adj. Flow (vph)	152
Shared Lane Traffic (%)	
Lane Group Flow (vph)	152
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	24.0
Total Split (%)	13.3%
Maximum Green (s)	17.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		18.8	63.6		9.2			42.8	133.4		9.4	94.6
Actuated g/C Ratio		0.10	0.35		0.05			0.24	0.74		0.05	0.53
v/c Ratio		0.94	0.56		0.28			0.69	0.59		0.21	0.83
Control Delay		129.8	43.1		90.6			67.5	13.9		57.8	17.0
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		129.8	43.1		90.6			67.5	13.9		57.8	17.0
LOS		F	D		F			E	B		E	B
Approach Delay		64.1			90.6				28.3			16.3
Approach LOS		E			F				C			B
Queue Length 50th (ft)		205	249		28			315	510		23	663
Queue Length 95th (ft)		#332	268		52			374	601		m30	#944
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		185	971		329			805	2582		98	1851
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.93	0.56		0.07			0.69	0.59		0.19	0.83

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 99 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 29.7

Intersection LOS: C

Intersection Capacity Utilization 97.3%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø3	ø4
100 s	15 s	24 s	41 s
			
ø5	ø6		
34 s	81 s		



Lane Group	SBR
Act Effect Green (s)	118.4
Actuated g/C Ratio	0.66
v/c Ratio	0.15
Control Delay	4.8
Queue Delay	0.0
Total Delay	4.8
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	45
Queue Length 95th (ft)	m63
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1038
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.15
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	11	0	0	82	5	1890	10	79	1757	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1031			1593	
Travel Time (s)		7.9			3.4			15.6			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.77	0.98	0.98	0.98	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	16	0	0	106	5	1929	10	92	2043	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	16	0	0	106	5	1929	10	92	2043	22
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	15.0	0.0	0.0	22.0	15.0	98.0	98.0	22.0	105.0	105.0
Total Split (%)	0.0%	0.0%	12.5%	0.0%	0.0%	18.3%	12.5%	81.7%	81.7%	18.3%	87.5%	87.5%
Maximum Green (s)			8.0			15.0	8.0	91.0	91.0	15.0	98.0	98.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.4			14.4	9.4	95.6	95.6	14.4	112.0	112.0
Actuated g/C Ratio			0.08			0.12	0.08	0.80	0.80	0.12	0.93	0.93
v/c Ratio			0.13			0.55	0.04	0.69	0.01	0.44	0.62	0.02
Control Delay			53.7			60.4	44.4	2.8	1.2	54.9	3.0	1.3
Queue Delay			0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay			53.7			60.4	44.4	2.8	1.2	54.9	3.0	1.3
LOS			D			E	D	A	A	D	A	A
Approach Delay								2.9			5.2	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			12			78	4	90	1	67	0	0
Queue Length 95th (ft)			27			114	m6	58	m1	113	270	6
Internal Link Dist (ft)		208			43			951			1513	
Turn Bay Length (ft)							150		150	200		150
Base Capacity (vph)			134			226	146	2792	1249	248	3271	1464
Starvation Cap Reductn			0			0	0	54	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.12			0.47	0.03	0.70	0.01	0.37	0.62	0.02

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 5.7

Intersection LOS: A

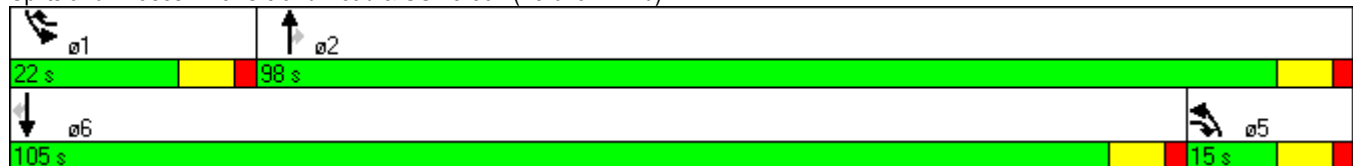
Intersection Capacity Utilization 66.4%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Volume (vph)	0	0	21	0	0	70	59	11	1925	19	46	1705
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				802			1006
Travel Time (s)		2.8			2.3				12.2			15.2
Peak Hour Factor	0.53	0.53	0.53	0.61	0.61	0.61	0.95	0.95	0.95	0.95	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	40	0	0	115	62	12	2026	20	50	1853
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	40	0	0	115	0	74	2026	20	50	1853
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	18.0	0.0	0.0	23.0	18.0	18.0	97.0	97.0	23.0	102.0
Total Split (%)	0.0%	0.0%	15.0%	0.0%	0.0%	19.2%	15.0%	15.0%	80.8%	80.8%	19.2%	85.0%
Maximum Green (s)			11.0			16.0	11.0	11.0	90.0	90.0	16.0	95.0
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)	0.0	0.0	2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	9.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			7.6			15.2		11.6	94.8	94.8	15.2	102.2
Actuated g/C Ratio			0.06			0.13		0.10	0.79	0.79	0.13	0.85
v/c Ratio			0.39			0.57		0.44	0.73	0.02	0.23	0.62
Control Delay			64.6			60.1		58.9	4.7	1.9	43.9	4.3
Queue Delay			0.0			0.0		0.0	0.1	0.0	0.0	0.0
Total Delay			64.6			60.1		58.9	4.8	1.9	43.9	4.3
LOS			E			E		E	A	A	D	A
Approach Delay									6.7			5.3
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	3%
Adj. Flow (vph)	5
Shared Lane Traffic (%)	
Lane Group Flow (vph)	5
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	102.0
Total Split (%)	85.0%
Maximum Green (s)	95.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	102.2
Actuated g/C Ratio	0.85
v/c Ratio	0.00
Control Delay	2.2
Queue Delay	0.0
Total Delay	2.2
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			30			84		57	103	2	35	235
Queue Length 95th (ft)			38			94		m81	154	m3	m61	193
Internal Link Dist (ft)		24			5				722			926
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			121			239		190	2770	1239	263	2984
Starvation Cap Reductn			0			0		0	99	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.33			0.48		0.39	0.76	0.02	0.19	0.62

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 8.1

Intersection LOS: A

Intersection Capacity Utilization 74.6%

ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m1
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1335
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.00
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	796	0	0	482	0	1313	27	0	1490	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	936	0	0	574	0	1459	30	0	1552	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	936	0	0	574	0	1459	30	0	1552	180
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	54.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.0	0.0
Total Split (%)	0.0%	0.0%	45.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.0%	0.0%
Maximum Green (s)			48.9								60.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			45.7			120.0		120.0	120.0		64.3	120.0
Actuated g/C Ratio			0.38			1.00		1.00	1.00		0.54	1.00
v/c Ratio			0.90			0.36		0.42	0.02		0.83	0.11
Control Delay			47.1			0.6		0.3	0.0		25.2	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			47.1			0.6		0.3	0.0		25.2	0.1
LOS			D			A		A	A		C	A
Approach Delay								0.3			22.6	
Approach LOS								A			C	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			374			0		0	0		536	0
Queue Length 95th (ft)			423			0		0	m0		520	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1116			1580		3505	1583		1878	1568
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			0.84			0.36		0.42	0.02		0.83	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 95 (79%), Referenced to phase 2:SBT and 6:, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 17.8

Intersection LOS: B

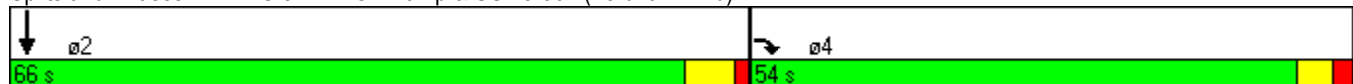
Intersection Capacity Utilization 77.4%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2028 Without Site Noon Peak
10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	116	0	1223	0	0	1910	377	0	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	129	0	1359	0	0	2122	419	0	36
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	129	0	1359	0	0	2122	419	0	36
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 62.8% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		 		 		
Volume (vph)	33	227	104	4	2187	208	2058	22	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1563	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					702		906		
Travel Time (s)					10.6		13.7		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.70	0.77	0.72	0.72	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	47	295	144	6	2430	231	2166	23	12
Shared Lane Traffic (%)									
Lane Group Flow (vph)	47	295	150	0	2430	231	2166	35	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	36.0	17.0	17.0		33.0		25.0	25.0	
Total Split (s)	36.0	17.0	17.0	0.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	30.0%	14.2%	14.2%	0.0%	55.8%	0.0%	55.8%	55.8%	0.0%
Maximum Green (s)	29.0	10.0	10.0		60.0		60.0	60.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lead	Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	10.6	12.0	12.0		94.0	120.0	85.2	85.2	
Actuated g/C Ratio	0.09	0.10	0.10		0.78	1.00	0.71	0.71	
v/c Ratio	0.33	1.86	0.54		0.83	0.15	0.82	0.03	
Control Delay	57.2	438.7	59.3		5.1	0.1	7.2	3.7	



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.4	0.0	0.2	0.0	
Total Delay	57.2	438.7	59.3		5.4	0.1	7.4	3.7	
LOS	E	F	E		A	A	A	A	
Approach Delay					4.9		7.3		
Approach LOS					A		A		
Queue Length 50th (ft)	35	~348	63		117	0	114	4	
Queue Length 95th (ft)	56	#431	80		197	m0	381	m6	
Internal Link Dist (ft)					622		826		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	416	159	276		2923	1583	2646	1124	
Starvation Cap Reductn	0	0	0		126	0	72	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.11	1.86	0.54		0.87	0.15	0.84	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 18 (15%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.86

Intersection Signal Delay: 31.8

Intersection LOS: C

Intersection Capacity Utilization 83.0%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 Ø2	 Ø4	 Ø3
67 s	17 s	36 s
 Ø6		
67 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	687	0	112	16	0	23	0	1660	19	0	1554	614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.998				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1752	0	1568	0	3886	0	0	3471	1553
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1592	1735	0	1568	0	*3811	0	0	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			781	
Travel Time (s)		7.4			14.0			8.8			11.8	
Confl. Peds. (#/hr)			7	7					4	4		
Peak Hour Factor	0.86	1.00	0.86	0.77	1.00	0.77	1.00	0.86	0.86	1.00	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	799	0	130	21	0	30	0	1930	22	0	1708	675
Shared Lane Traffic (%)												
Lane Group Flow (vph)	799	0	130	21	0	30	0	1952	0	0	1708	675
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				19.0			19.0	
Total Split (s)	41.0	0.0	0.0	41.0	0.0	0.0	0.0	79.0	0.0	0.0	79.0	0.0
Total Split (%)	34.2%	0.0%	0.0%	34.2%	0.0%	0.0%	0.0%	65.8%	0.0%	0.0%	65.8%	0.0%
Maximum Green (s)	34.0			34.0				72.0			72.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	32.2		120.0	32.2		120.0		77.8			77.8	120.0
Actuated g/C Ratio	0.27		1.00	0.27		1.00		0.65			0.65	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.85		0.08	0.04		0.02		0.77			0.76	0.43
Control Delay	51.0		0.1	31.1		0.0		18.3			9.1	0.6
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.2	0.0
Total Delay	51.0		0.1	31.1		0.0		18.3			9.3	0.6
LOS	D		A	C		A		B			A	A
Approach Delay								18.3			6.9	
Approach LOS								B			A	
Queue Length 50th (ft)	300		0	12		0		478			131	0
Queue Length 95th (ft)	341		0	27		0		557			372	0
Internal Link Dist (ft)		302			435			504			701	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	1051		1592	526		1568		2520			2251	1553
Starvation Cap Reductn	0		0	0		0		0			113	0
Spillback Cap Reductn	0		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.76		0.08	0.04		0.02		0.77			0.80	0.43

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 17 (14%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 17.6

Intersection LOS: B

Intersection Capacity Utilization 70.9%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 Ø2	 Ø3
79 s	41 s
 Ø6	
79 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	271	38	230	347	371	40	117	132	360	104	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.96	0.99		0.99		0.93		1.00	0.98	1.00	1.00	
Frt		0.981				0.850			0.850		0.990	
Flt Protected	0.950			0.950				0.987		0.950	0.975	
Satd. Flow (prot)	1646	3323	0	1752	1845	1672	0	1965	1538	1625	1933	0
Flt Permitted	0.544			0.330				0.987		0.950	0.975	
Satd. Flow (perm)	901	3323	0	605	1845	1549	0	1960	1513	1623	1932	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	25		5	5		25	10		1	1		10
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.82	0.82	0.82	0.93	0.93	0.93
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	34	339	48	242	365	391	49	143	161	387	112	18
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	34	387	0	242	365	391	0	192	161	255	262	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	23.0	57.0	41.0	32.0	32.0	23.0	41.0	41.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	17.7%	43.8%	31.5%	24.6%	24.6%	17.7%	31.5%	31.5%	0.0%
Maximum Green (s)	26.7	26.7		16.2	49.7	34.3	25.3	25.3	16.2	34.3	34.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-1.8	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.5	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	30.0	30.0		52.0	51.5	80.3		34.7	51.7	28.3	28.3	
Actuated g/C Ratio	0.23	0.23		0.40	0.40	0.62		0.27	0.40	0.22	0.22	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.16	0.51		0.62	0.50	0.40		0.37	0.27	0.72	0.62	
Control Delay	43.3	46.6		34.7	32.5	11.2		43.2	26.0	58.1	51.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	43.3	46.6		34.7	32.5	11.2		43.2	26.0	58.1	51.8	
LOS	D	D		C	C	B		D	C	E	D	
Approach Delay		46.3			24.7			35.4			54.9	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	23	152		141	229	135		133	84	210	210	
Queue Length 95th (ft)	48	178		210	324	156		198	133	290	286	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	208	766		401	731	1083		524	616	450	535	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.16	0.51		0.60	0.50	0.36		0.37	0.26	0.57	0.49	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 37.1

Intersection LOS: D

Intersection Capacity Utilization 80.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
23 s	34 s	41 s	32 s
 ø6			
57 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	822	33	0	804	796	0	0	377	0	0	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	893	36	0	874	865	0	0	410	0	0	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	893	36	0	874	865	0	0	410	0	0	188
Turn Type			Free			Free			custom			Free
Protected Phases		2			6 8				8			
Permitted Phases			Free			Free			8			Free
Detector Phase		2			6 8				8			
Switch Phase												
Minimum Initial (s)		12.0							7.0			
Minimum Split (s)		19.0							14.0			
Total Split (s)	0.0	36.0	0.0	0.0	75.0	0.0	0.0	0.0	39.0	0.0	0.0	0.0
Total Split (%)	0.0%	48.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	52.0%	0.0%	0.0%	0.0%
Maximum Green (s)		29.0							32.0			
Yellow Time (s)		5.0							5.0			
All-Red Time (s)		2.0							2.0			
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	4.0	4.0	7.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0			
Recall Mode		C-Max							None			
Act Effct Green (s)		36.2	75.0		75.0	75.0			28.8			75.0
Actuated g/C Ratio		0.48	1.00		1.00	1.00			0.38			1.00
v/c Ratio		0.52	0.02		0.25	0.55			0.66			0.12
Control Delay		16.0	0.0		0.1	1.9			23.9			0.2
Queue Delay		0.0	0.0		0.0	0.0			0.0			0.0
Total Delay		16.0	0.0		0.1	1.9			23.9			0.2
LOS		B	A		A	A			C			A
Approach Delay		15.4			1.0							
Approach LOS		B			A							
Queue Length 50th (ft)		148	0		0	2			149			0

Lane Group	ø6
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	19.0
Total Split (s)	36.0
Total Split (%)	48%
Maximum Green (s)	29.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		225	0		m0	m15			219			0
Internal Link Dist (ft)		388			354			518			588	
Turn Bay Length (ft)			275									
Base Capacity (vph)		1707	1583		3511	1583			730			1611
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		0.52	0.02		0.25	0.55			0.56			0.12

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 6 (8%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 7.9

Intersection LOS: A

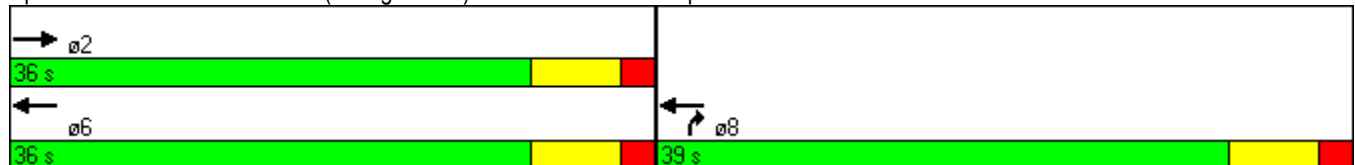
Intersection Capacity Utilization 54.4%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

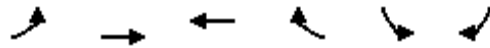


Lane Group	ø6
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2028 Without Site Noon Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1186	1580	482	0	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	0.90	0.90	0.86	0.86	0.90	0.85
Adj. Flow (vph)	0	1318	1837	560	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1318	1837	560	0	32
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 40.5%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2028 Without Site Noon Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2004	1959	45	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	4940	4988	1553	0	1315
Flt Permitted						
Satd. Flow (perm)	0	4940	4988	1553	0	1315
Link Speed (mph)		45	45		25	
Link Distance (ft)		218	553		229	
Travel Time (s)		3.3	8.4		6.2	
Peak Hour Factor	1.00	0.97	0.95	0.95	1.00	0.44
Heavy Vehicles (%)	5%	5%	4%	4%	25%	25%
Adj. Flow (vph)	0	2066	2062	47	0	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2066	2062	47	0	111
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

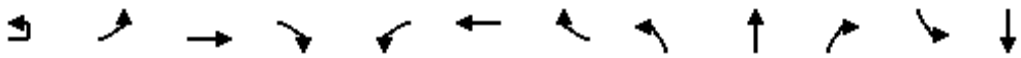
Intersection Capacity Utilization 47.9% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	34	159	1605	44	111	1644	210	171	19	96	226	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	350	
Storage Lanes		2		0	1		1	1		1	2	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	0.97	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor		1.00	1.00		1.00		0.99	0.99		0.98	0.99	
Frt			0.996				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3378	4963	0	1752	5036	1568	1752	1845	1568	3367	1827
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3377	4963	0	1751	5036	1546	1740	1845	1537	3341	1827
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			553			576			537			658
Travel Time (s)			8.4			8.7			14.6			17.9
Confl. Peds. (#/hr)		1		3	3		1	5		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82
Heavy Vehicles (%)	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%	4%	4%
Adj. Flow (vph)	37	181	1824	50	121	1787	228	197	22	110	276	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	218	1874	0	121	1787	228	197	22	110	276	22
Turn Type	Prot	Prot			Prot		pm+ov	Prot		pm+ov	Prot	
Protected Phases	5!	5	2		1	6	7	3	8	1	7	4
Permitted Phases							6			8		
Detector Phase	5	5	2		1	6	7	3	8	1	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0	28.0		29.0	26.0	14.0	14.0	41.0	29.0	14.0	39.0
Total Split (s)	20.0	20.0	60.0	0.0	29.0	69.0	20.0	22.0	41.0	29.0	20.0	39.0
Total Split (%)	13.3%	13.3%	40.0%	0.0%	19.3%	46.0%	13.3%	14.7%	27.3%	19.3%	13.3%	26.0%
Maximum Green (s)	13.0	13.0	54.4		23.6	63.1	13.0	15.0	34.6	23.6	13.0	32.5
Yellow Time (s)	5.0	5.0	3.8		3.0	4.1	5.0	5.0	3.1	3.0	5.0	3.2
All-Red Time (s)	2.0	2.0	1.8		2.4	1.8	2.0	2.0	3.3	2.4	2.0	3.3
Lost Time Adjust (s)	0.0	-2.0	-0.6	0.0	-0.4	-0.9	-2.0	-2.0	-1.4	-0.4	-2.0	-1.5
Total Lost Time (s)	7.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	1.0	1.0	3.0		1.0	3.0	3.0	3.0	1.0	1.0	3.0	1.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Dont Walk (s)			12.0			13.0			27.0			25.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		23.5	95.6		14.2	86.3	102.1	17.0	9.8	20.6	15.8	8.6
Actuated g/C Ratio		0.16	0.64		0.09	0.58	0.68	0.11	0.07	0.14	0.11	0.06
v/c Ratio		0.41	0.59		0.73	0.62	0.22	0.99	0.18	0.51	0.78	0.21
Control Delay		54.8	17.0		97.8	8.9	3.3	126.3	69.4	63.3	80.9	72.3

Lane Group	SBR
Lane Configurations	
Volume (vph)	191
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1553
Flt Permitted	
Satd. Flow (perm)	1524
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Peak Hour Factor	0.82
Heavy Vehicles (%)	4%
Adj. Flow (vph)	233
Shared Lane Traffic (%)	
Lane Group Flow (vph)	233
Turn Type	pm+ov
Protected Phases	5!
Permitted Phases	4
Detector Phase	5
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	20.0
Total Split (%)	13.3%
Maximum Green (s)	13.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	1.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	28.7
Actuated g/C Ratio	0.19
v/c Ratio	0.79
Control Delay	74.4

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		54.8	17.0		97.8	8.9	3.3	126.3	69.4	63.3	80.9	72.3
LOS		D	B		F	A	A	F	E	E	F	E
Approach Delay			20.9			13.3			101.4			77.7
Approach LOS			C			B			F			E
Queue Length 50th (ft)		94	392		122	133	26	196	21	94	138	21
Queue Length 95th (ft)		120	462		192	121	32	#346	49	143	172	47
Internal Link Dist (ft)			473			496			457			578
Turn Bay Length (ft)		300			250		150	150		150	350	
Base Capacity (vph)		529	3163		280	2897	1055	199	443	317	355	414
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.41	0.59		0.43	0.62	0.22	0.99	0.05	0.35	0.78	0.05

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 75 (50%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 28.8

Intersection LOS: C

Intersection Capacity Utilization 76.2%

ICU Level of Service D

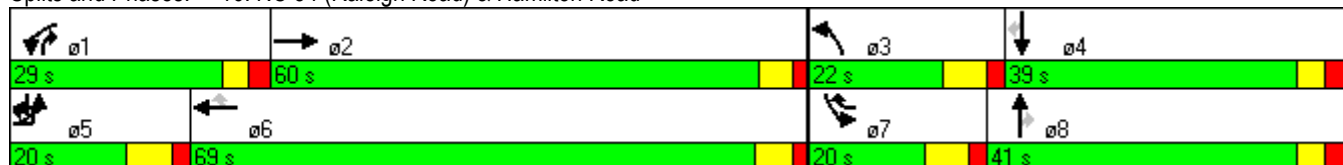
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Queue Delay	0.0
Total Delay	74.4
LOS	E
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	210
Queue Length 95th (ft)	251
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	296
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.79
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	1927	48	86	1915	17	34	6	152	28	10	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.996			0.999				0.850		0.932	
Flt Protected	0.950			0.950				0.959			0.982	
Satd. Flow (prot)	1736	4964	0	1752	5029	0	0	1752	1553	0	1528	0
Flt Permitted	0.070			0.042				0.666			0.873	
Satd. Flow (perm)	128	4964	0	77	5029	0	0	1215	1553	0	1358	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	5		3	3		5	2					2
Peak Hour Factor	0.85	0.85	0.85	0.96	0.96	0.96	0.83	0.83	0.83	0.74	0.74	0.74
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Adj. Flow (vph)	52	2267	56	90	1995	18	41	7	183	38	14	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	2323	0	90	2013	0	0	48	183	0	105	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	88.0	0.0	14.0	89.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	8.7%	58.7%	0.0%	9.3%	59.3%	0.0%	32.0%	32.0%	32.0%	32.0%	32.0%	0.0%
Maximum Green (s)	7.1	81.8		8.1	82.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	112.6	101.7		111.6	106.2			23.4	23.4		23.4	
Actuated g/C Ratio	0.75	0.68		0.74	0.71			0.16	0.16		0.16	
v/c Ratio	0.29	0.69		0.54	0.57			0.25	0.75		0.50	
Control Delay	11.5	9.9		44.4	7.9			56.5	79.0		64.5	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.2			0.0	0.0		0.0	
Total Delay	11.5	9.9		44.4	8.1			56.5	79.0		64.5	
LOS	B	A		D	A			E	E		E	
Approach Delay		9.9			9.7			74.3			64.5	
Approach LOS		A			A			E			E	
Queue Length 50th (ft)	9	202		20	532			42	174		95	
Queue Length 95th (ft)	m17	214		m77	187			72	224		121	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	182	3367		173	3559			348	445		389	
Starvation Cap Reductn	0	0		0	581			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.29	0.69		0.52	0.68			0.14	0.41		0.27	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 66 (44%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 14.1

Intersection LOS: B

Intersection Capacity Utilization 69.3%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	188	1703	34	17	1726	18	48	7	35	17	6	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98		0.99		1.00		
Frt			0.850			0.850		0.875			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	4988	1553	1736	4988	1553	1770	1607	0	1736	1562	0
Flt Permitted	0.079			0.097			0.323			0.707		
Satd. Flow (perm)	142	4988	1553	177	4988	1514	602	1607	0	1286	1562	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	4					4			3	3		
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.59	0.59	0.59	0.86	0.86	0.86
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	196	1774	35	18	1817	19	81	12	59	20	7	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	1774	35	18	1817	19	81	71	0	20	214	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	44.0	44.0	14.0	44.0	44.0	14.0	14.0		15.0	15.0	
Total Split (s)	24.0	103.0	103.0	14.0	66.0	66.0	33.0	33.0	0.0	33.0	33.0	0.0
Total Split (%)	16.0%	68.7%	68.7%	9.3%	44.0%	44.0%	22.0%	22.0%	0.0%	22.0%	22.0%	0.0%
Maximum Green (s)	17.7	96.7	96.7	7.7	59.7	59.7	26.2	26.2		25.7	25.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lag	Lead	Lead	Lag								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	110.3	106.9	106.9	112.3	92.5	92.5	24.7	24.7		24.7	24.7	
Actuated g/C Ratio	0.74	0.71	0.71	0.75	0.62	0.62	0.16	0.16		0.16	0.16	
v/c Ratio	0.67	0.50	0.03	0.08	0.59	0.02	0.82	0.27		0.09	0.83	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	18%
Maximum Green (s)	23.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	31.7	19.5	14.7	3.2	8.0	6.6	111.2	56.3		52.4	86.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	31.7	19.5	14.7	3.2	8.0	6.6	111.2	56.3		52.4	86.2	
LOS	C	B	B	A	A	A	F	E		D	F	
Approach Delay		20.6			8.0			85.6			83.4	
Approach LOS		C			A			F			F	
Queue Length 50th (ft)	114	464	18	2	147	3	76	61		17	203	
Queue Length 95th (ft)	202	603	m31	m3	150	m6	86	70		40	282	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	322	3556	1107	226	3074	933	112	300		240	292	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.61	0.50	0.03	0.08	0.59	0.02	0.72	0.24		0.08	0.73	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 35 (23%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 77.6% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø2			 ø1	 ø4
103 s			14 s	33 s
 ø10	 ø5	 ø6		 ø8
27 s	24 s	66 s		33 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	1561	81	70	1467	80	80	38	110	150	28	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00		0.99	1.00	1.00				
Frt			0.850			0.850		0.935	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.995		0.950		
Satd. Flow (prot)	3401	5037	1568	3350	4963	1545	1648	1546	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.995		0.950		
Satd. Flow (perm)	3400	5037	1520	3340	4963	1524	1645	1546	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	1		12	12		1	1					1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.65	0.65	0.65	0.83	0.83	0.83
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	154	1678	87	73	1528	83	123	58	169	181	34	228
Shared Lane Traffic (%)							10%		32%			
Lane Group Flow (vph)	154	1678	87	73	1528	83	111	124	115	181	34	228
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	42.0	15.0	15.0	42.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	18.0	74.0	31.0	15.0	71.0	30.0	31.0	31.0	46.0	30.0	30.0	48.0
Total Split (%)	12.0%	49.3%	20.7%	10.0%	47.3%	20.0%	20.7%	20.7%	30.7%	20.0%	20.0%	32.0%
Maximum Green (s)	10.8	67.4	23.9	7.9	64.5	22.7	23.9	23.9		22.7	22.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	13.0	86.8	104.5	10.0	83.8	99.3	17.7	17.7	32.7	15.5	15.5	28.5
Actuated g/C Ratio	0.09	0.58	0.70	0.07	0.56	0.66	0.12	0.12	0.22	0.10	0.10	0.19
v/c Ratio	0.52	0.58	0.08	0.33	0.55	0.08	0.57	0.68	0.36	0.50	0.17	0.75

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	70.9	15.0	1.6	66.3	12.3	4.5	72.9	80.8	51.8	67.5	60.9	56.0
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	70.9	15.0	1.6	66.3	12.3	4.5	72.9	80.8	51.8	67.5	60.9	56.0
LOS	E	B	A	E	B	A	E	F	D	E	E	E
Approach Delay	18.9			14.2			68.8			61.1		
Approach LOS	B			B			E			E		
Queue Length 50th (ft)	79	167	2	36	139	19	110	129	102	88	31	165
Queue Length 95th (ft)	122	112	7	m68	458	21	120	138	109	111	58	179
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	295	2914	1151	223	2772	1055	286	268	403	581	315	407
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	0.52	0.58	0.08	0.33	0.55	0.08	0.39	0.46	0.29	0.31	0.11	0.56

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 7 (5%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 25.3

Intersection LOS: C

Intersection Capacity Utilization 59.5%

ICU Level of Service B

Analysis Period (min) 15

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

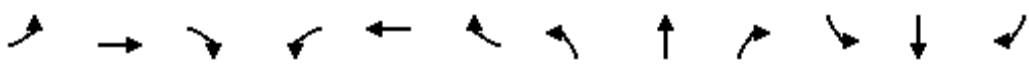
Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø4	 ø3
74 s	15 s	31 s	30 s
 ø6	 ø5		
71 s	18 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	1599	241	44	1434	120	183	58	64	106	47	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96				1.00	1.00			1.00	
Frt			0.850			0.850		0.936			0.971	
Flt Protected	0.950			0.950			0.950	0.991		0.950	0.987	
Satd. Flow (prot)	1727	4363	1545	1761	5061	1576	1656	1617	0	1648	1658	0
Flt Permitted	0.120			0.058			0.950	0.991		0.950	0.987	
Satd. Flow (perm)	218	4363	1490	108	5061	1576	1654	1617	0	1648	1658	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	13	1701	256	46	1509	126	199	63	70	118	52	18
Shared Lane Traffic (%)							15%			20%		
Lane Group Flow (vph)	13	1701	256	46	1509	126	169	163	0	94	94	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	27.0	15.0	14.0	29.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	14.0	82.0	31.0	14.0	82.0	23.0	31.0	31.0	0.0	23.0	23.0	0.0
Total Split (%)	9.3%	54.7%	20.7%	9.3%	54.7%	15.3%	20.7%	20.7%	0.0%	15.3%	15.3%	0.0%
Maximum Green (s)	7.2	74.5	23.8	7.0	74.5	15.8	23.8	23.8		15.8	15.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	1.8	5.0	5.0	1.8
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	96.3	87.1	109.2	94.3	92.7	112.2	22.2	22.2		14.6	14.6	
Actuated g/C Ratio	0.64	0.58	0.73	0.63	0.62	0.75	0.15	0.15		0.10	0.10	
v/c Ratio	0.06	0.67	0.23	0.28	0.48	0.11	0.69	0.68		0.59	0.58	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	5.2	7.5	2.3	15.3	18.2	6.9	75.0	74.9		79.1	78.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.2	7.5	2.3	15.3	18.2	6.9	75.0	74.9		79.1	78.8	
LOS	A	A	A	B	B	A	E	E		E	E	
Approach Delay		6.8			17.3			74.9			78.9	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	1	134	33	16	261	26	165	160		93	93	
Queue Length 95th (ft)	m4	196	33	35	413	68	250	242		157	157	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	230	2532	1133	167	3126	1166	287	280		198	199	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.06	0.67	0.23	0.28	0.48	0.11	0.59	0.58		0.47	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 19.7

Intersection LOS: B

Intersection Capacity Utilization 63.7%

ICU Level of Service B

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø1	 ø2	 ø4	 ø3
14 s	82 s	31 s	23 s
 ø6	 ø5		
82 s	14 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	348	326	35	226	348	269	56	664	196	152	537	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.97	0.99	0.99				0.96
Frt		0.985				0.850		0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	3447	0	1719	1810	1538	1736	3333	0	1752	3505	1568
Flt Permitted	0.950			0.950			0.386			0.159		
Satd. Flow (perm)	3184	3447	0	1715	1810	1498	700	3333	0	293	3505	1501
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	8		3	3		8	5		10	10		5
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Parking (#/hr)	0											
Adj. Flow (vph)	395	370	40	251	387	299	58	692	204	163	577	272
Shared Lane Traffic (%)												
Lane Group Flow (vph)	395	410	0	251	387	299	58	896	0	163	577	272
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	29.0	38.0	0.0	37.0	46.0	20.0	15.0	55.0	0.0	20.0	60.0	29.0
Total Split (%)	19.3%	25.3%	0.0%	24.7%	30.7%	13.3%	10.0%	36.7%	0.0%	13.3%	40.0%	19.3%
Maximum Green (s)	23.1	32.1		31.4	40.4	14.1	8.8	49.3		14.1	54.6	23.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	22.1	32.0		26.1	36.0	48.8	67.6	59.1		76.6	66.0	88.1
Actuated g/C Ratio	0.15	0.21		0.17	0.24	0.33	0.45	0.39		0.51	0.44	0.59
v/c Ratio	0.83	0.56		0.84	0.89	0.61	0.15	0.68		0.59	0.37	0.31

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	77.4	55.7		78.6	70.7	28.3	22.1	42.8		30.5	31.2	11.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	77.4	55.7		78.6	70.7	28.3	22.1	42.8		30.5	31.2	11.5
LOS	E	E		E	E	C	C	D		C	C	B
Approach Delay	66.3			59.3			41.6			25.8		
Approach LOS	E			E			D			C		
Queue Length 50th (ft)	194	187		222	326	153	29	395		87	209	95
Queue Length 95th (ft)	246	239		m334	417	196	59	507		142	281	149
Internal Link Dist (ft)	718			652			519			599		
Turn Bay Length (ft)	250											
Base Capacity (vph)	517	770		367	495	513	391	1312		296	1542	908
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.76	0.53		0.68	0.78	0.58	0.15	0.68		0.55	0.37	0.30

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 11 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 47.1

Intersection LOS: D

Intersection Capacity Utilization 79.8%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
20 s	55 s	37 s	38 s
 ø5	 ø6	 ø8	 ø7
15 s	60 s	46 s	29 s

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

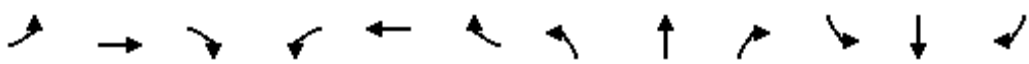
2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	240	404	6	5	414	53	8	5	7	88	11	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.998			0.983			0.951				0.850
Flt Protected	0.950			0.950				0.980			0.957	
Satd. Flow (prot)	1719	3430	0	1736	3398	0	0	1657	0	0	1732	1538
Flt Permitted	0.387			0.479				0.846			0.733	
Satd. Flow (perm)	696	3430	0	869	3398	0	0	1430	0	0	1315	1518
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		6	6		8	2		10	10		2
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	5%	5%	5%
Adj. Flow (vph)	279	470	7	5	455	58	9	5	8	92	11	380
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	477	0	5	513	0	0	22	0	0	103	380
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	20.0	46.0	0.0	26.0	26.0	0.0	29.0	29.0	0.0	29.0	29.0	20.0
Total Split (%)	26.7%	61.3%	0.0%	34.7%	34.7%	0.0%	38.7%	38.7%	0.0%	38.7%	38.7%	26.7%
Maximum Green (s)	14.9	40.9		20.8	20.8		23.3	23.3		23.2	23.2	14.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	57.0	58.0		37.7	37.7			10.6			10.6	23.3
Actuated g/C Ratio	0.76	0.77		0.50	0.50			0.14			0.14	0.31
v/c Ratio	0.39	0.18		0.01	0.30			0.11			0.55	0.80
Control Delay	4.6	1.9		13.8	13.5			27.5			40.8	33.4
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	4.6	1.9		13.8	13.5			27.5			40.8	33.4
LOS	A	A		B	B			C			D	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		2.9			13.5			27.5			34.9	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	23	16		1	71			9			46	142
Queue Length 95th (ft)	63	49		8	132			27			87	184
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	740	2651		437	1707			458			421	501
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.38	0.18		0.01	0.30			0.05			0.24	0.76

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 15.0

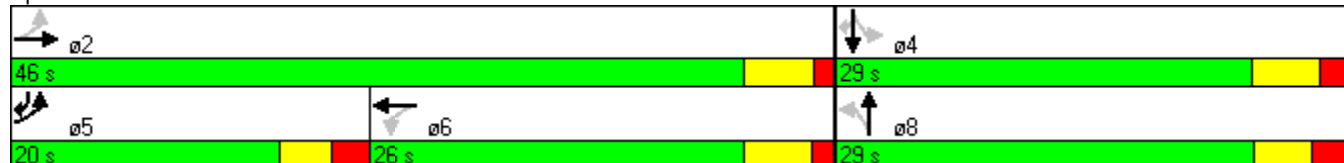
Intersection LOS: B

Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2028 Without Site Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	77	4	2	59	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1814	0	0	1823	1770	0
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1814	0	0	1823	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.79	0.79	0.71	0.71	0.46	0.46
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	97	5	3	83	4	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	86	4	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.7%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2028 Without Site Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	44	9	1	35	2	9	0	2	3	2	3
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			0.992			0.979			0.951	
Flt Protected		0.996			0.999			0.959			0.982	
Satd. Flow (prot)	0	1700	0	0	1828	0	0	1749	0	0	1740	0
Flt Permitted		0.996			0.999			0.959			0.982	
Satd. Flow (perm)	0	1700	0	0	1828	0	0	1749	0	0	1740	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.83	0.83	0.83	0.67	0.67	0.67
Heavy Vehicles (%)	9%	9%	9%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	7	63	13	1	47	3	11	0	2	4	3	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	51	0	0	13	0	0	11	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.3% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↰↰	↰↰	↰		↰↰	↰↰
Volume (vph)	0	174	1855	100	16	122	1610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	717		659				802
Travel Time (s)	19.6		10.0				12.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	193	2061	111	18	136	1789
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	193	2061	111	0	154	1789
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	21.0	99.0	99.0	21.0	21.0	120.0
Total Split (%)	0.0%	17.5%	82.5%	82.5%	17.5%	17.5%	100.0%
Maximum Green (s)		14.0	92.0	92.0	14.0	14.0	113.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		16.0	94.0	94.0		16.0	120.0
Actuated g/C Ratio		0.13	0.78	0.78		0.13	1.00
v/c Ratio		0.52	0.74	0.09		0.34	0.51
Control Delay		54.0	6.9	2.5		45.7	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		54.0	6.9	2.5		45.7	0.4
LOS		D	A	A		D	A
Approach Delay			6.7				4.0
Approach LOS			A				A
Queue Length 50th (ft)		80	262	12		57	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
 10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		123	295	21		91	0
Internal Link Dist (ft)	637		579				722
Turn Bay Length (ft)						300	
Base Capacity (vph)		372	2772	1240		458	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	23	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.52	0.75	0.09		0.34	0.51

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 57 (48%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 7.6

Intersection LOS: A

Intersection Capacity Utilization 73.5%

ICU Level of Service D

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
99 s	21 s
 ø6	
120 s	

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2028 Without Site Noon Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations				↰↰	↰↰	↰
Volume (vph)	0	0	0	1943	1223	934
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	665		536		1201	
Travel Time (s)	15.1		8.1		18.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	2159	1359	1038
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2159	1359	1038
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 71.3% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
46: NC 54 EB Off Ramp &

2028 Without Site Noon Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	934	0	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			665	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1038	0	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1038	0	122
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	52.5%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations							⬇		⬆⬆		⬇	
Volume (vph)	0	0	0	0	0	0	8	0	1987	0	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		74			78				1006			
Travel Time (s)		1.7			1.8				15.2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	9	0	2208	0	7	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	9	0	2208	0	7	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	101.0	0.0	19.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	0.0%	84.2%	0.0%	15.8%	0.0%
Maximum Green (s)							7.0		94.0		12.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		116.2		9.0	
Actuated g/C Ratio							0.08		0.97		0.08	
v/c Ratio							0.07		0.64		0.05	
Control Delay							54.5		1.0		48.3	
Queue Delay							0.0		0.0		0.0	
Total Delay							54.5		1.0		48.3	
LOS							D		A		D	
Approach Delay									1.2			
Approach LOS									A			
Queue Length 50th (ft)							7		3		5	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1762	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1031	
Travel Time (s)	15.6	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	1958	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1958	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	106.0	0.0
Total Split (%)	88.3%	0.0%
Maximum Green (s)	99.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	116.2	
Actuated g/C Ratio	0.97	
v/c Ratio	0.57	
Control Delay	1.0	
Queue Delay	0.0	
Total Delay	1.0	
LOS	A	
Approach Delay	1.2	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m10		72		m8	
Internal Link Dist (ft)		1			1				926			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							133		3426		207	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.07		0.64		0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 74 (62%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 1.2

Intersection LOS: A

Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	
ø1	ø2
19 s	101 s
	
ø5	ø6
14 s	106 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	105	
Internal Link Dist (ft)	951	
Turn Bay Length (ft)		
Base Capacity (vph)	3427	
Starvation Cap Reductn	11	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.57	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	128	0	2243	0	92	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		104			76				781			
Travel Time (s)		2.4			1.7				11.8			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	142	0	2492	0	102	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	142	0	2492	0	102	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0	104.0	0.0	16.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.3%	0.0%	86.7%	0.0%	13.3%	0.0%
Maximum Green (s)							15.0		97.0		9.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lead		Lag	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							15.3		99.0		11.0	
Actuated g/C Ratio							0.13		0.82		0.09	
v/c Ratio							0.63		0.85		0.63	
Control Delay							59.5		6.0		59.0	
Queue Delay							0.0		0.0		0.0	
Total Delay							59.5		6.0		59.0	
LOS							E		A		E	
Approach Delay									8.9			
Approach LOS									A			
Queue Length 50th (ft)							101		205		81	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
 10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2101	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	702	
Travel Time (s)	10.6	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2334	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2334	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	98.0	0.0
Total Split (%)	81.7%	0.0%
Maximum Green (s)	91.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	94.7	
Actuated g/C Ratio	0.79	
v/c Ratio	0.76	
Control Delay	2.5	
Queue Delay	0.3	
Total Delay	2.8	
LOS	A	
Approach Delay	5.1	
Approach LOS	A	
Queue Length 50th (ft)	41	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
 10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m138		371		m105	
Internal Link Dist (ft)		24			1				701			
Turn Bay Length (ft)											250	
Base Capacity (vph)							251		2920		162	
Starvation Cap Reductn							0		15		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.57		0.86		0.63	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 7 (6%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 7.1

Intersection LOS: A

Intersection Capacity Utilization 76.2%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø2	 ø1
104 s	16 s
 ø5	 ø6
22 s	98 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	59	
Internal Link Dist (ft)	622	
Turn Bay Length (ft)		
Base Capacity (vph)	3086	
Starvation Cap Reductn	254	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.82	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↑↑↑	↑↑	
Volume (vph)	0	0	184	30	2157	1943	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	195				906	1201	
Travel Time (s)	5.3				13.7	18.2	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	204	33	2397	2159	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	237	2397	2159	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	30.0	30.0	120.0	90.0	0.0
Total Split (%)	0.0%	0.0%	25.0%	25.0%	100.0%	75.0%	0.0%
Maximum Green (s)			23.0	23.0	113.0	83.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				21.9	120.0	88.1	
Actuated g/C Ratio				0.18	1.00	0.73	
v/c Ratio				0.73	0.47	0.83	
Control Delay				51.3	0.1	10.2	
Queue Delay				0.0	0.0	0.0	
Total Delay				51.3	0.1	10.2	
LOS				D	A	B	
Approach Delay					4.7	10.2	
Approach LOS					A	B	
Queue Length 50th (ft)				180	0	372	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Without Site Noon Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m205	m0	416	
Internal Link Dist (ft)	115				826	1121	
Turn Bay Length (ft)				250			
Base Capacity (vph)				369	5085	2598	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	0	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.64	0.47	0.83	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 7.2

Intersection LOS: A

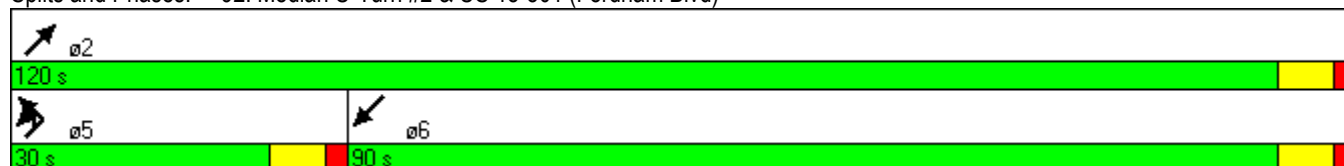
Intersection Capacity Utilization 73.9%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2028 Without Site Noon Peak

10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1070	116	0	2062	0	934
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			218	476	
Travel Time (s)	1.4			3.3	9.3	
Peak Hour Factor	0.84	0.84	0.90	0.90	0.90	0.97
Adj. Flow (vph)	1274	138	0	2291	0	963
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1274	138	0	2291	0	963
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	94.1%			ICU Level of Service F		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	139	86	316	103	63	180	1563	3	131	1369	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97				0.98							
Frt		0.943			0.943						0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1690	0	3302	1718	0	1761	3522	0	1719	3550	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1657	1690	0	3302	1718	0	1761	3522	0	1719	3550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	17					17						
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	109	148	91	333	108	66	189	1645	3	139	1456	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	239	0	333	174	0	189	1648	0	139	1475	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		15.0	68.0	
Total Split (s)	32.0	32.0	0.0	35.0	35.0	0.0	25.0	93.0	0.0	20.0	88.0	0.0
Total Split (%)	17.8%	17.8%	0.0%	19.4%	19.4%	0.0%	13.9%	51.7%	0.0%	11.1%	48.9%	0.0%
Maximum Green (s)	25.7	25.7		29.2	29.2		18.8	87.2		13.7	82.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	26.8	26.8		23.8	23.8		20.0	90.8		18.7	89.5	
Actuated g/C Ratio	0.15	0.15		0.13	0.13		0.11	0.50		0.10	0.50	
v/c Ratio	0.43	0.95		0.76	0.77		0.96	0.93		0.78	0.84	
Control Delay	75.6	119.3		86.9	96.6		99.3	34.5		104.6	44.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	75.6	119.3		86.9	96.6		99.3	34.5		104.6	44.9	
LOS	E	F		F	F		F	C		F	D	
Approach Delay		105.6			90.2			41.2			50.0	
Approach LOS		F			F			D			D	
Queue Length 50th (ft)	119	284		199	202		221	845		160	780	
Queue Length 95th (ft)	189	#468		247	284		m#274	#1141		#321	948	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	255	254		550	286		196	1776		178	1764	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.43	0.94		0.61	0.61		0.96	0.93		0.78	0.84	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 49 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 55.5

Intersection LOS: E

Intersection Capacity Utilization 88.8%

ICU Level of Service E

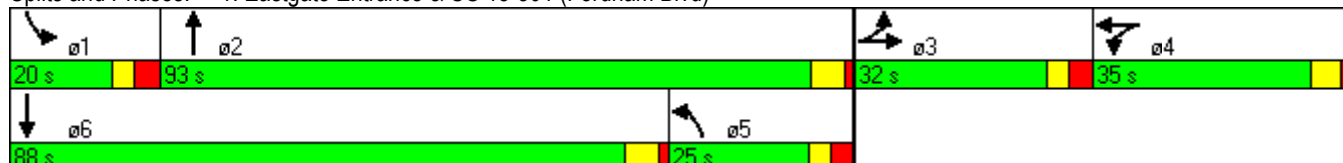
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	171	86	308	294	46	72	247	1722	301	15	31	1502
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.978				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1770	3461	0	0	1770	3539
Flt Permitted	0.950			0.950			0.042				0.042	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	78	3461	0	0	78	3539
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45				45
Link Distance (ft)		423			542			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Confl. Peds. (#/hr)							3					
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	180	91	324	327	51	80	263	1832	320	16	34	1633
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	91	324	327	51	80	263	2152	0	0	50	1633
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	19.0		14.0	14.0	19.0
Total Split (s)	28.0	17.0	37.0	25.0	14.0	14.0	37.0	124.0	0.0	14.0	14.0	101.0
Total Split (%)	15.6%	9.4%	20.6%	13.9%	7.8%	7.8%	20.6%	68.9%	0.0%	7.8%	7.8%	56.1%
Maximum Green (s)	21.0	10.0	30.0	18.0	7.0	7.0	30.0	117.0		7.0	7.0	94.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	24.8	11.5	43.5	19.9	9.4	16.6	133.6	119.6			105.6	96.6
Actuated g/C Ratio	0.14	0.06	0.24	0.11	0.05	0.09	0.74	0.66			0.59	0.54
v/c Ratio	0.74	0.76	0.88	0.86	0.53	0.55	0.73	0.94			0.38	0.86
Control Delay	93.2	118.8	68.3	99.9	102.8	70.7	60.8	16.7			35.7	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8			0.0	0.5
Total Delay	93.2	118.8	68.3	99.9	102.8	70.7	60.8	20.5			35.7	15.5
LOS	F	F	E	F	F	E	E	C			D	B

Lane Group	SBR
Lane Configurations	
Volume (vph)	229
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1548
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	3
Peak Hour Factor	0.92
Adj. Flow (vph)	249
Shared Lane Traffic (%)	
Lane Group Flow (vph)	249
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	28.0
Total Split (%)	15.6%
Maximum Green (s)	21.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	121.4
Actuated g/C Ratio	0.67
v/c Ratio	0.24
Control Delay	3.3
Queue Delay	0.0
Total Delay	3.3
LOS	A

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach Delay		83.6			95.1			24.9				14.5
Approach LOS		F			F			C				B
Queue Length 50th (ft)	210	108	285	199	60	72	269	1052			12	404
Queue Length 95th (ft)	#337	#203	#417	#281	#115	122	m313	437			m28	367
Internal Link Dist (ft)		343			462			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	248	124	370	381	97	146	358	2300			130	1899
Starvation Cap Reductn	0	0	0	0	0	0	0	105			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	55
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.73	0.73	0.88	0.86	0.53	0.55	0.73	0.98			0.38	0.89

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 28 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 33.6

Intersection LOS: C

Intersection Capacity Utilization 95.0%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø2	 ø1	 ø3	 ø4
124 s	14 s	25 s	17 s
 ø6	 ø5	 ø7	 ø8
101 s	37 s	28 s	14 s



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	32
Queue Length 95th (ft)	m31
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1052
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.24
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	206	71	35	56	67	28	53	1862	57	51	1761	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.96
Frt		0.950			0.956			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1767	0	1744	1755	0	1778	3540	0	1778	3557	1591
Flt Permitted	0.359			0.677			0.049			0.034		
Satd. Flow (perm)	672	1767	0	1234	1755	0	92	3540	0	64	3557	1529
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			4	4			3		1	1		3
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	240	83	41	64	76	32	58	2046	63	54	1873	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	124	0	64	108	0	58	2109	0	54	1873	298
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		14.0	14.0		15.0	19.0		15.0	19.0	19.0
Total Split (s)	20.0	48.0	0.0	28.0	28.0	0.0	15.0	117.0	0.0	15.0	117.0	117.0
Total Split (%)	11.1%	26.7%	0.0%	15.6%	15.6%	0.0%	8.3%	65.0%	0.0%	8.3%	65.0%	65.0%
Maximum Green (s)	13.7	41.6		21.6	21.6		8.9	110.9		9.4	110.9	110.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		2									2	2
Act Effct Green (s)	39.5	39.5		16.9	16.9		128.1	119.5		128.0	119.5	119.5
Actuated g/C Ratio	0.22	0.22		0.09	0.09		0.71	0.66		0.71	0.66	0.66
v/c Ratio	0.94	0.32		0.55	0.65		0.40	0.90		0.43	0.79	0.29

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	106.0	61.2		94.5	96.5		19.8	18.6		39.5	12.3	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	3.2		0.0	0.8	0.0
Total Delay	106.0	61.2		94.5	96.5		19.8	21.8		39.5	13.2	7.8
LOS	F	E		F	F		B	C		D	B	A
Approach Delay		90.7			95.7			21.7			13.1	
Approach LOS		F			F			C			B	
Queue Length 50th (ft)	261	125		74	126		9	314		17	352	94
Queue Length 95th (ft)	#408	179		124	187		m13	m735		m26	625	m115
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	256	422		158	224		160	2349		141	2361	1015
Starvation Cap Reductn	0	0		0	0		0	0		0	218	0
Spillback Cap Reductn	0	0		0	0		0	163		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.94	0.29		0.41	0.48		0.36	0.96		0.38	0.87	0.29

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 24 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 25.5

Intersection LOS: C

Intersection Capacity Utilization 80.1%

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.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)

	ø2	ø1	ø4
117 s	15 s	48 s	
ø6	ø5	ø7	ø8
117 s	15 s	20 s	28 s

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	145	16	489	8	11	21	6	619	1945	10	21	1760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.98			0.98							
Frt			0.850		0.930				0.999			
Flt Protected		0.957			0.990			0.950			0.950	
Satd. Flow (prot)	0	1774	2773	0	1624	0	0	3416	3518	0	1778	3557
Flt Permitted		0.957			0.990			0.950			0.950	
Satd. Flow (perm)	0	1745	2773	0	1624	0	0	3416	3518	0	1778	3557
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	12					12						
Peak Hour Factor	0.92	0.92	0.92	0.75	0.75	0.75	0.98	0.98	0.98	0.98	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	158	17	532	11	15	28	6	632	1985	10	22	1814
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	175	532	0	54	0	0	638	1995	0	22	1814
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	42.0	42.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	20.0	20.0	34.0	42.0	42.0	0.0	34.0	34.0	103.0	0.0	15.0	84.0
Total Split (%)	11.1%	11.1%	18.9%	23.3%	23.3%	0.0%	18.9%	18.9%	57.2%	0.0%	8.3%	46.7%
Maximum Green (s)	13.4	13.4	27.3	35.3	35.3		27.3	27.3	96.9		8.5	77.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lane Group	SBR
Lane Configurations	
Volume (vph)	119
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1591
Flt Permitted	
Satd. Flow (perm)	1591
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.97
Heavy Vehicles (%)	2%
Adj. Flow (vph)	123
Shared Lane Traffic (%)	
Lane Group Flow (vph)	123
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	20.0
Total Split (%)	11.1%
Maximum Green (s)	13.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	1.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		15.0	65.7		11.6			49.7	132.1		9.4	86.4
Actuated g/C Ratio		0.08	0.36		0.06			0.28	0.73		0.05	0.48
v/c Ratio		1.18	0.53		0.51			0.68	0.77		0.24	1.06
Control Delay		196.8	40.3		97.8			62.9	20.1		61.8	61.1
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		196.8	40.3		97.8			62.9	20.1		61.8	61.1
LOS		F	D		F			E	C		E	E
Approach Delay		79.0			97.8				30.4			57.6
Approach LOS		E			F				C			E
Queue Length 50th (ft)		~247	236		63			357	846		25	~1223
Queue Length 95th (ft)		#418	272		94			425	1035		m32	#1435
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		148	1011		334			942	2582		99	1708
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		1.18	0.53		0.16			0.68	0.77		0.22	1.06

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 70 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 47.5

Intersection LOS: D

Intersection Capacity Utilization 113.5%

ICU Level of Service H

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.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

			
ø2	ø1	ø3	ø4
103 s	15 s	20 s	42 s
			
ø5	ø6		
34 s	84 s		

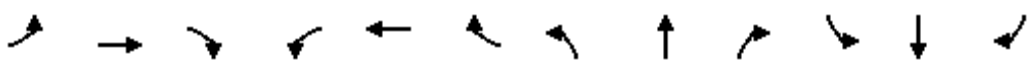


Lane Group	SBR
Act Effct Green (s)	106.4
Actuated g/C Ratio	0.59
v/c Ratio	0.13
Control Delay	3.9
Queue Delay	0.0
Total Delay	3.9
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	25
Queue Length 95th (ft)	m31
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	941
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.13
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗	↗	↗	↗	↗
Volume (vph)	0	0	5	0	0	167	2	2423	109	208	2048	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor									0.98	1.00		
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1611	1770	3539	1583	1770	3539	1583
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1611	1770	3539	1550	1769	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1003			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	1.00	1.00	0.50	1.00	1.00	0.70	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	0	0	10	0	0	239	2	2605	117	217	2133	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	10	0	0	239	2	2605	117	217	2133	24
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	28.0	14.0	112.0	112.0	28.0	126.0	126.0
Total Split (%)	0.0%	0.0%	10.0%	0.0%	0.0%	20.0%	10.0%	80.0%	80.0%	20.0%	90.0%	90.0%
Maximum Green (s)			7.0			21.0	7.0	105.0	105.0	21.0	119.0	119.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			22.8	9.0	107.2	107.2	22.8	132.4	132.4
Actuated g/C Ratio			0.06			0.16	0.06	0.77	0.77	0.16	0.95	0.95
v/c Ratio			0.10			0.91	0.02	0.96	0.10	0.75	0.64	0.02
Control Delay			64.0			93.9	54.5	14.5	2.4	72.9	2.6	1.0
Queue Delay			0.0			0.0	0.0	2.5	0.0	0.0	0.0	0.0
Total Delay			64.0			93.9	54.5	17.1	2.4	72.9	2.6	1.0
LOS			E			F	D	B	A	E	A	A
Approach Delay								16.5			9.0	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS								B	A			
Queue Length 50th (ft)			9			216	2	478	10	191	0	0
Queue Length 95th (ft)			16			237	m1	#975	m11	#304	300	6
Internal Link Dist (ft)	208				43			923			1513	
Turn Bay Length (ft)							150	150		200	150	
Base Capacity (vph)			104			265	114	2710	1187	291	3347	1497
Starvation Cap Reductn			0			0	0	62	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.10			0.90	0.02	0.98	0.10	0.75	0.64	0.02

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 29 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 16.7

Intersection LOS: B

Intersection Capacity Utilization 86.8%

ICU Level of Service E

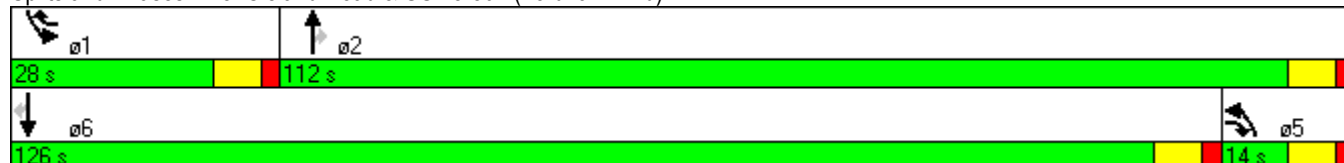
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Volume (vph)	0	0	17	0	0	58	105	12	2482	34	96	1937
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				801			1035
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	1.00	1.00	0.68	1.00	1.00	0.80	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	25	0	0	72	109	12	2585	35	100	2018
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	25	0	0	72	0	121	2585	35	100	2018
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	22.0	0.0	0.0	18.0	22.0	22.0	122.0	122.0	18.0	118.0
Total Split (%)	0.0%	0.0%	15.7%	0.0%	0.0%	12.9%	15.7%	15.7%	87.1%	87.1%	12.9%	84.3%
Maximum Green (s)			15.0			11.0	15.0	15.0	115.0	115.0	11.0	111.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			17.0			12.4		17.0	117.6	117.6	12.4	113.0
Actuated g/C Ratio			0.12			0.09		0.12	0.84	0.84	0.09	0.81
v/c Ratio			0.13			0.50		0.56	0.87	0.03	0.64	0.71
Control Delay			57.0			73.2		57.7	6.0	2.0	73.1	7.2
Queue Delay			0.0			0.0		0.0	0.6	0.0	0.0	0.1
Total Delay			57.0			73.2		57.7	6.7	2.0	73.1	7.3
LOS			E			E		E	A	A	E	A
Approach Delay									8.9			10.3
Approach LOS									A			B

Lane Group	SBR
Lane Configurations	
Volume (vph)	19
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	2%
Adj. Flow (vph)	20
Shared Lane Traffic (%)	
Lane Group Flow (vph)	20
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	118.0
Total Split (%)	84.3%
Maximum Green (s)	111.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	113.0
Actuated g/C Ratio	0.81
v/c Ratio	0.02
Control Delay	2.7
Queue Delay	0.0
Total Delay	2.7
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			21			63		105	283	4	89	361
Queue Length 95th (ft)			39			103		m118	449	m5	m139	423
Internal Link Dist (ft)		24			5				721			955
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			187			150		215	2972	1329	164	2856
Starvation Cap Reductn			0			0		0	131	0	0	101
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.13			0.48		0.56	0.91	0.03	0.61	0.73

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 137 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 10.7

Intersection LOS: B

Intersection Capacity Utilization 82.8%

ICU Level of Service E

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	3
Queue Length 95th (ft)	m4
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1278
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.02
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1214	0	0	548	0	1844	22	0	1843	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	0	0	1428	0	0	652	0	2049	24	0	1920	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1428	0	0	652	0	2049	24	0	1920	118
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			13.0								20.0	
Total Split (s)	0.0	0.0	67.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.0	0.0
Total Split (%)	0.0%	0.0%	47.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	52.1%	0.0%
Maximum Green (s)			61.9								67.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			62.0			140.0		140.0	140.0		68.0	140.0
Actuated g/C Ratio			0.44			1.00		1.00	1.00		0.49	1.00
v/c Ratio			1.18			0.41		0.58	0.02		1.12	0.08
Control Delay			125.6			0.8		0.6	0.0		89.6	0.1
Queue Delay			5.2			0.0		0.0	0.0		0.0	0.0
Total Delay			130.8			0.8		0.6	0.0		89.6	0.1
LOS			F			A		A	A		F	A
Approach Delay								0.6			84.5	
Approach LOS								A			F	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			~883			0		0	0		~1040	0
Queue Length 95th (ft)			#941			0		0	m0		#1185	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1210			1580		3539	1583		1719	1568
Starvation Cap Reductn			12			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			1.19			0.41		0.58	0.02		1.12	0.08

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 114 (81%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 58.3

Intersection LOS: E

Intersection Capacity Utilization 101.7%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

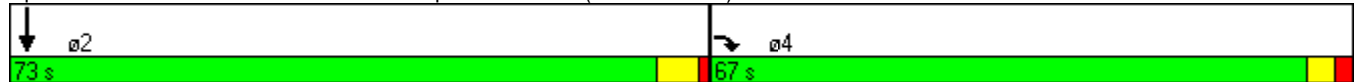
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2028 Without Site Phase 3 PM Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	258	0	1607	0	0	2684	373	0	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	287	0	1786	0	0	2982	414	0	76
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	287	0	1786	0	0	2982	414	0	76
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 85.2% ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		  		 		
Volume (vph)	14	151	131	1	2685	183	2701	26	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	0.91	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850		0.990			0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	5532	0	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	0	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					784		913		
Travel Time (s)					11.9		13.8		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.39	0.86	0.59	0.59	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	36	176	222	2	2918	199	3001	29	8
Shared Lane Traffic (%)									
Lane Group Flow (vph)	36	176	224	0	3117	0	3001	37	0
Turn Type	custom	custom	custom					Perm	
Protected Phases	3	3 4	4		2		6		
Permitted Phases	3	4	4					6	
Detector Phase	3	3 4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0		7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0		14.0		33.0		25.0	25.0	
Total Split (s)	14.0	30.0	16.0	0.0	110.0	0.0	110.0	110.0	0.0
Total Split (%)	10.0%	21.4%	11.4%	0.0%	78.6%	0.0%	78.6%	78.6%	0.0%
Maximum Green (s)	7.0		9.0		103.0		103.0	103.0	
Yellow Time (s)	5.0		5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0		2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	-1.6	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	2.4	5.0	5.0	4.0
Lead/Lag	Lag		Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0		2.0		2.0		2.0	2.0	
Recall Mode	None		None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	25.0	11.0		105.0		105.0	105.0	
Actuated g/C Ratio	0.06	0.18	0.08		0.75		0.75	0.75	
v/c Ratio	0.35	0.62	1.03		0.75		1.07	0.03	
Control Delay	72.3	63.8	131.2		6.9		48.1	3.7	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		1.1		19.1	0.0	
Total Delay	72.3	63.8	131.2		8.0		67.2	3.7	
LOS	E	E	F		A		E	A	
Approach Delay					8.0		66.4		
Approach LOS					A		E		
Queue Length 50th (ft)	32	150	~123		284		~1513	5	
Queue Length 95th (ft)	30	221	107		m303		m#1462	m5	
Internal Link Dist (ft)					704		833		
Turn Bay Length (ft)								100	
Base Capacity (vph)	104	283	217		4149		2794	1187	
Starvation Cap Reductn	0	0	0		718		110	0	
Spillback Cap Reductn	0	0	0		0		0	0	
Storage Cap Reductn	0	0	0		0		0	0	
Reduced v/c Ratio	0.35	0.62	1.03		0.91		1.12	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 117 (84%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 40.9

Intersection LOS: D

Intersection Capacity Utilization 98.8%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 02	 04	 03
110 s	16 s	14 s
 06		
110 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	757	0	178	16	0	26	0	2090	18	0	2381	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.999				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1770	0	1583	0	3966	0	0	3539	1583
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1593	1755	0	1583	0	*3811	0	0	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			698	
Travel Time (s)		7.4			14.0			8.8			10.6	
Confl. Peds. (#/hr)			5	5					1	1		
Peak Hour Factor	0.85	1.00	0.85	0.84	1.00	0.84	1.00	0.96	0.96	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	891	0	209	19	0	31	0	2177	19	0	2480	346
Shared Lane Traffic (%)												
Lane Group Flow (vph)	891	0	209	19	0	31	0	2196	0	0	2480	346
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				19.0			19.0	
Total Split (s)	39.0	0.0	0.0	39.0	0.0	0.0	0.0	101.0	0.0	0.0	101.0	0.0
Total Split (%)	27.9%	0.0%	0.0%	27.9%	0.0%	0.0%	0.0%	72.1%	0.0%	0.0%	72.1%	0.0%
Maximum Green (s)	32.0			32.0				94.0			94.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	-1.2	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	2.8	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	34.0		140.0	34.0		140.0		96.0			96.0	140.0
Actuated g/C Ratio	0.24		1.00	0.24		1.00		0.69			0.69	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	1.05		0.13	0.04		0.02		0.81			1.02	0.22
Control Delay	94.8		0.2	41.1		0.0		18.6			32.4	0.1
Queue Delay	0.0		0.0	0.0		0.0		0.2			32.3	0.0
Total Delay	94.8		0.2	41.1		0.0		18.8			64.7	0.1
LOS	F		A	D		A		B			E	A
Approach Delay								18.8			56.8	
Approach LOS								B			E	
Queue Length 50th (ft)	~453		0	13		0		618			~1254	0
Queue Length 95th (ft)	#529		0	33		0		708			#1382	m0
Internal Link Dist (ft)		302			435			504			618	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	850		1593	430		1583		2720			2427	1583
Starvation Cap Reductn	0		0	0		0		0			177	0
Spillback Cap Reductn	0		0	0		0		94			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	1.05		0.13	0.04		0.02		0.84			1.10	0.22

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 138 (99%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 46.5

Intersection LOS: D

Intersection Capacity Utilization 95.7%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

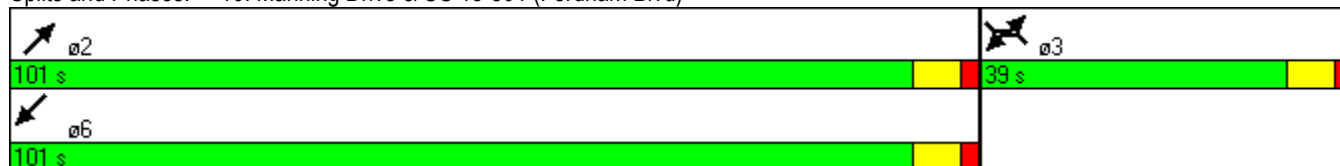
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	588	42	238	410	576	24	174	298	596	162	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.96	1.00				0.93		1.00	0.98		0.99	
Frt		0.990				0.850			0.850		0.988	
Flt Protected	0.950			0.950				0.994		0.950	0.975	
Satd. Flow (prot)	1662	3390	0	1770	1863	1689	0	2037	1583	1625	1921	0
Flt Permitted	0.507			0.117				0.994		0.950	0.975	
Satd. Flow (perm)	856	3390	0	218	1863	1575	0	2028	1559	1625	1921	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	22		12	12		22	49					49
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	48	684	49	256	441	619	28	200	343	641	174	33
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	48	733	0	256	441	619	0	228	343	423	425	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	17.0	17.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	24.0	58.0	45.0	27.0	27.0	24.0	45.0	45.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	18.5%	44.6%	34.6%	20.8%	20.8%	18.5%	34.6%	34.6%	0.0%
Maximum Green (s)	26.7	26.7		17.2	50.7	38.3	20.3	20.3	17.2	38.3	38.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	29.8	29.8		53.0	53.0	91.7		23.3	41.5	38.7	38.7	
Actuated g/C Ratio	0.23	0.23		0.41	0.41	0.71		0.18	0.32	0.30	0.30	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 Without Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.24	0.94		0.84	0.58	0.54		0.62	0.68	0.87	0.74	
Control Delay	45.6	70.5		55.9	33.7	9.1		58.3	43.6	63.0	50.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	45.6	70.5		55.9	33.7	9.1		58.3	43.6	63.0	50.0	
LOS	D	E		E	C	A		E	D	E	D	
Approach Delay		69.0			26.4			49.5			56.5	
Approach LOS		E			C			D			E	
Queue Length 50th (ft)	34	324		158	285	177		182	237	351	334	
Queue Length 95th (ft)	69	#418		#297	396	245		261	328	#536	465	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	196	777		316	760	1162		366	511	500	591	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.24	0.94		0.81	0.58	0.53		0.62	0.67	0.85	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 46.9

Intersection LOS: D

Intersection Capacity Utilization 85.6%

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: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
24 s	34 s	45 s	27 s
 ø6			
58 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	1633	70	0	1118	1214	0	0	373	0	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	1775	76	0	1215	1320	0	0	405	0	0	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1775	76	0	1215	1320	0	0	405	0	0	123
Turn Type			Free			Free			custom			Free
Protected Phases		2			6 8				8			
Permitted Phases			Free			Free			8			Free
Detector Phase		2			6 8				8			
Switch Phase												
Minimum Initial (s)		12.0							7.0			
Minimum Split (s)		20.0							20.0			
Total Split (s)	0.0	113.0	0.0	0.0	180.0	0.0	0.0	0.0	67.0	0.0	0.0	0.0
Total Split (%)	0.0%	62.8%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	37.2%	0.0%	0.0%	0.0%
Maximum Green (s)		106.0							60.0			
Yellow Time (s)		5.0							5.0			
All-Red Time (s)		2.0							2.0			
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	4.0	4.0	7.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0			
Recall Mode		C-Max							None			
Act Effct Green (s)		113.6	180.0		180.0	180.0			56.4			180.0
Actuated g/C Ratio		0.63	1.00		1.00	1.00			0.31			1.00
v/c Ratio		0.79	0.05		0.34	0.83			0.80			0.08
Control Delay		29.0	0.1		0.1	15.6			69.1			0.1
Queue Delay		0.0	0.0		0.0	0.0			0.0			0.0
Total Delay		29.0	0.1		0.1	15.6			69.1			0.1
LOS		C	A		A	B			E			A
Approach Delay		27.8			8.2							
Approach LOS		C			A							
Queue Length 50th (ft)		821	0		0	490			432			0

Lane Group	ø6
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	113.0
Total Split (%)	63%
Maximum Green (s)	106.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		964	0		m0	m502			560			0
Internal Link Dist (ft)		388			354			518			588	
Turn Bay Length (ft)			275									
Base Capacity (vph)		2234	1583		3523	1583			555			1611
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		0.79	0.05		0.34	0.83			0.73			0.08

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 173 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 20.4

Intersection LOS: C

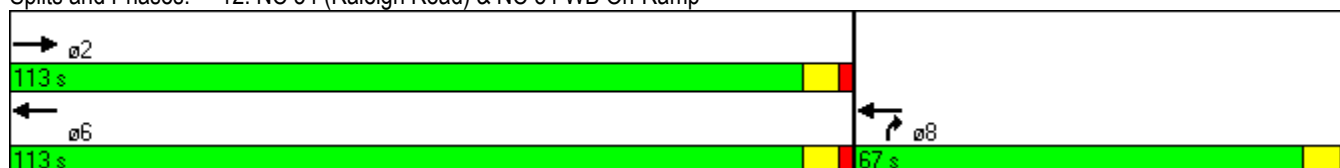
Intersection Capacity Utilization 76.6%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

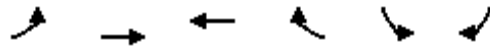


Lane Group	ø6
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2028 Without Site Phase 3 PM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1989	2309	548	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	2210	2685	637	0	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2210	2685	637	0	26
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 54.6%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2028 Without Site Phase 3 PM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2863	2929	62	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		224	547		229	
Travel Time (s)		3.4	8.3		6.2	
Peak Hour Factor	1.00	0.94	0.91	0.91	1.00	0.67
Adj. Flow (vph)	0	3046	3219	68	0	113
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3046	3219	68	0	113
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 68.0% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	31	176	2397	77	113	2290	239	186	29	122	350	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	350	
Storage Lanes		2		0	1		1	1		1	2	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	0.97	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor		1.00	1.00		1.00		0.97	0.99		0.95	0.96	
Frt			0.995				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3433	5049	0	1770	5085	1583	1770	1863	1583	3433	1863
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3430	5049	0	1767	5085	1535	1747	1863	1503	3305	1863
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			547			576			537			597
Travel Time (s)			8.3			8.7			14.6			16.3
Confl. Peds. (#/hr)		7		11	11		7	8		25	25	
Peak Hour Factor	0.92	0.94	0.94	0.94	0.89	0.89	0.89	0.65	0.65	0.65	0.89	0.89
Adj. Flow (vph)	34	187	2550	82	127	2573	269	286	45	188	393	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	221	2632	0	127	2573	269	286	45	188	393	29
Turn Type	Prot	Prot			Prot		pm+ov	Prot		pm+ov	Prot	
Protected Phases	5!	5	2		1	6	7	3	8	1	7	4
Permitted Phases							6			8		
Detector Phase	5	5	2		1	6	7	3	8	1	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0	27.0		13.0	26.0	14.0	14.0	41.0	13.0	14.0	39.0
Total Split (s)	18.0	18.0	93.0	0.0	17.0	92.0	29.0	31.0	41.0	17.0	29.0	39.0
Total Split (%)	10.0%	10.0%	51.7%	0.0%	9.4%	51.1%	16.1%	17.2%	22.8%	9.4%	16.1%	21.7%
Maximum Green (s)	11.0	11.0	87.4		11.6	86.1	22.0	24.0	34.6	11.6	22.0	32.5
Yellow Time (s)	5.0	5.0	3.8		3.0	4.1	5.0	5.0	3.1	3.0	5.0	3.2
All-Red Time (s)	2.0	2.0	1.8		2.4	1.8	2.0	2.0	3.3	2.4	2.0	3.3
Lost Time Adjust (s)	0.0	-2.0	-0.6	0.0	-0.4	-0.9	-2.0	-2.0	-1.4	-0.4	-2.0	-1.5
Total Lost Time (s)	7.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	3.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Dont Walk (s)			12.0			13.0			27.0			25.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		36.2	114.8		12.0	90.6	115.0	26.0	11.5	21.8	24.4	9.9
Actuated g/C Ratio		0.20	0.64		0.07	0.50	0.64	0.14	0.06	0.12	0.14	0.06
v/c Ratio		0.32	0.82		1.08	1.01	0.27	1.12	0.38	1.00	0.84	0.28
Control Delay		69.7	20.6		135.3	35.3	7.7	157.5	89.2	127.8	92.6	88.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	309
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.97
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1543
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	8
Peak Hour Factor	0.89
Adj. Flow (vph)	347
Shared Lane Traffic (%)	
Lane Group Flow (vph)	347
Turn Type	pm+ov
Protected Phases	5!
Permitted Phases	4
Detector Phase	5
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	18.0
Total Split (%)	10.0%
Maximum Green (s)	11.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-1.5
Total Lost Time (s)	5.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	43.5
Actuated g/C Ratio	0.24
v/c Ratio	0.91
Control Delay	93.0
Queue Delay	0.0

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 Without Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay		69.7	20.6		135.3	35.3	7.7	157.5	89.2	127.8	92.6	88.0
LOS		E	C		F	D	A	F	F	F	F	F
Approach Delay			24.4			37.1			140.8			92.6
Approach LOS			C			D			F			F
Queue Length 50th (ft)		112	727		~165	~1192	131	~387	52	173	238	34
Queue Length 95th (ft)		m155	751		m#219	#1235	m105	#340	70	168	#316	71
Internal Link Dist (ft)			467			496			457			517
Turn Bay Length (ft)		300			250		150	150		150	350	
Base Capacity (vph)		690	3220		118	2560	987	256	373	188	466	352
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.32	0.82		1.08	1.01	0.27	1.12	0.12	1.00	0.84	0.08

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 38 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 45.5

Intersection LOS: D

Intersection Capacity Utilization 97.5%

ICU Level of Service F

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.

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

! Phase conflict between lane groups.

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

			
ø2	ø1	ø3	ø4
93 s	17 s	31 s	39 s
			
ø5	ø6	ø7	ø8
18 s	92 s	29 s	41 s



Lane Group	SBR
Total Delay	93.0
LOS	F
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	378
Queue Length 95th (ft)	#552
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	381
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.91
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Volume (vph)	82	2855	33	179	2613	58	33	15	206	31	38	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.998			0.997				0.850		0.942	
Flt Protected	0.950			0.950				0.967			0.987	
Satd. Flow (prot)	1770	5070	0	1770	5062	0	0	1801	1583	0	1714	0
Flt Permitted	0.032			0.037				0.659			0.908	
Satd. Flow (perm)	60	5070	0	69	5062	0	0	1220	1583	0	1577	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	14		18	18		14	9					9
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.86	0.86	0.86	0.83	0.83	0.83
Adj. Flow (vph)	86	3005	35	201	2936	65	38	17	240	37	46	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	3040	0	201	3001	0	0	55	240	0	146	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	112.0	0.0	20.0	119.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	7.2%	62.2%	0.0%	11.1%	66.1%	0.0%	26.7%	26.7%	26.7%	26.7%	26.7%	0.0%
Maximum Green (s)	7.1	105.8		14.1	112.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	132.1	109.5		132.1	124.1			32.9	32.9		32.9	
Actuated g/C Ratio	0.73	0.61		0.73	0.69			0.18	0.18		0.18	
v/c Ratio	0.72	0.99		0.76	0.86			0.25	0.83		0.51	
Control Delay	55.5	30.1		65.9	21.3			63.3	93.3		71.2	
Queue Delay	0.0	0.0		0.0	0.1			0.0	0.0		0.0	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	55.5	30.1		65.9	21.4			63.3	93.3		71.2	
LOS	E	C		E	C			E	F		E	
Approach Delay		30.8			24.2			87.7			71.2	
Approach LOS		C			C			F			E	
Queue Length 50th (ft)	51	~1380		196	578			56	277		158	
Queue Length 95th (ft)	m74	m#1411		m#295	m647			94	343		203	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	120	3083		265	3490			291	378		377	
Starvation Cap Reductn	0	0		0	50			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.72	0.99		0.76	0.87			0.19	0.63		0.39	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 8 (4%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 31.1

Intersection LOS: C

Intersection Capacity Utilization 97.1%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

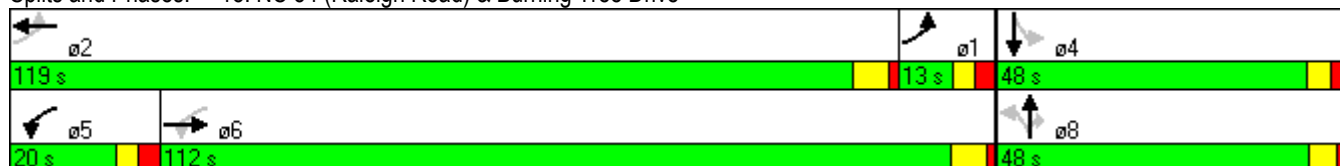
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	218	2804	44	13	2504	28	126	13	123	17	0	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.89			0.96						
Frt			0.850			0.850		0.864			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1741	5085	1583	1770	5085	1583	1770	1609	0	1770	1583	0
Flt Permitted	0.037			0.033			0.331			0.499		
Satd. Flow (perm)	68	5085	1405	61	5085	1528	617	1609	0	930	1583	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	15		22	22		15						
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.80	0.80	0.80	0.93	0.93	0.93
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	225	2891	45	14	2636	29	158	16	154	18	0	259
Shared Lane Traffic (%)												
Lane Group Flow (vph)	225	2891	45	14	2636	29	158	170	0	18	259	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	44.0	44.0	16.0	44.0	44.0	18.0	18.0		18.0	18.0	
Total Split (s)	21.0	118.0	118.0	16.0	93.0	93.0	46.0	46.0	0.0	46.0	46.0	0.0
Total Split (%)	11.7%	65.6%	65.6%	8.9%	51.7%	51.7%	25.6%	25.6%	0.0%	25.6%	25.6%	0.0%
Maximum Green (s)	14.7	111.7	111.7	9.7	86.7	86.7	39.2	39.2		38.7	38.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	124.0	123.7	123.7	127.0	108.0	108.0	41.0	41.0		41.0	41.0	
Actuated g/C Ratio	0.69	0.69	0.69	0.71	0.60	0.60	0.23	0.23		0.23	0.23	
v/c Ratio	1.15	0.83	0.05	0.11	0.86	0.03	1.12	0.46		0.08	0.72	
Control Delay	153.2	4.4	3.4	3.8	8.3	5.2	171.3	64.9		56.3	76.6	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	11%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.5	0.0	0.0	0.2	0.0	0.0	0.0		0.0	0.0	
Total Delay	153.2	5.0	3.4	3.8	8.5	5.2	171.3	64.9		56.3	76.6	
LOS	F	A	A	A	A	A	F	E		E	E	
Approach Delay		15.5			8.5			116.1			75.3	
Approach LOS		B			A			F			E	
Queue Length 50th (ft)	~268	112	5	2	175	4	~215	176		17	286	
Queue Length 95th (ft)	m#289	m113	m5	m2	179	m5	#317	227		43	399	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	196	3494	965	148	3051	917	141	366		212	361	
Starvation Cap Reductn	0	230	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	60	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.15	0.89	0.05	0.09	0.88	0.03	1.12	0.46		0.08	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 40 (22%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 20.3

Intersection LOS: C

Intersection Capacity Utilization 99.0%

ICU Level of Service F

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
16 s	118 s	46 s
 ø5	 ø10	 ø6
21 s	20 s	93 s
		 ø8
		46 s

Lane Group	ø10
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	2696	104	58	2200	110	147	21	378	186	11	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.94	1.00		0.98	0.99	1.00				
Frt			0.850			0.850		0.876	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (prot)	3467	5136	1599	3416	5060	1575	1648	1451	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (perm)	3466	5136	1504	3411	5060	1546	1639	1451	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	4		25	25		4	4					4
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	163	2838	109	64	2418	121	173	25	445	216	13	230
Shared Lane Traffic (%)							10%		46%			
Lane Group Flow (vph)	163	2838	109	64	2418	121	156	247	240	216	13	230
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	102.0	44.0	16.0	102.0	18.0	44.0	44.0	60.0	18.0	18.0	34.0
Total Split (%)	8.9%	56.7%	24.4%	8.9%	56.7%	10.0%	24.4%	24.4%	33.3%	10.0%	10.0%	18.9%
Maximum Green (s)	8.8	95.4	36.9	8.9	95.5	10.7	36.9	36.9		10.7	10.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	15.2	101.2	136.0	11.0	97.0	110.0	34.8	34.8	45.8	13.0	13.0	28.2
Actuated g/C Ratio	0.08	0.56	0.76	0.06	0.54	0.61	0.19	0.19	0.25	0.07	0.07	0.16
v/c Ratio	0.55	0.98	0.09	0.31	0.89	0.13	0.49	0.88	0.64	0.86	0.09	0.91

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	75.2	54.1	7.2	69.4	27.3	5.5	69.4	100.4	59.0	111.0	79.8	88.2
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.2	54.1	7.2	69.4	27.4	5.5	69.4	100.4	59.0	111.0	79.8	88.2
LOS	E	D	A	E	C	A	E	F	E	F	E	F
Approach Delay	53.6			27.5			77.4			98.7		
Approach LOS	D			C			E			F		
Queue Length 50th (ft)	101	~1109	40	38	950	26	171	309	214	132	15	~193
Queue Length 95th (ft)	m126	#1351	m50	m58	430	m38	238	404	278	#193	39	#333
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300		200	300		200			450	250		
Base Capacity (vph)	294	2889	1176	209	2727	947	357	314	410	252	137	252
Starvation Cap Reductn	0	0	0	0	26	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	0.55	0.98	0.09	0.31	0.90	0.13	0.44	0.79	0.59	0.86	0.09	0.91

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 3 (2%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 48.9

Intersection LOS: D

Intersection Capacity Utilization 89.8%

ICU Level of Service E

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.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

											
ø2	ø1	ø3	ø4	ø5	ø6						
102 s	16 s	18 s	44 s	16 s	102 s						

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	7	2498	769	173	2081	208	295	71	46	134	94	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.95			0.98						
Frt			0.850			0.850		0.966			0.985	
Flt Protected	0.950			0.950			0.950	0.979		0.950	0.994	
Satd. Flow (prot)	1761	4448	1575	1778	5111	1591	1673	1665	0	1664	1715	0
Flt Permitted	0.041			0.041			0.950	0.979		0.950	0.994	
Satd. Flow (perm)	76	4448	1500	77	5111	1553	1673	1665	0	1664	1715	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)	1		6	6		1						
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	7	2602	801	184	2214	221	328	79	51	152	107	14
Shared Lane Traffic (%)							30%			11%		
Lane Group Flow (vph)	7	2602	801	184	2214	221	230	228	0	135	138	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	108.0	34.0	18.0	110.0	20.0	34.0	34.0	0.0	20.0	20.0	0.0
Total Split (%)	8.9%	60.0%	18.9%	10.0%	61.1%	11.1%	18.9%	18.9%	0.0%	11.1%	11.1%	0.0%
Maximum Green (s)	9.2	100.5	26.8	11.0	102.5	12.8	26.8	26.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	120.0	103.0	132.0	116.0	118.2	133.2	29.0	29.0		15.0	15.0	
Actuated g/C Ratio	0.67	0.57	0.73	0.64	0.66	0.74	0.16	0.16		0.08	0.08	
v/c Ratio	0.05	1.02	0.72	1.07	0.66	0.19	0.85	0.85		0.97	0.97	
Control Delay	5.0	37.1	6.0	148.5	20.4	6.6	100.2	100.2		148.0	145.5	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	6.7	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.0	43.8	6.1	148.5	20.5	6.6	100.2	100.2		148.0	145.5	
LOS	A	D	A	F	C	A	F	F		F	F	
Approach Delay		34.9			28.3			100.2			146.7	
Approach LOS		C			C			F			F	
Queue Length 50th (ft)	1	~1340	171	~184	526	59	283	280		170	174	
Queue Length 95th (ft)	m2	m#1393	m159	#362	713	119	#446	#440		#321	#323	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	154	2545	1112	172	3358	1153	270	268		139	143	
Starvation Cap Reductn	0	45	22	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	57	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	1.04	0.73	1.07	0.67	0.19	0.85	0.85		0.97	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 6 (3%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 41.3

Intersection LOS: D

Intersection Capacity Utilization 88.5%

ICU Level of Service E

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ 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.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2	 ø1	 ø3	 ø4
108 s	18 s	20 s	34 s
 ø5	 ø6		
16 s	110 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	411	405	67	247	488	259	86	934	216	133	756	466
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		0.99		0.98		0.99				0.92
Frt		0.979				0.850		0.972				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3453	0	1770	1863	1583	1770	3421	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.214			0.073		
Satd. Flow (perm)	3409	3453	0	1758	1863	1551	399	3421	0	136	3539	1457
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	5		9	9		5	14		13	13		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	424	418	69	255	503	267	92	1004	232	141	804	496
Shared Lane Traffic (%)												
Lane Group Flow (vph)	424	487	0	255	503	267	92	1236	0	141	804	496
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	23.0	37.0	0.0	30.0	44.0	15.0	15.0	58.0	0.0	15.0	58.0	23.0
Total Split (%)	16.4%	26.4%	0.0%	21.4%	31.4%	10.7%	10.7%	41.4%	0.0%	10.7%	41.4%	16.4%
Maximum Green (s)	17.1	31.1		24.4	38.4	9.1	8.8	52.3		9.1	52.6	17.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	18.2	34.0		23.0	38.8	48.6	62.2	53.2		63.8	54.0	72.3
Actuated g/C Ratio	0.13	0.24		0.16	0.28	0.35	0.44	0.38		0.46	0.39	0.52
v/c Ratio	0.95	0.58		0.88	0.97	0.49	0.35	0.95		0.80	0.59	0.64
Control Delay	91.5	50.6		84.3	78.8	24.3	23.5	57.9		60.8	36.4	21.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 Without Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	91.5	50.6		84.3	78.8	24.3	23.5	57.9		60.8	36.4	21.8
LOS	F	D		F	E	C	C	E		E	D	C
Approach Delay		69.6			66.0			55.5			33.8	
Approach LOS		E			E			E			C	
Queue Length 50th (ft)	201	211		231	389	129	45	573		76	302	216
Queue Length 95th (ft)	#307	272		m#335	#683	m192	78	#724		#191	377	300
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	447	837		316	519	542	278	1300		179	1366	769
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.95	0.58		0.81	0.97	0.49	0.33	0.95		0.79	0.59	0.64

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 96 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 53.9

Intersection LOS: D

Intersection Capacity Utilization 94.4%

ICU Level of Service F

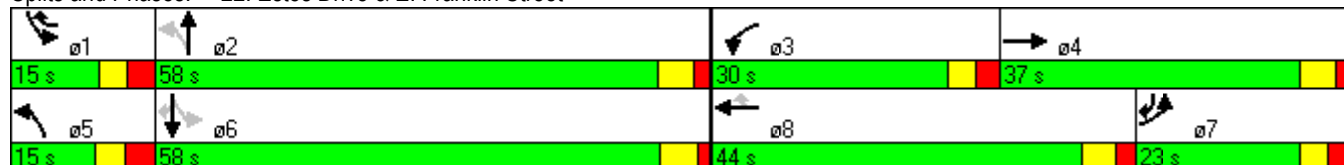
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	472	10	6	547	64	15	10	15	105	12	397
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.984			0.949				0.850
Flt Protected	0.950			0.950				0.981			0.957	
Satd. Flow (prot)	1770	3526	0	1770	3469	0	0	1720	0	0	1765	1568
Flt Permitted	0.282			0.465				0.833			0.707	
Satd. Flow (perm)	523	3526	0	856	3469	0	0	1460	0	0	1293	1548
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		11	11		8	1		11	11		1
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.69	0.69	0.69	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	285	497	11	7	629	74	22	14	22	111	13	418
Shared Lane Traffic (%)												
Lane Group Flow (vph)	285	508	0	7	703	0	0	58	0	0	124	418
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	17.0	41.0	0.0	24.0	24.0	0.0	29.0	29.0	0.0	29.0	29.0	17.0
Total Split (%)	24.3%	58.6%	0.0%	34.3%	34.3%	0.0%	41.4%	41.4%	0.0%	41.4%	41.4%	24.3%
Maximum Green (s)	11.9	35.9		18.8	18.8		23.3	23.3		23.2	23.2	11.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	51.2	52.2		33.0	33.0			11.4			11.4	23.0
Actuated g/C Ratio	0.73	0.75		0.47	0.47			0.16			0.16	0.33
v/c Ratio	0.46	0.19		0.02	0.43			0.24			0.59	0.82
Control Delay	4.4	1.3		14.3	15.2			26.6			37.9	31.6
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	4.4	1.3		14.3	15.2			26.6			37.9	31.6
LOS	A	A		B	B			C			D	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		2.4			15.2			26.6			33.0	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	21	19		2	104			22			51	141
Queue Length 95th (ft)	m54	m39		10	176			36			92	182
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	620	2627		404	1636			501			443	517
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.46	0.19		0.02	0.43			0.12			0.28	0.81

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 28 (40%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 15.3

Intersection LOS: B

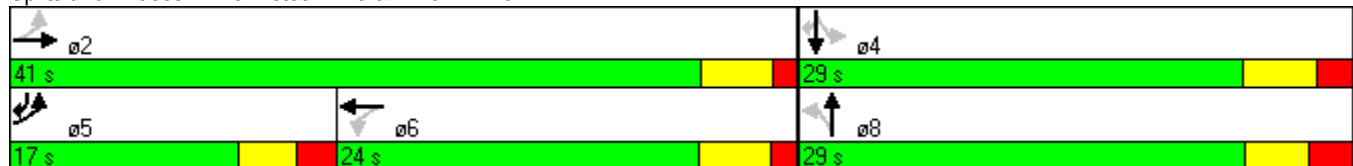
Intersection Capacity Utilization 64.4%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2028 Without Site Phase 3 PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	295	19	1	151	12	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.951	
Flt Protected					0.969	
Satd. Flow (prot)	1848	0	0	1863	1717	0
Flt Permitted					0.969	
Satd. Flow (perm)	1848	0	0	1863	1717	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Confl. Peds. (#/hr)						11
Peak Hour Factor	0.62	0.62	0.62	0.62	0.85	0.85
Adj. Flow (vph)	476	31	2	244	14	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	507	0	0	246	22	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.7%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2028 Without Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	52	11	0	38	3	12	2	0	4	2	10
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		0.978			0.991						0.916	
Flt Protected		0.996						0.959			0.988	
Satd. Flow (prot)	0	1814	0	0	1846	0	0	1786	0	0	1607	0
Flt Permitted		0.996						0.959			0.988	
Satd. Flow (perm)	0	1814	0	0	1846	0	0	1786	0	0	1607	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.65	0.65	0.65	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%
Adj. Flow (vph)	6	55	12	0	41	3	18	3	0	5	3	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	0	44	0	0	21	0	0	21	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.5%											
Analysis Period (min)	15											
ICU Level of Service A												

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↗↗	↗↗	↗		↘↘	↗↗
Volume (vph)	0	310	2234	93	5	119	1854
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	697		659				801
Travel Time (s)	19.0		10.0				12.1
Peak Hour Factor	1.00	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	344	2482	103	6	132	2060
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	344	2482	103	0	138	2060
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	26.0	114.0	114.0	26.0	26.0	140.0
Total Split (%)	0.0%	18.6%	81.4%	81.4%	18.6%	18.6%	100.0%
Maximum Green (s)		19.0	107.0	107.0	19.0	19.0	133.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		20.6	109.4	109.4		20.6	140.0
Actuated g/C Ratio		0.15	0.78	0.78		0.15	1.00
v/c Ratio		0.84	0.90	0.08		0.27	0.58
Control Delay		76.4	12.7	3.8		55.5	0.5
Queue Delay		0.0	0.2	0.0		0.0	0.0
Total Delay		76.4	12.8	3.8		55.5	0.5
LOS		E	B	A		E	A
Approach Delay			12.4				4.0
Approach LOS			B				A
Queue Length 50th (ft)		175	390	20		51	0



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		#257	416	33		m77	0
Internal Link Dist (ft)	617		579				721
Turn Bay Length (ft)						300	
Base Capacity (vph)		418	2765	1237		515	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	23	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.82	0.91	0.08		0.27	0.58

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 18 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 13.1

Intersection LOS: B

Intersection Capacity Utilization 80.9%

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.

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

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)





Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations				↔↔	↔↔	↔
Volume (vph)	0	0	0	2754	1607	1132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	666		536		1194	
Travel Time (s)	15.1		8.1		18.1	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2754	1786	1258
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2754	1786	1258
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 99.7% ICU Level of Service F

Analysis Period (min) 15

Lanes, Volumes, Timings
46: NC 54 EB Off Ramp &

2028 Without Site Phase 3 PM Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1132	0	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			666	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1258	0	249
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1258	0	249
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	62.9%			ICU Level of Service B		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations							↰		↱↱		↰	
Volume (vph)	0	0	0	0	0	0	6	0	2534	0	4	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		120			134				1035			
Travel Time (s)		2.7			3.0				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	7	0	2816	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	7	0	2816	0	4	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	126.0	0.0	14.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	90.0%	0.0%	10.0%	0.0%
Maximum Green (s)							7.0		119.0		7.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		136.2		9.0	
Actuated g/C Ratio							0.06		0.97		0.06	
v/c Ratio							0.06		0.82		0.04	
Control Delay							63.8		2.2		64.5	
Queue Delay							0.0		0.2		0.0	
Total Delay							63.8		2.3		64.5	
LOS							E		A		E	
Approach Delay									2.5			
Approach LOS									A			
Queue Length 50th (ft)							6		13		4	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	2049	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1003	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2277	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2277	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	126.0	0.0
Total Split (%)	90.0%	0.0%
Maximum Green (s)	119.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	136.2	
Actuated g/C Ratio	0.97	
v/c Ratio	0.66	
Control Delay	1.2	
Queue Delay	0.0	
Total Delay	1.2	
LOS	A	
Approach Delay	1.3	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m9		48		m6	
Internal Link Dist (ft)		40			54				955			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							114		3443		114	
Starvation Cap Reductn							0		2		0	
Spillback Cap Reductn							0		98		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.06		0.84		0.04	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 9 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 2.0

Intersection LOS: A

Intersection Capacity Utilization 74.2%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	ø1		ø2
14 s		126 s	
	ø5		ø6
14 s		126 s	



Lane Group	SBT	SBR
Queue Length 95th (ft)	70	
Internal Link Dist (ft)	923	
Turn Bay Length (ft)		
Base Capacity (vph)	3443	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.66	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013

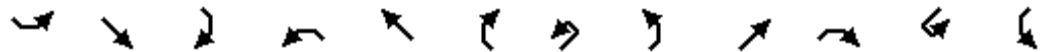
												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	140	0	2733	0	76	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		121			97				698			
Travel Time (s)		2.8			2.2				10.6			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	156	0	3037	0	84	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	156	0	3037	0	84	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	18.0	0.0	126.0	0.0	14.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.9%	0.0%	90.0%	0.0%	10.0%	0.0%
Maximum Green (s)							11.0		119.0		7.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							13.0		121.0		9.0	
Actuated g/C Ratio							0.09		0.86		0.06	
v/c Ratio							0.95		0.99		0.74	
Control Delay							107.4		19.2		63.1	
Queue Delay							0.0		0.0		0.0	
Total Delay							107.4		19.2		63.1	
LOS							F		B		E	
Approach Delay									23.5			
Approach LOS									C			
Queue Length 50th (ft)							148		1410		77	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak
10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2770	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	784	
Travel Time (s)	11.9	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	3078	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	3078	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	122.0	0.0
Total Split (%)	87.1%	0.0%
Maximum Green (s)	115.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	117.0	
Actuated g/C Ratio	0.84	
v/c Ratio	0.94	
Control Delay	3.3	
Queue Delay	2.3	
Total Delay	5.6	
LOS	A	
Approach Delay	7.1	
Approach LOS	A	
Queue Length 50th (ft)	111	



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m#192		m#1211		m73	
Internal Link Dist (ft)		41			17				618			
Turn Bay Length (ft)											250	
Base Capacity (vph)							164		3059		114	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.95		0.99		0.74	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 117 (84%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 15.4

Intersection LOS: B

Intersection Capacity Utilization 89.7%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

	ø1		ø2
14 s		126 s	
	ø5		ø6
18 s		122 s	



Lane Group	SWT	SWR
Queue Length 95th (ft)	m99	
Internal Link Dist (ft)	704	
Turn Bay Length (ft)		
Base Capacity (vph)	3269	
Starvation Cap Reductn	114	
Spillback Cap Reductn	31	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.98	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak

10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	←←←	←←	
Volume (vph)	0	0	103	27	2739	2754	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	221				913	1194	
Travel Time (s)	6.0				13.8	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	114	30	3043	3060	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	144	3043	3060	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	16.0	16.0	140.0	124.0	0.0
Total Split (%)	0.0%	0.0%	11.4%	11.4%	100.0%	88.6%	0.0%
Maximum Green (s)			9.0	9.0	133.0	117.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				11.0	140.0	119.0	
Actuated g/C Ratio				0.08	1.00	0.85	
v/c Ratio				1.04	0.60	1.02	
Control Delay				129.3	0.4	20.1	
Queue Delay				0.0	0.0	0.0	
Total Delay				129.3	0.4	20.1	
LOS				F	A	C	
Approach Delay					6.2	20.1	
Approach LOS					A	C	
Queue Length 50th (ft)				~144	0	~1541	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Without Site Phase 3 PM Peak
10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m#242	0	m426	
Internal Link Dist (ft)	141				833	1114	
Turn Bay Length (ft)				250			
Base Capacity (vph)				139	5085	3008	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	0	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				1.04	0.60	1.02	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 104 (74%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 13.0

Intersection LOS: B

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

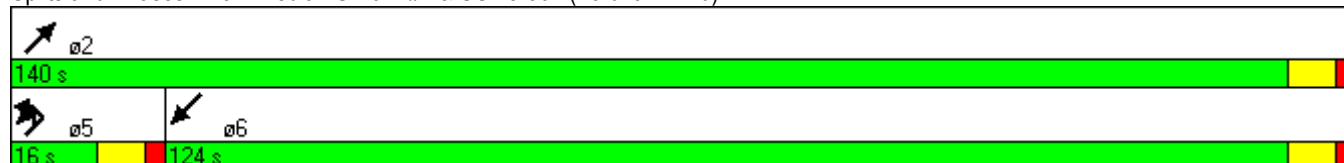
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2028 Without Site Phase 3 PM Peak

10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑↑		↗
Volume (vph)	1731	258	0	2857	0	1132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			224	476	
Travel Time (s)	1.4			3.4	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	2061	307	0	3174	0	1167
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2061	307	0	3174	0	1167
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	124.6%			ICU Level of Service H		
Analysis Period (min)	15					

2028 With Site Phase 3

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	67	36	221	75	51	88	1295	4	166	1490	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99							
Frt		0.948			0.940						0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1698	0	3208	1683	0	1744	3487	0	1702	3519	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1699	1698	0	3208	1683	0	1744	3487	0	1702	3519	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	34	79	42	235	80	54	94	1378	4	189	1693	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	121	0	235	134	0	94	1382	0	189	1710	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	20.0	20.0		33.0	33.0		20.0	80.0		18.0	68.0	
Total Split (s)	25.0	25.0	0.0	33.0	33.0	0.0	21.0	95.0	0.0	37.0	111.0	0.0
Total Split (%)	13.2%	13.2%	0.0%	17.4%	17.4%	0.0%	11.1%	50.0%	0.0%	19.5%	58.4%	0.0%
Maximum Green (s)	18.7	18.7		27.2	27.2		14.8	89.2		30.7	105.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	17.6	17.6		20.6	20.6		16.0	106.3		25.5	115.8	
Actuated g/C Ratio	0.09	0.09		0.11	0.11		0.08	0.56		0.13	0.61	
v/c Ratio	0.22	0.77		0.68	0.74		0.64	0.71		0.83	0.80	
Control Delay	82.0	113.2		90.9	104.3		83.2	20.5		107.3	33.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	82.0	113.2		90.9	104.3		83.2	20.5		107.3	33.1	
LOS	F	F		F	F		F	C		F	C	
Approach Delay		106.4			95.8			24.5			40.5	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	40	149		148	165		117	522		233	846	
Queue Length 95th (ft)	77	215		192	240		m155	798		313	1004	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	179	179		473	248		147	1951		288	2145	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.68		0.50	0.54		0.64	0.71		0.66	0.80	

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 15 (8%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 42.3

Intersection LOS: D

Intersection Capacity Utilization 77.6%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
37 s	95 s	25 s	33 s
 ø6	 ø5		
111 s	21 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	54	76	131	276	27	85	150	1467	159	17	31	1537
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.985				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1719	1810	1487	3433	1863	1583	1752	3452	0	0	1752	3505
Flt Permitted	0.950			0.950			0.062				0.066	
Satd. Flow (perm)	1719	1810	1487	3433	1863	1583	114	3452	0	0	122	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			405			800				1344
Travel Time (s)		8.2			11.0			12.1				20.4
Confl. Peds. (#/hr)							1					
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	64	90	156	307	30	94	169	1648	179	19	35	1727
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	90	156	307	30	94	169	1827	0	0	54	1727
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	20.0	20.0	30.0	14.0	20.0	15.0	30.0	135.0		15.0	15.0	115.0
Total Split (s)	20.0	20.0	30.0	20.0	20.0	15.0	30.0	135.0	0.0	15.0	15.0	120.0
Total Split (%)	10.5%	10.5%	15.8%	10.5%	10.5%	7.9%	15.8%	71.1%	0.0%	7.9%	7.9%	63.2%
Maximum Green (s)	13.0	13.0	23.0	13.0	13.0	8.0	23.0	128.0		8.0	8.0	113.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	22.0	13.4	30.4	16.6	10.8	18.3	143.8	130.7			132.3	123.0
Actuated g/C Ratio	0.12	0.07	0.16	0.09	0.06	0.10	0.76	0.69			0.70	0.65
v/c Ratio	0.32	0.71	0.66	1.02	0.28	0.61	0.73	0.77			0.33	0.76
Control Delay	84.8	114.4	69.5	137.4	92.0	78.6	66.5	14.2			12.0	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.1
Total Delay	84.8	114.4	69.5	137.4	92.0	78.6	66.5	14.2			12.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	96
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1535
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Peak Hour Factor	0.89
Heavy Vehicles (%)	3%
Adj. Flow (vph)	108
Shared Lane Traffic (%)	
Lane Group Flow (vph)	108
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	10.5%
Maximum Green (s)	13.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	145.0
Actuated g/C Ratio	0.76
v/c Ratio	0.09
Control Delay	1.9
Queue Delay	0.0
Total Delay	1.9

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
LOS	F	F	E	F	F	E	E	B			B	A
Approach Delay		85.7			121.5			18.6				6.8
Approach LOS		F			F			B				A
Queue Length 50th (ft)	76	111	154	~227	37	94	114	436			5	187
Queue Length 95th (ft)	126	168	198	#337	76	151	211	251			m8	217
Internal Link Dist (ft)		343			325			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	199	143	300	301	147	159	303	2374			171	2269
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	67
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.32	0.63	0.52	1.02	0.20	0.59	0.56	0.77			0.32	0.78

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 181 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 190

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 27.9

Intersection LOS: C

Intersection Capacity Utilization 79.8%

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.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø4	 ø3
15 s	135 s	20 s	20 s
 ø5	 ø6	 ø8	 ø7
30 s	120 s	20 s	20 s



Lane Group	SBR
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	17
Queue Length 95th (ft)	m22
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1175
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.09
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	27	25	54	62	18	61	1433	11	7	1576	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.927			0.966			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1735	0	1761	1790	0	1778	3553	0	1778	3557	1591
Flt Permitted	0.366			0.715			0.076			0.111		
Satd. Flow (perm)	685	1735	0	1325	1790	0	142	3553	0	208	3557	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Peak Hour Factor	0.81	0.81	0.81	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88
Adj. Flow (vph)	95	33	31	66	76	22	66	1541	12	8	1791	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	64	0	66	98	0	66	1553	0	8	1791	184
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		33.0	33.0		15.0	90.0		15.0	80.0	80.0
Total Split (s)	15.0	51.0	0.0	36.0	36.0	0.0	15.0	124.0	0.0	15.0	124.0	124.0
Total Split (%)	7.9%	26.8%	0.0%	18.9%	18.9%	0.0%	7.9%	65.3%	0.0%	7.9%	65.3%	65.3%
Maximum Green (s)	8.7	44.6		29.6	29.6		8.9	117.9		9.4	117.9	117.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effect Green (s)	31.3	31.3		16.3	16.3		143.7	143.7		133.7	133.7	133.7
Actuated g/C Ratio	0.16	0.16		0.09	0.09		0.76	0.76		0.70	0.70	0.70
v/c Ratio	0.56	0.22		0.58	0.64		0.34	0.58		0.04	0.72	0.16
Control Delay	82.1	69.6		102.6	101.8		10.4	3.6		7.0	10.7	7.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.4	0.0
Total Delay	82.1	69.6		102.6	101.8		10.4	3.6		7.0	11.1	7.0

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	E		F	F		B	A		A	B	A
Approach Delay		77.1			102.1			3.9			10.7	
Approach LOS		E			F			A			B	
Queue Length 50th (ft)	106	70		81	121		4	48		2	350	48
Queue Length 95th (ft)	148	106		124	169		m8	85		m3	m422	m93
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	170	420		216	292		193	2687		229	2503	1120
Starvation Cap Reductn	0	0		0	0		0	0		0	274	0
Spillback Cap Reductn	0	0		0	0		0	10		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.56	0.15		0.31	0.34		0.34	0.58		0.03	0.80	0.16

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 182 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 14.4

Intersection LOS: B

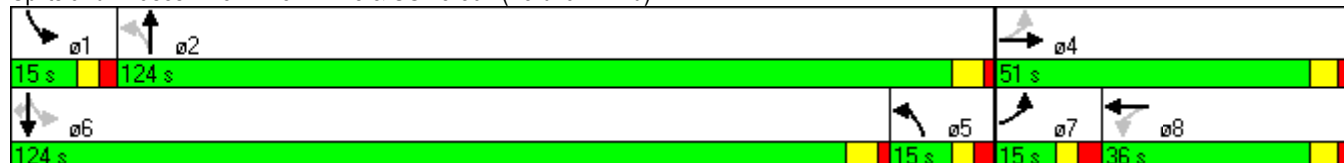
Intersection Capacity Utilization 70.0%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	53	4	370	8	8	15	5	355	1686	6	16	1751
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99			0.99							
Frt			0.850		0.934				0.999			
Flt Protected		0.955			0.987			0.950			0.950	
Satd. Flow (prot)	0	1703	2668	0	1502	0	0	3383	3484	0	1744	3489
Flt Permitted		0.955			0.987			0.950			0.950	
Satd. Flow (perm)	0	1678	2668	0	1502	0	0	3383	3484	0	1744	3489
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	10					10						
Peak Hour Factor	0.90	0.90	0.90	0.72	0.72	0.72	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	6%	6%	6%	15%	15%	15%	2%	3%	3%	3%	4%	4%
Adj. Flow (vph)	59	4	411	11	11	21	5	390	1853	7	19	2036
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	411	0	43	0	0	395	1860	0	19	2036
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	20.0	20.0	45.0	41.0	41.0		45.0	45.0	59.0		15.0	19.0
Total Split (s)	20.0	20.0	45.0	41.0	41.0	0.0	45.0	45.0	114.0	0.0	15.0	84.0
Total Split (%)	10.5%	10.5%	23.7%	21.6%	21.6%	0.0%	23.7%	23.7%	60.0%	0.0%	7.9%	44.2%
Maximum Green (s)	13.4	13.4	38.3	34.3	34.3		38.3	38.3	107.9		8.5	77.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak
10/18/2013

Lane Group	SBR
Lane Configurations	
Volume (vph)	78
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1561
Flt Permitted	
Satd. Flow (perm)	1561
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	4%
Adj. Flow (vph)	91
Shared Lane Traffic (%)	
Lane Group Flow (vph)	91
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	10.5%
Maximum Green (s)	13.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak
10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		12.1	44.9		11.2			27.8	145.4		9.4	121.6
Actuated g/C Ratio		0.06	0.24		0.06			0.15	0.77		0.05	0.64
v/c Ratio		0.58	0.65		0.48			0.80	0.70		0.22	0.91
Control Delay		106.4	69.9		103.5			90.6	15.9		73.4	22.1
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		106.4	69.9		103.5			90.6	15.9		73.4	22.1
LOS		F	E		F			F	B		E	C
Approach Delay		74.7			103.5				29.0			21.8
Approach LOS		E			F				C			C
Queue Length 50th (ft)		78	266		53			249	678		22	595
Queue Length 95th (ft)		134	313		80			303	908		m34	#1448
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		137	802		285			712	2666		92	2232
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.46	0.51		0.15			0.55	0.70		0.21	0.91

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 24 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 30.9

Intersection LOS: C

Intersection Capacity Utilization 100.5%

ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

ø2	ø1	ø4	ø3
114 s	15 s	41 s	20 s
ø5	ø6		
45 s	84 s		



Lane Group	SBR
Act Effect Green (s)	134.7
Actuated g/C Ratio	0.71
v/c Ratio	0.08
Control Delay	2.8
Queue Delay	0.0
Total Delay	2.8
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	7
Queue Length 95th (ft)	m22
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1133
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.08
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	9	0	0	121	0	1922	21	67	2024	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected										0.950		
Satd. Flow (prot)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Flt Permitted										0.950		
Satd. Flow (perm)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1002			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.71	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	13	0	0	170	0	2067	23	78	2353	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	13	0	0	170	0	2067	23	78	2353	15
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	32.0	14.0	108.0	108.0	32.0	126.0	126.0
Total Split (%)	0.0%	0.0%	10.0%	0.0%	0.0%	22.9%	10.0%	77.1%	77.1%	22.9%	90.0%	90.0%
Maximum Green (s)			7.0			25.0	7.0	101.0	101.0	25.0	119.0	119.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			21.7		108.3	108.3	19.7	132.4	132.4
Actuated g/C Ratio			0.06			0.16		0.77	0.77	0.14	0.95	0.95
v/c Ratio			0.12			0.69		0.76	0.02	0.32	0.71	0.01
Control Delay			64.8			70.2		6.6	2.1	56.1	3.5	1.0
Queue Delay			0.0			0.0		0.1	0.0	0.0	0.0	0.0
Total Delay			64.8			70.2		6.8	2.1	56.1	3.5	1.0
LOS			E			E		A	A	E	A	A
Approach Delay								6.7			5.1	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			11			148		234	2	64	0	0
Queue Length 95th (ft)			27			168		450	m3	107	350	4
Internal Link Dist (ft)		208			43			922			1513	
Turn Bay Length (ft)									150	200		150
Base Capacity (vph)			104			305		2710	1213	313	3315	1483
Starvation Cap Reductn			0			0		98	0	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.13			0.56		0.79	0.02	0.25	0.71	0.01

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 78 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 8.4

Intersection LOS: A

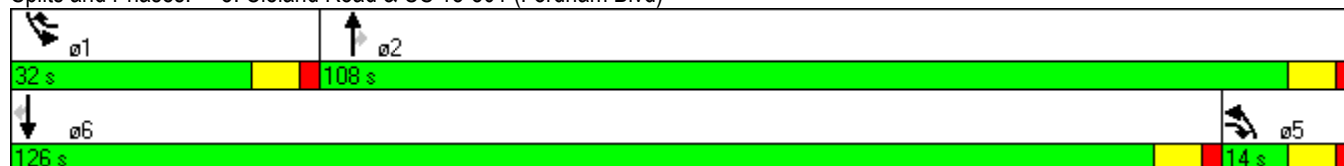
Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	0	0	26	0	0	57	42	15	2095	28	44	1896
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1611	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				797			1036
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.80	0.91	0.91	0.91	0.91	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	38	0	0	71	46	16	2302	31	51	2205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	38	0	0	71	0	62	2302	31	51	2205
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	15.0	0.0	0.0	19.0	15.0	15.0	121.0	121.0	19.0	125.0
Total Split (%)	0.0%	0.0%	10.7%	0.0%	0.0%	13.6%	10.7%	10.7%	86.4%	86.4%	13.6%	89.3%
Maximum Green (s)			8.0			12.0	8.0	8.0	114.0	114.0	12.0	118.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			9.8			12.4		9.8	117.6	117.6	12.4	124.0
Actuated g/C Ratio			0.07			0.09		0.07	0.84	0.84	0.09	0.89
v/c Ratio			0.34			0.50		0.50	0.78	0.02	0.33	0.71
Control Delay			70.5			72.5		76.0	4.2	1.2	59.7	4.0
Queue Delay			0.0			0.0		0.0	0.0	0.0	0.0	0.0
Total Delay			70.5			72.5		76.0	4.2	1.2	59.7	4.0
LOS			E			E		E	A	A	E	A
Approach Delay									6.0			5.3
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	6
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.86
Heavy Vehicles (%)	3%
Adj. Flow (vph)	7
Shared Lane Traffic (%)	
Lane Group Flow (vph)	7
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	125.0
Total Split (%)	89.3%
Maximum Green (s)	118.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	124.0
Actuated g/C Ratio	0.89
v/c Ratio	0.01
Control Delay	1.5
Queue Delay	0.0
Total Delay	1.5
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			34			62		56	115	3	44	305
Queue Length 95th (ft)			55			101		m85	122	m4	m66	267
Internal Link Dist (ft)		24			5				717			956
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			115			161		125	2944	1317	175	3104
Starvation Cap Reductn			0			0		0	0	0	0	12
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.33			0.44		0.50	0.78	0.02	0.29	0.71

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 42 (30%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 7.1

Intersection LOS: A

Intersection Capacity Utilization 72.1%

ICU Level of Service C

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)

	ø1		ø2
19 s		121 s	
	ø5		ø6
15 s		125 s	



Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m1
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1389
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.01
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1120	0	0	405	0	1630	30	0	1569	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	1318	0	0	482	0	1811	33	0	1634	211
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1318	0	0	482	0	1811	33	0	1634	211
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.0	0.0
Total Split (%)	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%
Maximum Green (s)			64.9								64.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			1.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			65.0			140.0		140.0	140.0		65.0	140.0
Actuated g/C Ratio			0.46			1.00		1.00	1.00		0.46	1.00
v/c Ratio			1.04			0.31		0.52	0.02		1.00	0.13
Control Delay			72.7			0.5		0.4	0.0		55.5	0.2
Queue Delay			13.6			0.0		0.0	0.0		0.0	0.0
Total Delay			86.3			0.5		0.4	0.0		55.5	0.2
LOS			F			A		A	A		E	A
Approach Delay								0.4			49.2	
Approach LOS								A			D	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			~734			0		0	0		~783	0
Queue Length 95th (ft)			#798			0		0	m0		#950	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1269			1580		3505	1583		1627	1568
Starvation Cap Reductn			42			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			1.07			0.31		0.52	0.02		1.00	0.13

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 93 (66%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 37.4

Intersection LOS: D

Intersection Capacity Utilization 90.9%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

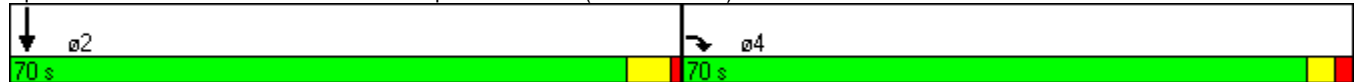
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	79	0	1582	0	0	2280	408	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	88	0	1758	0	0	2533	453	0	14
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	88	0	1758	0	0	2533	453	0	14
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 73.0% ICU Level of Service D

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations									
Volume (vph)	27	115	236	16	3132	269	2154	6	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	0.91	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850		0.988			0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	5521	0	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1566	2759	0	*3787	0	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					709		916		
Travel Time (s)					10.7		13.9		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.61	0.52	0.47	0.47	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	44	221	502	34	3262	280	2476	7	1
Shared Lane Traffic (%)									
Lane Group Flow (vph)	44	221	536	0	3542	0	2476	8	0
Turn Type	custom	custom	custom					Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3			6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0	25.0	
Total Split (s)	14.0	31.0	31.0	0.0	95.0	0.0	95.0	95.0	0.0
Total Split (%)	10.0%	22.1%	22.1%	0.0%	67.9%	0.0%	67.9%	67.9%	0.0%
Maximum Green (s)	7.0	24.0	24.0		88.0		88.0	88.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes								
Vehicle Extension (s)	3.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effect Green (s)	9.0	28.4	28.4		97.6		90.4	90.4	
Actuated g/C Ratio	0.06	0.20	0.20		0.70		0.65	0.65	
v/c Ratio	0.42	0.69	0.96		0.94		1.03	0.01	
Control Delay	75.9	64.8	84.1		14.0		34.6	5.6	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak
10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		55.4		13.6	0.0	
Total Delay	75.9	64.8	84.1		69.4		48.2	5.6	
LOS	E	E	F		E		D	A	
Approach Delay					69.4		48.1		
Approach LOS					E		D		
Queue Length 50th (ft)	39	193	~300		649		~1205	1	
Queue Length 95th (ft)	54	151	167		m368		#1237	m1	
Internal Link Dist (ft)					629		836		
Turn Bay Length (ft)								100	
Base Capacity (vph)	104	322	559		3760		2406	1022	
Starvation Cap Reductn	0	0	0		610		79	0	
Spillback Cap Reductn	0	0	0		0		0	0	
Storage Cap Reductn	0	0	0		0		0	0	
Reduced v/c Ratio	0.42	0.69	0.96		1.12		1.06	0.01	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 112 (80%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 62.7

Intersection LOS: E

Intersection Capacity Utilization 86.7%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø2	 ø3	 ø4
95 s	14 s	31 s
 ø6		
95 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 							  			 	
Volume (vph)	336	0	41	18	0	54	0	2945	9	0	1424	1088
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99								
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3434	0	1584	1752	0	1568	0	4010	0	0	3438	1538
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1564	1744	0	1568	0	*3811	0	0	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			774	
Travel Time (s)		7.4			14.0			8.8			11.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.88	1.00	0.88	0.68	1.00	0.68	1.00	0.94	0.94	1.00	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Parking (#/hr)										0		
Adj. Flow (vph)	382	0	47	26	0	79	0	3133	10	0	1499	1145
Shared Lane Traffic (%)												
Lane Group Flow (vph)	382	0	47	26	0	79	0	3143	0	0	1499	1145
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				23.4			19.0	
Total Split (s)	32.0	0.0	0.0	32.0	0.0	0.0	0.0	108.0	0.0	0.0	108.0	0.0
Total Split (%)	22.9%	0.0%	0.0%	22.9%	0.0%	0.0%	0.0%	77.1%	0.0%	0.0%	77.1%	0.0%
Maximum Green (s)	25.0			25.0				101.0			101.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	21.0		140.0	21.0		140.0		109.0			109.0	140.0

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Actuated g/C Ratio	0.15		1.00	0.15		1.00		0.78			0.78	1.00
v/c Ratio	0.74		0.03	0.10		0.05		1.01			0.56	0.74
Control Delay	65.8		0.0	50.3		0.1		33.9			5.7	3.1
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.3	0.0
Total Delay	65.8		0.0	50.3		0.1		33.9			6.0	3.1
LOS	E		A	D		A		C			A	A
Approach Delay								33.9			4.8	
Approach LOS								C			A	
Queue Length 50th (ft)	173		0	21		0		~1243			184	7
Queue Length 95th (ft)	215		0	36		0		#1585			219	6
Internal Link Dist (ft)		302			435			504			694	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	662		1564	338		1568		3123			2677	1538
Starvation Cap Reductn	0		0	0		0		0			465	0
Spillback Cap Reductn	0		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.58		0.03	0.08		0.05		1.01			0.68	0.74

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 98 (70%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 23.0

Intersection LOS: C

Intersection Capacity Utilization 75.0%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

~ 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: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø3
108 s	32 s
 ø6	
108 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	238	36	577	462	539	36	64	122	428	157	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00		0.96		1.00	0.98	1.00	1.00	
Frt		0.980				0.850			0.850		0.993	
Flt Protected	0.950			0.950				0.982		0.950	0.979	
Satd. Flow (prot)	1517	3060	0	1752	1845	1672	0	1883	1482	1625	1948	0
Flt Permitted	0.477			0.386				0.982		0.950	0.979	
Satd. Flow (perm)	754	3060	0	709	1845	1613	0	1880	1456	1620	1945	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	7		3	3		7	6		3	3		6
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.79	0.79	0.79	0.88	0.88	0.88
Heavy Vehicles (%)	15%	15%	15%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	14	270	41	634	508	592	46	81	154	486	178	15
Shared Lane Traffic (%)										31%		
Lane Group Flow (vph)	14	311	0	634	508	592	0	127	154	335	344	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	33.0	33.0	0.0	35.0	68.0	37.0	25.0	25.0	35.0	37.0	37.0	0.0
Total Split (%)	25.4%	25.4%	0.0%	26.9%	52.3%	28.5%	19.2%	19.2%	26.9%	28.5%	28.5%	0.0%
Maximum Green (s)	25.7	25.7		28.2	60.7	30.3	18.3	18.3	28.2	30.3	30.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	28.0	28.0		63.0	63.0	94.0		21.0	51.0	31.0	31.0	
Actuated g/C Ratio	0.22	0.22		0.48	0.48	0.72		0.16	0.39	0.24	0.24	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.09	0.47		1.09	0.57	0.50		0.42	0.27	0.87	0.74	
Control Delay	42.7	47.3		90.3	27.0	7.6		54.3	25.6	69.8	56.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	42.7	47.3		90.3	27.0	7.6		54.3	25.6	69.8	56.3	
LOS	D	D		F	C	A		D	C	E	E	
Approach Delay		47.1			43.5			38.6			63.0	
Approach LOS		D			D			D			E	
Queue Length 50th (ft)	10	121		~436	297	153		98	82	284	281	
Queue Length 95th (ft)	28	165		#674	408	213		142	115	#431	387	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	162	659		584	894	1193		305	578	400	480	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.09	0.47		1.09	0.57	0.50		0.42	0.27	0.84	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 47.8

Intersection LOS: D

Intersection Capacity Utilization 100.6%

ICU Level of Service G

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: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
35 s	33 s	37 s	25 s
 ø6			
68 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	838	13	0	1456	1120	0	0	408	0	0	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	911	14	0	1583	1217	0	0	443	0	0	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	911	14	0	1583	1217	0	0	443	0	0	221
Turn Type			Free			Free			custom			Free
Protected Phases		2			6 8				8			
Permitted Phases			Free			Free			8			Free
Detector Phase		2			6 8				8			
Switch Phase												
Minimum Initial (s)		10.0							7.0			
Minimum Split (s)		17.0							14.0			
Total Split (s)	0.0	80.0	0.0	0.0	170.0	0.0	0.0	0.0	90.0	0.0	0.0	0.0
Total Split (%)	0.0%	47.1%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	52.9%	0.0%	0.0%	0.0%
Maximum Green (s)		73.0							83.0			
Yellow Time (s)		5.0							5.0			
All-Red Time (s)		2.0							2.0			
Lost Time Adjust (s)	0.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	2.0	4.0	7.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0			
Recall Mode		C-Max							None			
Act Effct Green (s)		91.8	170.0		170.0	170.0			68.2			170.0
Actuated g/C Ratio		0.54	1.00		1.00	1.00			0.40			1.00
v/c Ratio		0.48	0.01		0.45	0.77			0.69			0.14
Control Delay		27.1	0.0		0.1	10.7			46.7			0.2
Queue Delay		0.0	0.0		0.0	0.0			0.0			0.0
Total Delay		27.1	0.0		0.1	10.7			46.7			0.2
LOS		C	A		A	B			D			A
Approach Delay		26.7			4.7							
Approach LOS		C			A							
Queue Length 50th (ft)		325	0		0	235			405			0

Lane Group	ø6
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	17.0
Total Split (s)	80.0
Total Split (%)	47%
Maximum Green (s)	73.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		466	0		m0	m269			451			0
Internal Link Dist (ft)		388			354			518			588	
Turn Bay Length (ft)			275									
Base Capacity (vph)		1912	1583		3512	1583			806			1611
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		0.48	0.01		0.45	0.77			0.55			0.14

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 66 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 13.3

Intersection LOS: B

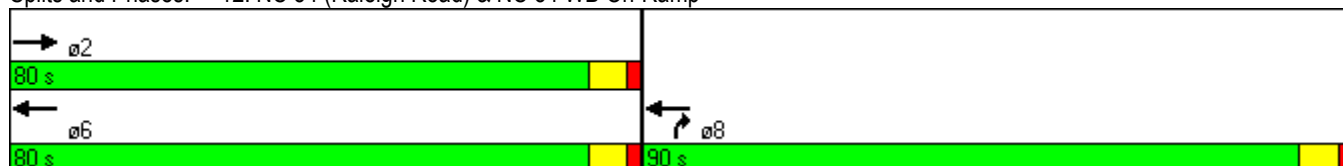
Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

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

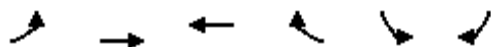
Splits and Phases: 12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp



Lane Group	ø6
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2028 With Site Phase 3 AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1251	2518	405	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	1390	2928	471	0	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1390	2928	471	0	35
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

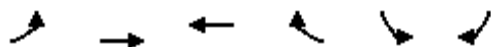
Control Type: Unsignalized

Intersection Capacity Utilization 58.7% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2028 With Site Phase 3 AM Peak
10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2582	2956	37	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		206	565		229	
Travel Time (s)		3.1	8.6		6.2	
Peak Hour Factor	1.00	1.00	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2582	3213	40	0	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2582	3213	40	0	48
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 67.1% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	232	2047	214	71	2520	323	208	39	114	223	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	350	
Storage Lanes		2		0	1		1	1		1	2	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	0.97	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor		1.00	1.00		1.00		0.97	0.98		0.98	0.99	
Frt			0.986				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3401	4944	0	1736	4988	1553	1736	1827	1553	3335	1810
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3398	4944	0	1734	4988	1499	1701	1827	1521	3307	1810
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			565			576			537			601
Travel Time (s)			8.6			8.7			14.6			16.4
Confl. Peds. (#/hr)		9		6	6		9	13		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86
Heavy Vehicles (%)	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%
Adj. Flow (vph)	11	264	2326	243	80	2831	363	320	60	175	259	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	275	2569	0	80	2831	363	320	60	175	259	35
Turn Type	Prot	Prot			Prot		pm+ov	Prot		pm+ov	Prot	
Protected Phases	5!	5	2		1	6	7	3	8	1	7	4
Permitted Phases							6			8		
Detector Phase	5	5	2		1	6	7	3	8	1	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0	27.0		13.0	26.0	14.0	14.0	41.0	13.0	14.0	39.0
Total Split (s)	16.0	16.0	88.0	0.0	13.0	85.0	21.0	30.0	48.0	13.0	21.0	39.0
Total Split (%)	9.4%	9.4%	51.8%	0.0%	7.6%	50.0%	12.4%	17.6%	28.2%	7.6%	12.4%	22.9%
Maximum Green (s)	9.0	9.0	82.4		7.6	79.1	14.0	23.0	41.6	7.6	14.0	32.5
Yellow Time (s)	5.0	5.0	3.8		3.0	4.1	5.0	5.0	3.1	3.0	5.0	3.2
All-Red Time (s)	2.0	2.0	1.8		2.4	1.8	2.0	2.0	3.3	2.4	2.0	3.3
Lost Time Adjust (s)	0.0	-2.0	-0.6	0.0	-0.4	-0.9	-2.0	-2.0	-1.4	-0.4	-2.0	-1.5
Total Lost Time (s)	7.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	3.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Dont Walk (s)			12.0			13.0			27.0			25.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		26.9	108.6		8.0	89.7	113.4	25.0	12.4	18.7	23.7	11.1
Actuated g/C Ratio		0.16	0.64		0.05	0.53	0.67	0.15	0.07	0.11	0.14	0.07
v/c Ratio		0.51	0.81		0.98	1.08	0.36	1.25	0.45	1.04	0.56	0.29
Control Delay		74.1	23.0		119.9	59.4	3.3	197.9	85.4	147.8	73.3	80.6

Lane Group	SBR
Lane Configurations	
Volume (vph)	199
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.97
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1538
Flt Permitted	
Satd. Flow (perm)	1488
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	13
Peak Hour Factor	0.86
Heavy Vehicles (%)	5%
Adj. Flow (vph)	231
Shared Lane Traffic (%)	
Lane Group Flow (vph)	231
Turn Type	pm+ov
Protected Phases	5!
Permitted Phases	4
Detector Phase	5
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	16.0
Total Split (%)	9.4%
Maximum Green (s)	9.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-1.5
Total Lost Time (s)	5.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	35.4
Actuated g/C Ratio	0.21
v/c Ratio	0.73
Control Delay	74.7

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		74.1	23.0		119.9	59.4	3.3	197.9	85.4	147.8	73.3	80.6
LOS		E	C		F	E	A	F	F	F	E	F
Approach Delay			27.9			54.7			169.9			74.4
Approach LOS			C			D			F			E
Queue Length 50th (ft)		154	598		90	~1263	41	~444	65	190	142	38
Queue Length 95th (ft)		201	656		m#111	#1402	m63	#388	82	189	179	73
Internal Link Dist (ft)			485			496			457			521
Turn Bay Length (ft)		300			250		150	150		150	350	
Base Capacity (vph)		538	3158		82	2632	1008	255	462	169	464	362
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.51	0.81		0.98	1.08	0.36	1.25	0.13	1.04	0.56	0.10

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 67 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 54.4

Intersection LOS: D

Intersection Capacity Utilization 97.8%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

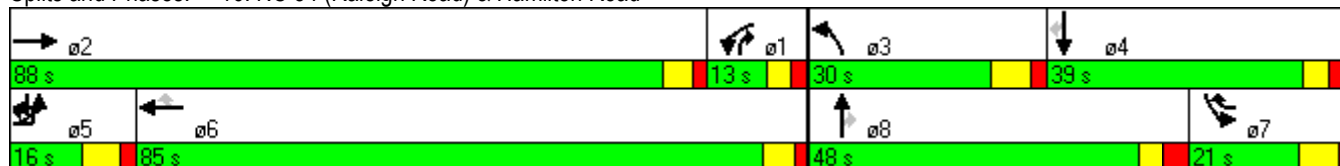
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Queue Delay	0.0
Total Delay	74.7
LOS	E
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	237
Queue Length 95th (ft)	299
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	318
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.73
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 With Site Phase 3 AM Peak

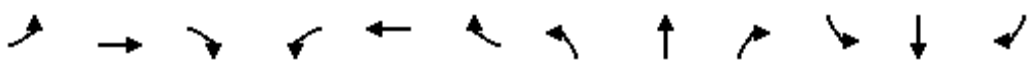
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	2330	44	111	2814	17	18	5	203	36	8	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99	0.99		0.99	
Frt		0.997			0.999				0.850		0.936	
Flt Protected	0.950			0.950				0.962			0.979	
Satd. Flow (prot)	1770	5065	0	1736	4981	0	0	1775	1568	0	1688	0
Flt Permitted	0.035			0.037				0.796			0.860	
Satd. Flow (perm)	65	5065	0	68	4981	0	0	1458	1547	0	1482	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	6		8	8		6	9		1	1		9
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	32	2479	47	123	3127	19	22	6	251	47	10	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	2526	0	123	3146	0	0	28	251	0	109	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	101.0	0.0	21.0	109.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	7.6%	59.4%	0.0%	12.4%	64.1%	0.0%	28.2%	28.2%	28.2%	28.2%	28.2%	0.0%
Maximum Green (s)	7.1	94.8		15.1	102.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	0.0	-0.9	-1.2	0.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	122.8	109.2		121.8	116.4			33.2	33.2		33.2	
Actuated g/C Ratio	0.72	0.64		0.72	0.68			0.20	0.20		0.20	
v/c Ratio	0.25	0.78		0.72	0.92			0.10	0.83		0.38	
Control Delay	16.1	11.5		66.1	12.5			53.5	87.5		61.5	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.4			0.0	0.0		0.0	
Total Delay	16.1	11.5		66.1	12.9			53.5	87.5		61.5	
LOS	B	B		E	B			D	F		E	
Approach Delay		11.5			14.9			84.0			61.5	
Approach LOS		B			B			F			E	
Queue Length 50th (ft)	4	231		84	738			26	272		107	
Queue Length 95th (ft)	m8	m571		m104	m#1393			48	314		135	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	127	3254		207	3410			369	391		375	
Starvation Cap Reductn	0	0		0	46			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.25	0.78		0.59	0.94			0.08	0.64		0.29	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 54 (32%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 17.4

Intersection LOS: B

Intersection Capacity Utilization 90.4%

ICU Level of Service E

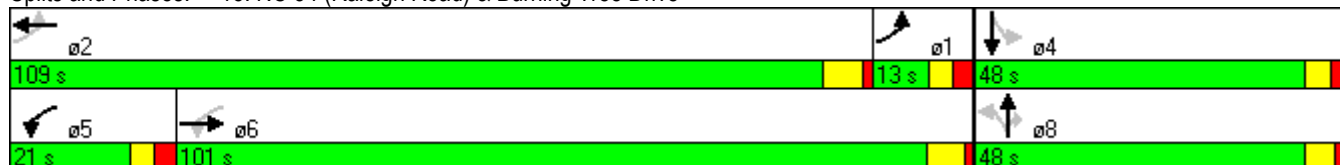
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	242	2240	145	134	2844	29	29	0	6	11	15	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.94			0.97						
Frt			0.850			0.850		0.850			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1724	5036	1568	1736	4988	1553	1770	1583	0	1736	1577	0
Flt Permitted	0.033			0.042			0.250			0.752		
Satd. Flow (perm)	60	5036	1474	77	4988	1511	466	1583	0	1374	1577	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	8		10	10		8						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.73	0.73	0.73	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	260	2409	156	144	3058	31	40	0	8	12	16	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	2409	156	144	3058	31	40	8	0	12	179	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	28.0	28.0	14.0	19.0	19.0	14.0	14.0		15.0	15.0	
Total Split (s)	22.0	126.0	126.0	23.0	100.0	100.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	12.9%	74.1%	74.1%	13.5%	58.8%	58.8%	12.4%	12.4%	0.0%	12.4%	12.4%	0.0%
Maximum Green (s)	15.7	119.7	119.7	16.7	93.7	93.7	14.2	14.2		13.7	13.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	-1.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)	139.0	125.4	125.4	139.0	122.0	122.0	16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.82	0.74	0.74	0.82	0.72	0.72	0.09	0.09		0.09	0.09	
v/c Ratio	1.21	0.65	0.14	0.73	0.85	0.03	0.91	0.05		0.09	1.21	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	16%
Maximum Green (s)	23.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	158.0	12.4	9.1	59.4	4.4	2.6	183.1	71.3		72.4	201.3	
Queue Delay	0.0	0.1	0.0	0.0	1.1	0.0	0.0	0.0		0.0	0.0	
Total Delay	158.0	12.5	9.1	59.4	5.5	2.6	183.1	71.3		72.4	201.3	
LOS	F	B	A	E	A	A	F	E		E	F	
Approach Delay	25.7			7.9			164.5			193.2		
Approach LOS	C			A			F			F		
Queue Length 50th (ft)	~304	341	46	104	145	4	45	8		12	~242	
Queue Length 95th (ft)	m#483	525	m96	m122	143	m4	#97	22		36	#410	
Internal Link Dist (ft)	767			1857			371			455		
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	215	3715	1087	240	3580	1084	44	149		129	148	
Starvation Cap Reductn	0	283	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	283	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.21	0.70	0.14	0.60	0.93	0.03	0.91	0.05		0.09	1.21	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 26 (15%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 22.7

Intersection LOS: C

Intersection Capacity Utilization 101.2%

ICU Level of Service G

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
23 s	126 s	21 s
 ø5	 ø10	 ø6
22 s	27 s	100 s
		 ø8
		21 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	1924	203	602	2768	174	101	18	57	65	29	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor			0.98	1.00				1.00		1.00		
Frt			0.850			0.850		0.987	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.970		0.950		
Satd. Flow (prot)	3434	5086	1584	3383	5011	1560	1427	1375	1276	3451	1872	1591
Flt Permitted	0.950			0.950			0.950	0.970		0.950		
Satd. Flow (perm)	3434	5086	1545	3379	5011	1560	1427	1375	1276	3441	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)			7	7					1	1		
Peak Hour Factor	0.86	0.86	0.86	0.94	0.94	0.94	0.78	0.78	0.78	0.79	0.79	0.79
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	19%	19%	19%	3%	3%	3%
Adj. Flow (vph)	159	2237	236	640	2945	185	129	23	73	82	37	181
Shared Lane Traffic (%)							38%		10%			
Lane Group Flow (vph)	159	2237	236	640	2945	185	80	79	66	82	37	181
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	88.0	19.0	41.0	113.0	22.0	19.0	19.0	60.0	22.0	22.0	38.0
Total Split (%)	9.4%	51.8%	11.2%	24.1%	66.5%	12.9%	11.2%	11.2%	35.3%	12.9%	12.9%	22.4%
Maximum Green (s)	8.8	81.4	11.9	33.9	106.5	14.7	11.9	11.9		14.7	14.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	0.0	-2.3	-2.3	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.1	5.0	5.0	7.3
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	10.8	83.6	97.3	36.0	108.8	130.5	13.7	13.7	45.5	16.7	16.7	22.9
Actuated g/C Ratio	0.06	0.49	0.57	0.21	0.64	0.77	0.08	0.08	0.27	0.10	0.10	0.13
v/c Ratio	0.73	0.89	0.27	0.89	0.92	0.15	0.70	0.72	0.19	0.24	0.20	0.84

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	74.1	44.7	17.3	46.3	7.9	3.2	105.4	108.7	32.4	72.6	73.3	85.0
Queue Delay	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.1	44.7	17.3	46.3	10.2	3.2	105.4	108.7	32.4	72.6	73.3	85.0
LOS	E	D	B	D	B	A	F	F	C	E	E	F
Approach Delay	44.0			16.0			85.1			80.2		
Approach LOS	D			B			F			F		
Queue Length 50th (ft)	89	645	127	347	541	33	92	95	45	44	39	162
Queue Length 95th (ft)	124	719	206	m314	m240	m31	136	#143	69	64	70	#214
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	222	2501	890	716	3207	1200	118	113	344	345	187	219
Starvation Cap Reductn	0	0	0	0	162	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	0.72	0.89	0.27	0.89	0.97	0.15	0.68	0.70	0.19	0.24	0.20	0.83

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 156 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 31.7

Intersection LOS: C

Intersection Capacity Utilization 82.8%

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.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø3	 ø4
88 s	41 s	22 s	19 s
 ø5	 ø6		
16 s	113 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	10	1856	162	36	2885	213	602	113	75	166	31	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.971			0.978	
Flt Protected	0.950			0.950			0.950	0.975		0.950	0.973	
Satd. Flow (prot)	1761	4448	1575	1761	5061	1576	1656	1651	0	1664	1667	0
Flt Permitted	0.043			0.047			0.950	0.975		0.950	0.973	
Satd. Flow (perm)	80	4448	1523	87	5061	1576	1656	1651	0	1664	1667	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	11	1996	174	38	3037	224	634	119	79	200	37	19
Shared Lane Traffic (%)							34%			36%		
Lane Group Flow (vph)	11	1996	174	38	3037	224	418	414	0	128	128	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	92.0	42.0	16.0	92.0	20.0	42.0	42.0	0.0	20.0	20.0	0.0
Total Split (%)	9.4%	54.1%	24.7%	9.4%	54.1%	11.8%	24.7%	24.7%	0.0%	11.8%	11.8%	0.0%
Maximum Green (s)	9.2	84.5	34.8	9.0	84.5	12.8	34.8	34.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	101.0	90.2	127.3	99.0	97.5	117.4	37.1	37.1		14.9	14.9	
Actuated g/C Ratio	0.59	0.53	0.75	0.58	0.57	0.69	0.22	0.22		0.09	0.09	
v/c Ratio	0.08	0.85	0.15	0.25	1.05	0.21	1.16	1.15		0.88	0.88	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.4	6.8	1.7	37.9	65.4	10.8	154.1	151.7		121.8	121.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	2.4	6.8	1.7	37.9	65.4	10.8	154.1	151.7		121.8	121.8	
LOS	A	A	A	D	E	B	F	F		F	F	
Approach Delay		6.3			61.4			152.9			121.8	
Approach LOS		A			E			F			F	
Queue Length 50th (ft)	0	97	12	17	1179	74	~576	~568		151	150	
Queue Length 95th (ft)	m1	104	m14	34	#1504	143	#814	#804		#253	#253	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	157	2360	1151	159	2902	1089	361	360		147	147	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.07	0.85	0.15	0.24	1.05	0.21	1.16	1.15		0.87	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 164 (96%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 57.1

Intersection LOS: E

Intersection Capacity Utilization 96.1%

ICU Level of Service F

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ 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.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2	 ø1	 ø3	 ø4
92 s	16 s	20 s	42 s
 ø5	 ø6		
16 s	92 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	431	455	69	167	293	98	58	483	115	87	691	287
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.98		1.00		1.00		0.95
Frt		0.980				0.850		0.971				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	3427	0	1719	1810	1538	1703	3296	0	1703	3406	1524
Flt Permitted	0.950			0.950			0.269			0.298		
Satd. Flow (perm)	3212	3427	0	1715	1810	1512	482	3296	0	533	3406	1447
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	3		4	4		3	7		4	4		7
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	6%	6%	6%	6%	6%	6%
Parking (#/hr)	0											
Adj. Flow (vph)	468	495	75	180	315	105	62	514	122	94	743	309
Shared Lane Traffic (%)												
Lane Group Flow (vph)	468	570	0	180	315	105	62	636	0	94	743	309
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	34.0	47.0	0.0	29.0	42.0	15.0	15.0	49.0	0.0	15.0	49.0	34.0
Total Split (%)	24.3%	33.6%	0.0%	20.7%	30.0%	10.7%	10.7%	35.0%	0.0%	10.7%	35.0%	24.3%
Maximum Green (s)	28.1	41.1		23.4	36.4	9.1	8.8	43.3		9.1	43.6	28.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	25.0	35.1		19.1	29.1	38.4	65.2	56.6		67.6	59.9	84.9
Actuated g/C Ratio	0.18	0.25		0.14	0.21	0.27	0.47	0.40		0.48	0.43	0.61
v/c Ratio	0.81	0.66		0.77	0.84	0.25	0.21	0.48		0.28	0.51	0.35

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	66.8	50.7		69.7	54.4	17.4	22.6	34.3		23.0	33.7	10.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	66.8	50.7		69.7	54.4	17.4	22.6	34.3		23.0	33.7	10.3
LOS	E	D		E	D	B	C	C		C	C	B
Approach Delay	58.0			52.5			33.3			26.5		
Approach LOS	E			D			C			C		
Queue Length 50th (ft)	212	246		138	228	54	29	225		44	267	90
Queue Length 95th (ft)	267	291		252	288	66	64	325		91	385	160
Internal Link Dist (ft)	718			652			519			599		
Turn Bay Length (ft)	250											
Base Capacity (vph)	669	1028		295	478	427	316	1332		345	1457	926
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.70	0.55		0.61	0.66	0.25	0.20	0.48		0.27	0.51	0.33

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 63 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 41.7

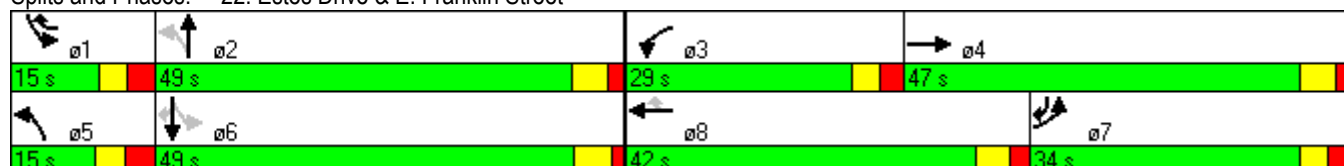
Intersection LOS: D

Intersection Capacity Utilization 76.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

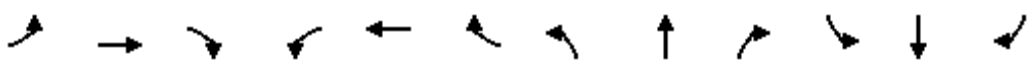
2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	196	344	7	6	355	52	16	3	8	38	4	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.981			0.961				0.850
Flt Protected	0.950			0.950				0.971			0.957	
Satd. Flow (prot)	1719	3426	0	1752	3422	0	0	1727	0	0	1732	1538
Flt Permitted	0.454			0.517				0.787			0.778	
Satd. Flow (perm)	817	3426	0	945	3422	0	0	1398	0	0	1395	1519
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	4		4	4		4	1		6	6		1
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.60	0.60	0.60	0.85	0.85	0.85
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	223	391	8	7	394	58	27	5	13	45	5	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	399	0	7	452	0	0	45	0	0	50	298
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	51.0	105.0	0.0	54.0	54.0	0.0	35.0	35.0	0.0	35.0	35.0	51.0
Total Split (%)	36.4%	75.0%	0.0%	38.6%	38.6%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	36.4%
Maximum Green (s)	45.9	99.9		48.8	48.8		29.3	29.3		29.2	29.2	45.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	122.4	123.4		92.8	92.8			10.1			10.2	33.2
Actuated g/C Ratio	0.87	0.88		0.66	0.66			0.07			0.07	0.24
v/c Ratio	0.26	0.13		0.01	0.20			0.45			0.50	0.82
Control Delay	5.1	1.9		11.7	10.7			75.1			78.0	66.1
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	5.1	1.9		11.7	10.7			75.1			78.0	66.1
LOS	A	A		B	B			E			E	E

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		3.0			10.7			75.1			67.8	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	13	10		2	80			40			45	246
Queue Length 95th (ft)	90	53		10	134			53			83	290
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	1011	3020		626	2268			300			299	598
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.22	0.13		0.01	0.20			0.15			0.17	0.50

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 50.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2028 With Site Phase 3 AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	79	5	2	113	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1812	0	0	1825	1770	0
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1812	0	0	1825	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.82	0.82	0.77	0.77	0.45	0.45
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	96	6	3	147	22	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	150	22	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	17.5%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	57	6	1	39	1	15	1	0	0	2	0
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			0.997							
Flt Protected		0.999			0.999			0.956				
Satd. Flow (prot)	0	1769	0	0	1855	0	0	1781	0	0	1863	0
Flt Permitted		0.999			0.999			0.956				
Satd. Flow (perm)	0	1769	0	0	1855	0	0	1781	0	0	1863	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.83	0.83	0.83	0.79	0.79	0.79	0.65	0.65	0.65	0.50	0.50	0.50
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	69	7	1	49	1	23	2	0	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	0	51	0	0	25	0	0	4	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.1%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↖↖	↗↗	↖		↖↖	↗↗
Volume (vph)	0	154	1817	171	13	196	1725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	30		45				45
Link Distance (ft)	449		664				797
Travel Time (s)	10.2		10.1				12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	171	2019	190	14	218	1917
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	171	2019	190	0	232	1917
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	22.0	118.0	118.0	22.0	22.0	140.0
Total Split (%)	0.0%	15.7%	84.3%	84.3%	15.7%	15.7%	100.0%
Maximum Green (s)		15.0	111.0	111.0	15.0	15.0	133.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		17.0	113.0	113.0		17.0	140.0
Actuated g/C Ratio		0.12	0.81	0.81		0.12	1.00
v/c Ratio		0.51	0.71	0.15		0.56	0.54
Control Delay		63.3	3.0	1.5		58.1	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		63.3	3.0	1.5		58.1	0.4
LOS		E	A	A		E	A
Approach Delay			2.9				6.7
Approach LOS			A				A
Queue Length 50th (ft)		84	104	16		104	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak
 10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		127	111	20		149	0
Internal Link Dist (ft)	369		584				717
Turn Bay Length (ft)						300	
Base Capacity (vph)		338	2856	1278		417	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	56	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.51	0.72	0.15		0.56	0.54

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 35 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 6.9

Intersection LOS: A

Intersection Capacity Utilization 74.5%

ICU Level of Service D

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
118 s	22 s
 ø6	
140 s	

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2028 With Site Phase 3 AM Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations				↰↰	↰↰	↰
Volume (vph)	0	0	0	2293	1582	1410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	665		536		1192	
Travel Time (s)	15.1		8.1		18.1	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2293	1758	1567
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2293	1758	1567
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 90.6% ICU Level of Service E

Analysis Period (min) 15

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1410	0	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			665	476	
Travel Time (s)	4.7			15.1	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1567	0	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1567	0	88
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	77.5%			ICU Level of Service D		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	11	0	2141	0	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		59			59				1036			
Travel Time (s)		1.3			1.3				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	12	0	2379	0	9	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	12	0	2379	0	9	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	126.0	0.0	14.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	90.0%	0.0%	10.0%	0.0%
Maximum Green (s)							7.0		119.0		7.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		136.2		9.0	
Actuated g/C Ratio							0.06		0.97		0.06	
v/c Ratio							0.11		0.69		0.08	
Control Delay							69.8		0.8		64.2	
Queue Delay							0.0		0.0		0.0	
Total Delay							69.8		0.8		64.2	
LOS							E		A		E	
Approach Delay									1.2			
Approach LOS									A			
Queue Length 50th (ft)							12		0		8	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	2025	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Fr		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1002	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2250	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2250	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	126.0	0.0
Total Split (%)	90.0%	0.0%
Maximum Green (s)	119.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	132.4	
Actuated g/C Ratio	0.95	
v/c Ratio	0.67	
Control Delay	1.2	
Queue Delay	0.0	
Total Delay	1.2	
LOS	A	
Approach Delay	1.4	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m15		38		m12	
Internal Link Dist (ft)		1			1				956			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							114		3443		114	
Starvation Cap Reductn							0		15		0	
Spillback Cap Reductn							0		27		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.11		0.70		0.08	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 1.3

Intersection LOS: A

Intersection Capacity Utilization 63.3%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	ø1		ø2
14 s		126 s	
	ø5		ø6
14 s		126 s	



Lane Group	SBT	SBR
Queue Length 95th (ft)	63	
Internal Link Dist (ft)	922	
Turn Bay Length (ft)		
Base Capacity (vph)	3347	
Starvation Cap Reductn	20	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.68	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬇		⬆⬆		⬇	
Volume (vph)	0	0	0	0	0	0	256	0	3079	0	197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		126			121				774			
Travel Time (s)		2.9			2.8				11.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	284	0	3421	0	219	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	284	0	3421	0	219	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	32.0	0.0	121.0	0.0	19.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.9%	0.0%	86.4%	0.0%	13.6%	0.0%
Maximum Green (s)							25.0		114.0		12.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							26.0		116.0		14.0	
Actuated g/C Ratio							0.19		0.83		0.10	
v/c Ratio							0.86		1.17		1.24	
Control Delay							73.9		88.6		162.6	
Queue Delay							0.0		20.5		0.0	
Total Delay							73.9		109.0		162.6	
LOS							E		F		F	
Approach Delay									106.3			
Approach LOS									F			
Queue Length 50th (ft)							274		~1945		~253	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2220	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	709	
Travel Time (s)	10.7	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2467	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2467	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	108.0	0.0
Total Split (%)	77.1%	0.0%
Maximum Green (s)	101.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	104.0	
Actuated g/C Ratio	0.74	
v/c Ratio	0.85	
Control Delay	3.9	
Queue Delay	1.0	
Total Delay	4.9	
LOS	A	
Approach Delay	17.8	
Approach LOS	B	
Queue Length 50th (ft)	213	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m281		m#1938		m#248	
Internal Link Dist (ft)		46			41				694			
Turn Bay Length (ft)											250	
Base Capacity (vph)							341		2932		177	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		111		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.83		1.21		1.24	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 109 (78%), Referenced to phase 2:NET and 6:SWT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 69.1
Intersection Capacity Utilization 104.4%
Analysis Period (min) 15
* User Entered Value
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø1	 ø2
19 s	121 s
 ø5	 ø6
32 s	108 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	m210	
Internal Link Dist (ft)	629	
Turn Bay Length (ft)		
Base Capacity (vph)	2905	
Starvation Cap Reductn	211	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.92	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↑↑↑	↑↑	
Volume (vph)	0	0	99	117	2992	2293	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	128				916	1192	
Travel Time (s)	3.5				13.9	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	110	130	3324	2548	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	240	3324	2548	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	23.0	23.0	
Total Split (s)	0.0	0.0	28.0	28.0	140.0	112.0	0.0
Total Split (%)	0.0%	0.0%	20.0%	20.0%	100.0%	80.0%	0.0%
Maximum Green (s)			21.0	21.0	133.0	105.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effct Green (s)				22.3	140.0	107.7	
Actuated g/C Ratio				0.16	1.00	0.77	
v/c Ratio				0.85	0.65	0.94	
Control Delay				61.4	0.3	13.6	
Queue Delay				0.0	0.0	0.1	
Total Delay				61.4	0.3	13.8	
LOS				E	A	B	
Approach Delay					4.4	13.8	
Approach LOS					A	B	
Queue Length 50th (ft)				221	0	593	

Lanes, Volumes, Timings
 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 AM Peak
 10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m242	0	m585	
Internal Link Dist (ft)	48				836	1112	
Turn Bay Length (ft)				250			
Base Capacity (vph)				291	5085	2724	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	10	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.82	0.65	0.94	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 93 (66%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 8.3

Intersection LOS: A

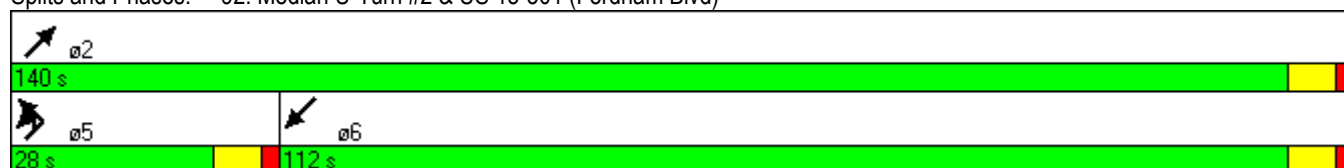
Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2028 With Site Phase 3 AM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1172	79	0	2923	0	1410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			206	476	
Travel Time (s)	1.4			3.1	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	1395	94	0	3248	0	1454
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1395	94	0	3248	0	1454
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	126.4%			ICU Level of Service H		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Volume (vph)	100	125	86	269	89	57	188	1242	4	149	1132	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99				0.99							
Frt		0.939			0.942						0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1682	0	3270	1716	0	1744	3487	0	1686	3478	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1691	1682	0	3270	1716	0	1744	3487	0	1686	3478	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	115	144	99	299	99	63	204	1350	4	159	1204	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	243	0	299	162	0	204	1354	0	159	1231	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		18.0	68.0	
Total Split (s)	36.0	36.0	0.0	35.0	35.0	0.0	31.0	81.0	0.0	28.0	78.0	0.0
Total Split (%)	20.0%	20.0%	0.0%	19.4%	19.4%	0.0%	17.2%	45.0%	0.0%	15.6%	43.3%	0.0%
Maximum Green (s)	29.7	29.7		29.2	29.2		24.8	75.2		21.7	72.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.0	3.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	29.5	29.5		23.4	23.4		26.0	84.9		22.2	81.1	
Actuated g/C Ratio	0.16	0.16		0.13	0.13		0.14	0.47		0.12	0.45	
v/c Ratio	0.41	0.88		0.70	0.73		0.81	0.82		0.76	0.79	
Control Delay	71.9	103.4		83.8	93.3		75.1	30.3		98.8	47.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	71.9	103.4		83.8	93.3		75.1	30.3		98.8	47.5	
LOS	E	F		F	F		E	C		F	D	
Approach Delay		93.2			87.2			36.1			53.4	
Approach LOS		F			F			D			D	
Queue Length 50th (ft)	122	282		177	187		221	405		183	655	
Queue Length 95th (ft)	186	#406		223	266		m#350	819		#292	804	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	293	290		545	286		252	1645		224	1567	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.39	0.84		0.55	0.57		0.81	0.82		0.71	0.79	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 79 (44%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 160

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 54.2

Intersection LOS: D

Intersection Capacity Utilization 78.9%

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.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
28 s	81 s	36 s	35 s
 ø6	 ø5		
78 s	31 s		

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	167	81	331	283	37	79	294	1300	228	12	31	1171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Frt			0.850			0.850		0.978				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1752	3428	0	0	1752	3505
Flt Permitted	0.950			0.950			0.076				0.054	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	140	3428	0	0	100	3505
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45				45
Link Distance (ft)		423			451			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Peak Hour Factor	0.81	0.81	0.81	0.90	0.90	0.90	0.95	0.95	0.95	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	206	100	409	314	41	88	309	1368	240	12	32	1220
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	100	409	314	41	88	309	1608	0	0	44	1220
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	15.0	14.0	19.0		15.0	15.0	19.0
Total Split (s)	37.0	24.0	51.0	30.0	17.0	16.0	51.0	110.0	0.0	16.0	16.0	75.0
Total Split (%)	20.6%	13.3%	28.3%	16.7%	9.4%	8.9%	28.3%	61.1%	0.0%	8.9%	8.9%	41.7%
Maximum Green (s)	30.0	17.0	44.0	23.0	10.0	9.0	44.0	103.0		9.0	9.0	68.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	2.0	2.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	30.2	15.5	61.2	22.7	10.8	23.7	126.8	111.1			86.8	76.1
Actuated g/C Ratio	0.17	0.09	0.34	0.13	0.06	0.13	0.70	0.62			0.48	0.42
v/c Ratio	0.69	0.62	0.79	0.73	0.37	0.42	0.61	0.76			0.30	0.82
Control Delay	83.8	95.7	43.4	85.6	90.3	76.6	46.5	17.6			38.9	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7			0.0	0.0
Total Delay	83.8	95.7	43.4	85.6	90.3	76.6	46.5	18.4			38.9	22.5
LOS	F	F	D	F	F	E	D	B			D	C
Approach Delay		62.4			84.2			22.9				19.9

Lane Group	SBR
Lane Configurations	
Volume (vph)	231
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	3%
Adj. Flow (vph)	241
Shared Lane Traffic (%)	
Lane Group Flow (vph)	241
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	37.0
Total Split (%)	20.6%
Maximum Green (s)	30.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	None
Act Effct Green (s)	111.3
Actuated g/C Ratio	0.62
v/c Ratio	0.25
Control Delay	3.3
Queue Delay	0.0
Total Delay	3.3
LOS	A
Approach Delay	

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach LOS	E			F			C			B		
Queue Length 50th (ft)	236	116	304	186	47	95	265	707			12	646
Queue Length 95th (ft)	291	164	330	241	93	157	m364	m533			m25	639
Internal Link Dist (ft)	343			371			720			1264		
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	319	197	523	477	124	211	511	2116			149	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	216			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.65	0.51	0.78	0.66	0.33	0.42	0.60	0.85			0.30	0.82

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 70 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 34.0

Intersection LOS: C

Intersection Capacity Utilization 80.8%

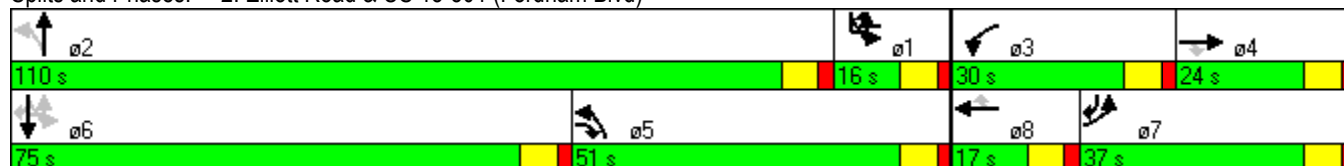
ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Approach LOS	
Queue Length 50th (ft)	24
Queue Length 95th (ft)	m41
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	960
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.25
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	287	63	47	37	59	17	71	1556	35	35	1510	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.97
Frt		0.936			0.966			0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1736	0	1761	1790	0	1744	3476	0	1744	3489	1561
Flt Permitted	0.377			0.673			0.091			0.045		
Satd. Flow (perm)	706	1736	0	1237	1790	0	167	3476	0	83	3489	1520
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			5	5			1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.93	0.93	0.93	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	342	75	56	47	75	22	76	1673	38	36	1557	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	131	0	47	97	0	76	1711	0	36	1557	351
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	20.0	32.4		30.0	30.0		15.0	104.0		15.0	104.0	104.0
Total Split (s)	31.0	61.0	0.0	30.0	30.0	0.0	15.0	104.0	0.0	15.0	104.0	104.0
Total Split (%)	17.2%	33.9%	0.0%	16.7%	16.7%	0.0%	8.3%	57.8%	0.0%	8.3%	57.8%	57.8%
Maximum Green (s)	24.7	54.6		23.6	23.6		9.0	97.9		9.4	97.9	97.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.0	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.4	-1.4	0.0	-1.0	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		0									0	0
Act Effct Green (s)	46.6	46.6		15.6	15.6		113.2	113.2		108.4	108.4	108.4
Actuated g/C Ratio	0.26	0.26		0.09	0.09		0.63	0.63		0.60	0.60	0.60
v/c Ratio	1.01	0.29		0.44	0.63		0.40	0.78		0.30	0.74	0.38

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	111.9	54.6		89.4	96.2		26.9	19.9		20.3	15.0	11.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.3		0.0	0.5	0.0
Total Delay	111.9	54.6		89.4	96.2		26.9	20.2		20.3	15.5	11.9
LOS	F	D		F	F		C	C		C	B	B
Approach Delay		96.0			94.0			20.5			14.9	
Approach LOS		F			F			C			B	
Queue Length 50th (ft)	~381	125		54	113		23	277		10	351	142
Queue Length 95th (ft)	#505	171		87	154		m42	958		m16	443	m191
Internal Link Dist (ft)		500			548			408			720	
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	338	540		172	249		192	2185		142	2101	915
Starvation Cap Reductn	0	0		0	0		0	0		0	188	0
Spillback Cap Reductn	0	0		0	0		0	108		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.01	0.24		0.27	0.39		0.40	0.82		0.25	0.81	0.38

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 63 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 170

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 28.6

Intersection LOS: C

Intersection Capacity Utilization 85.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

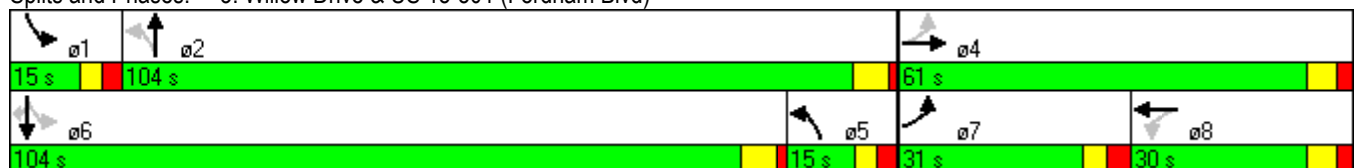
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	139	7	464	5	6	7	7	537	1476	8	17	1424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99			0.99				1.00		1.00	
Frt			0.850		0.949				0.999			
Flt Protected		0.954			0.986			0.950			0.950	
Satd. Flow (prot)	0	1751	2746	0	1647	0	0	3383	3483	0	1761	3522
Flt Permitted		0.954			0.986			0.950			0.950	
Satd. Flow (perm)	0	1733	2746	0	1647	0	0	3383	3483	0	1759	3522
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	7					7				1	1	
Peak Hour Factor	0.85	0.85	0.85	0.75	0.75	0.75	0.96	0.96	0.96	0.96	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	164	8	546	7	8	9	7	559	1538	8	19	1565
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	546	0	24	0	0	566	1546	0	19	1565
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	41.0	41.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	24.0	24.0	34.0	41.0	41.0	0.0	34.0	34.0	100.0	0.0	15.0	81.0
Total Split (%)	13.3%	13.3%	18.9%	22.8%	22.8%	0.0%	18.9%	18.9%	55.6%	0.0%	8.3%	45.0%
Maximum Green (s)	17.4	17.4	27.3	34.3	34.3		27.3	27.3	93.9		8.5	74.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	3.0	1.0	1.0		3.0	3.0	6.0		3.0	6.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

Lane Group	SBR
Lane Configurations	
Volume (vph)	138
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1576
Flt Permitted	
Satd. Flow (perm)	1576
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	3%
Adj. Flow (vph)	152
Shared Lane Traffic (%)	
Lane Group Flow (vph)	152
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	24.0
Total Split (%)	13.3%
Maximum Green (s)	17.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		18.8	64.7		9.2			43.9	133.4		9.4	93.5
Actuated g/C Ratio		0.10	0.36		0.05			0.24	0.74		0.05	0.52
v/c Ratio		0.94	0.55		0.28			0.69	0.60		0.21	0.86
Control Delay		129.8	42.6		90.6			66.6	14.1		57.8	18.6
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		129.8	42.6		90.6			66.6	14.1		57.8	18.6
LOS		F	D		F			E	B		E	B
Approach Delay		63.5			90.6				28.2			17.9
Approach LOS		E			F				C			B
Queue Length 50th (ft)		205	251		28			319	525		22	707
Queue Length 95th (ft)		#332	271		52			378	620		m30	#1086
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		185	987		329			825	2582		98	1830
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		0.93	0.55		0.07			0.69	0.60		0.19	0.86

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 99 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 30.1

Intersection LOS: C

Intersection Capacity Utilization 98.3%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

							
100 s		15 s		24 s		41 s	
							
34 s	81 s						



Lane Group	SBR
Act Effect Green (s)	117.3
Actuated g/C Ratio	0.65
v/c Ratio	0.15
Control Delay	5.0
Queue Delay	0.0
Total Delay	5.0
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	46
Queue Length 95th (ft)	m63
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1029
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.15
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗	↗	↗	↗↗	↗
Volume (vph)	0	0	11	0	0	82	5	1921	10	79	1781	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1031			1593	
Travel Time (s)		7.9			3.4			15.6			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.77	0.98	0.98	0.98	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	16	0	0	106	5	1960	10	92	2071	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	16	0	0	106	5	1960	10	92	2071	22
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	15.0	0.0	0.0	22.0	15.0	98.0	98.0	22.0	105.0	105.0
Total Split (%)	0.0%	0.0%	12.5%	0.0%	0.0%	18.3%	12.5%	81.7%	81.7%	18.3%	87.5%	87.5%
Maximum Green (s)			8.0			15.0	8.0	91.0	91.0	15.0	98.0	98.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.4			14.4	9.4	95.6	95.6	14.4	112.0	112.0
Actuated g/C Ratio			0.08			0.12	0.08	0.80	0.80	0.12	0.93	0.93
v/c Ratio			0.13			0.55	0.04	0.70	0.01	0.44	0.63	0.02
Control Delay			53.7			60.4	43.2	2.8	1.2	54.9	3.1	1.3
Queue Delay			0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay			53.7			60.4	43.2	2.8	1.2	54.9	3.1	1.3
LOS			D			E	D	A	A	D	A	A
Approach Delay								2.9			5.3	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			12			78	4	91	1	67	0	0
Queue Length 95th (ft)			27			114	m6	57	m1	113	280	6
Internal Link Dist (ft)		208			43			951			1513	
Turn Bay Length (ft)							150		150	200		150
Base Capacity (vph)			134			226	146	2792	1249	248	3271	1464
Starvation Cap Reductn			0			0	0	59	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.12			0.47	0.03	0.72	0.01	0.37	0.63	0.02

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 5.7

Intersection LOS: A

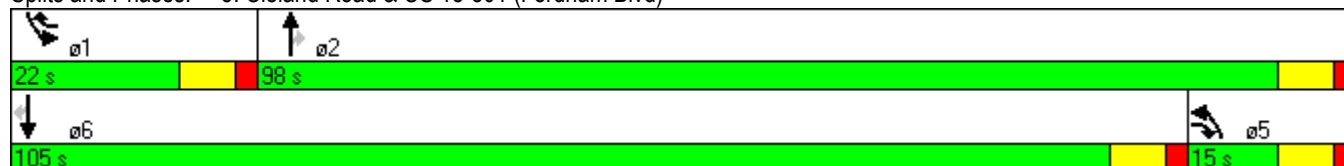
Intersection Capacity Utilization 67.3%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									  			  
Volume (vph)	0	0	21	0	0	70	59	11	1961	19	46	1729
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1611	0	0	1596	0	1752	3505	1568	1752	3505
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				802			1006
Travel Time (s)		2.8			2.3				12.2			15.2
Peak Hour Factor	0.53	0.53	0.53	0.61	0.61	0.61	0.95	0.95	0.95	0.95	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	40	0	0	115	62	12	2064	20	50	1879
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	40	0	0	115	0	74	2064	20	50	1879
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	18.0	0.0	0.0	23.0	18.0	18.0	97.0	97.0	23.0	102.0
Total Split (%)	0.0%	0.0%	15.0%	0.0%	0.0%	19.2%	15.0%	15.0%	80.8%	80.8%	19.2%	85.0%
Maximum Green (s)			11.0			16.0	11.0	11.0	90.0	90.0	16.0	95.0
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)	0.0	0.0	2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	9.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead			Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			7.6			15.2		11.6	94.8	94.8	15.2	102.2
Actuated g/C Ratio			0.06			0.13		0.10	0.79	0.79	0.13	0.85
v/c Ratio			0.39			0.57		0.44	0.75	0.02	0.23	0.63
Control Delay			64.6			60.1		59.0	5.3	1.9	43.9	4.3
Queue Delay			0.0			0.0		0.0	0.1	0.0	0.0	0.0
Total Delay			64.6			60.1		59.0	5.4	1.9	43.9	4.4
LOS			E			E		E	A	A	D	A
Approach Delay									7.2			5.4
Approach LOS									A			A

Lane Group	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	3%
Adj. Flow (vph)	5
Shared Lane Traffic (%)	
Lane Group Flow (vph)	5
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	102.0
Total Split (%)	85.0%
Maximum Green (s)	95.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	102.2
Actuated g/C Ratio	0.85
v/c Ratio	0.00
Control Delay	2.2
Queue Delay	0.0
Total Delay	2.2
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			30			84		57	114	2	35	243
Queue Length 95th (ft)			38			94		m80	230	m3	m60	195
Internal Link Dist (ft)		24			5				722			926
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			121			239		190	2770	1239	263	2984
Starvation Cap Reductn			0			0		0	97	0	0	27
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.33			0.48		0.39	0.77	0.02	0.19	0.64

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 67 (56%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 8.3

Intersection LOS: A

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	1
Queue Length 95th (ft)	m1
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1335
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.00
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	816	0	0	491	0	1321	27	0	1498	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3505	1583	0	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	960	0	0	585	0	1468	30	0	1560	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	960	0	0	585	0	1468	30	0	1560	180
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			21.1								20.0	
Total Split (s)	0.0	0.0	54.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.0	0.0
Total Split (%)	0.0%	0.0%	45.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.0%	0.0%
Maximum Green (s)			48.9								60.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			46.4			120.0		120.0	120.0		63.6	120.0
Actuated g/C Ratio			0.39			1.00		1.00	1.00		0.53	1.00
v/c Ratio			0.91			0.37		0.42	0.02		0.84	0.11
Control Delay			47.8			0.7		0.3	0.0		26.3	0.1
Queue Delay			0.0			0.0		0.0	0.0		0.0	0.0
Total Delay			47.8			0.7		0.3	0.0		26.3	0.1
LOS			D			A		A	A		C	A
Approach Delay								0.3			23.6	
Approach LOS								A			C	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			384			0		0	0		551	0
Queue Length 95th (ft)			439			0		0	m0		536	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1116			1580		3505	1583		1859	1568
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			0.86			0.37		0.42	0.02		0.84	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 95 (79%), Referenced to phase 2:SBT and 6:, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 18.4

Intersection LOS: B

Intersection Capacity Utilization 78.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2028 With Site Phase 3 Noon Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	116	0	1231	0	0	1930	384	0	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	129	0	1368	0	0	2144	427	0	36
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	129	0	1368	0	0	2144	427	0	36
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 63.4% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		 		 		
Volume (vph)	33	227	104	4	2203	208	2076	22	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	1.00	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850			0.850		0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	3725	1583	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1563	2759	0	*3787	1583	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					706		906		
Travel Time (s)					10.7		13.7		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.70	0.77	0.72	0.72	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	47	295	144	6	2448	231	2185	23	12
Shared Lane Traffic (%)									
Lane Group Flow (vph)	47	295	150	0	2448	231	2185	35	0
Turn Type	custom	custom	custom			Free		Perm	
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3	Free		6	
Detector Phase	3	4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0	12.0	
Minimum Split (s)	36.0	17.0	17.0		33.0		25.0	25.0	
Total Split (s)	36.0	17.0	17.0	0.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	30.0%	14.2%	14.2%	0.0%	55.8%	0.0%	55.8%	55.8%	0.0%
Maximum Green (s)	29.0	10.0	10.0		60.0		60.0	60.0	
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lag	Lead	Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0	2.0	
Recall Mode	None	None	None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	10.6	12.0	12.0		94.0	120.0	85.2	85.2	
Actuated g/C Ratio	0.09	0.10	0.10		0.78	1.00	0.71	0.71	
v/c Ratio	0.33	1.86	0.54		0.84	0.15	0.83	0.03	
Control Delay	57.2	438.7	59.3		4.9	0.1	7.4	3.8	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.4	0.0	0.2	0.0	
Total Delay	57.2	438.7	59.3		5.2	0.1	7.7	3.8	
LOS	E	F	E		A	A	A	A	
Approach Delay					4.8		7.6		
Approach LOS					A		A		
Queue Length 50th (ft)	35	~348	63		76	0	114	4	
Queue Length 95th (ft)	56	#431	80		105	m0	420	m6	
Internal Link Dist (ft)					626		826		
Turn Bay Length (ft)						300		100	
Base Capacity (vph)	416	159	276		2923	1583	2646	1124	
Starvation Cap Reductn	0	0	0		119	0	73	0	
Spillback Cap Reductn	0	0	0		0	0	0	0	
Storage Cap Reductn	0	0	0		0	0	0	0	
Reduced v/c Ratio	0.11	1.86	0.54		0.87	0.15	0.85	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 18 (15%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.86

Intersection Signal Delay: 31.7

Intersection LOS: C

Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 Ø2	 Ø4	 Ø3
67 s	17 s	36 s
 Ø6		
67 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	692	0	112	16	0	23	0	1672	19	0	1569	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.998				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1752	0	1568	0	3886	0	0	3471	1553
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1592	1735	0	1568	0	*3811	0	0	3471	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			776	
Travel Time (s)		7.4			14.0			8.8			11.8	
Confl. Peds. (#/hr)			7	7					4	4		
Peak Hour Factor	0.86	1.00	0.86	0.77	1.00	0.77	1.00	0.86	0.86	1.00	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	805	0	130	21	0	30	0	1944	22	0	1724	681
Shared Lane Traffic (%)												
Lane Group Flow (vph)	805	0	130	21	0	30	0	1966	0	0	1724	681
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				19.0			19.0	
Total Split (s)	42.0	0.0	0.0	42.0	0.0	0.0	0.0	78.0	0.0	0.0	78.0	0.0
Total Split (%)	35.0%	0.0%	0.0%	35.0%	0.0%	0.0%	0.0%	65.0%	0.0%	0.0%	65.0%	0.0%
Maximum Green (s)	35.0			35.0				71.0			71.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	0.0	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	4.0	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effect Green (s)	32.6		120.0	32.6		120.0		77.4			77.4	120.0
Actuated g/C Ratio	0.27		1.00	0.27		1.00		0.64			0.64	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	0.85		0.08	0.04		0.02		0.78			0.77	0.44
Control Delay	50.3		0.1	30.6		0.0		18.9			10.0	0.6
Queue Delay	0.0		0.0	0.0		0.0		0.0			0.3	0.0
Total Delay	50.3		0.1	30.6		0.0		18.9			10.4	0.6
LOS	D		A	C		A		B			B	A
Approach Delay								18.9			7.6	
Approach LOS								B			A	
Queue Length 50th (ft)	302		0	12		0		490			242	0
Queue Length 95th (ft)	340		0	26		0		580			412	0
Internal Link Dist (ft)		302			435			504			696	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	1080		1592	540		1568		2506			2239	1553
Starvation Cap Reductn	0		0	0		0		0			123	0
Spillback Cap Reductn	0		0	0		0		0			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	0.75		0.08	0.04		0.02		0.78			0.81	0.44

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 17 (14%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 18.0

Intersection LOS: B

Intersection Capacity Utilization 71.4%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

 ø2	 ø3
78 s	42 s
 ø6	
78 s	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	276	38	231	354	373	40	117	133	362	104	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.96	0.99		0.99		0.93		1.00	0.98	1.00	1.00	
Frt		0.982				0.850			0.850		0.990	
Flt Protected	0.950			0.950				0.987		0.950	0.975	
Satd. Flow (prot)	1646	3326	0	1752	1845	1672	0	1965	1538	1625	1933	0
Flt Permitted	0.540			0.324				0.987		0.950	0.975	
Satd. Flow (perm)	894	3326	0	594	1845	1549	0	1960	1513	1623	1932	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	25		5	5		25	10		1	1		10
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.82	0.82	0.82	0.93	0.93	0.93
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	34	345	48	243	373	393	49	143	162	389	112	18
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	34	393	0	243	373	393	0	192	162	257	262	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	25.0	25.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	23.0	57.0	41.0	32.0	32.0	23.0	41.0	41.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	17.7%	43.8%	31.5%	24.6%	24.6%	17.7%	31.5%	31.5%	0.0%
Maximum Green (s)	26.7	26.7		16.2	49.7	34.3	25.3	25.3	16.2	34.3	34.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-1.8	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.5	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	30.0	30.0		52.0	51.5	80.5		34.5	51.6	28.5	28.5	
Actuated g/C Ratio	0.23	0.23		0.40	0.40	0.62		0.27	0.40	0.22	0.22	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.17	0.51		0.62	0.51	0.40		0.37	0.27	0.72	0.62	
Control Delay	43.4	46.7		35.0	32.8	11.1		43.3	26.1	58.2	51.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	43.4	46.7		35.0	32.8	11.1		43.3	26.1	58.2	51.5	
LOS	D	D		C	C	B		D	C	E	D	
Approach Delay		46.5			24.9			35.4			54.8	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	23	154		141	235	135		133	85	211	210	
Queue Length 95th (ft)	48	181		211	332	157		198	134	293	286	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	206	767		398	731	1083		522	615	450	535	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.17	0.51		0.61	0.51	0.36		0.37	0.26	0.57	0.49	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 37.2

Intersection LOS: D

Intersection Capacity Utilization 80.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
23 s	34 s	41 s	32 s
 ø6			
57 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	830	33	0	814	816	0	0	384	0	0	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	902	36	0	885	887	0	0	417	0	0	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	902	36	0	885	887	0	0	417	0	0	188
Turn Type			Free			Free			custom			Free
Protected Phases		2			6 8				8			
Permitted Phases			Free			Free			8			Free
Detector Phase		2			6 8				8			
Switch Phase												
Minimum Initial (s)		12.0							7.0			
Minimum Split (s)		19.0							14.0			
Total Split (s)	0.0	36.0	0.0	0.0	75.0	0.0	0.0	0.0	39.0	0.0	0.0	0.0
Total Split (%)	0.0%	48.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	52.0%	0.0%	0.0%	0.0%
Maximum Green (s)		29.0							32.0			
Yellow Time (s)		5.0							5.0			
All-Red Time (s)		2.0							2.0			
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	4.0	4.0	7.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0			
Recall Mode		C-Max							None			
Act Effct Green (s)		35.9	75.0		75.0	75.0			29.1			75.0
Actuated g/C Ratio		0.48	1.00		1.00	1.00			0.39			1.00
v/c Ratio		0.53	0.02		0.25	0.56			0.67			0.12
Control Delay		16.3	0.0		0.1	2.9			23.9			0.2
Queue Delay		0.0	0.0		0.0	0.0			0.0			0.0
Total Delay		16.3	0.0		0.1	2.9			23.9			0.2
LOS		B	A		A	A			C			A
Approach Delay		15.7			1.5							
Approach LOS		B			A							
Queue Length 50th (ft)		155	0		0	0			148			0

Lane Group	ø6
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	19.0
Total Split (s)	36.0
Total Split (%)	48%
Maximum Green (s)	29.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		227	0		m0	m52			223			0
Internal Link Dist (ft)		388			354			518			588	
Turn Bay Length (ft)			275									
Base Capacity (vph)		1693	1583		3501	1583			730			1611
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		0.53	0.02		0.25	0.56			0.57			0.12

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 6 (8%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 8.3

Intersection LOS: A

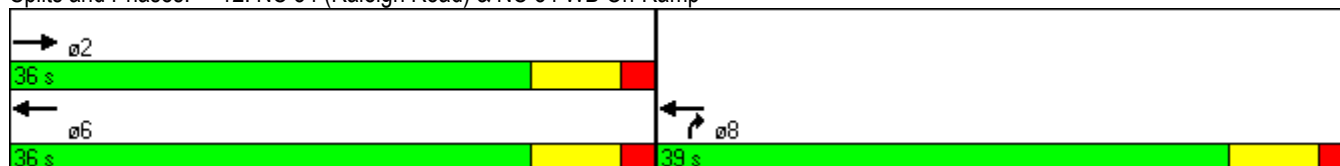
Intersection Capacity Utilization 55.1%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

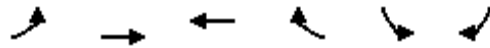


Lane Group	ø6
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2028 With Site Phase 3 Noon Peak

10/18/2013

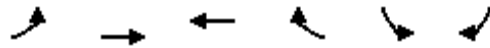


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑	↑		↑
Volume (vph)	0	1201	1610	491	0	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	0.90	0.90	0.86	0.86	0.90	0.85
Adj. Flow (vph)	0	1334	1872	571	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1334	1872	571	0	32
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	41.1%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2028 With Site Phase 3 Noon Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2027	1998	45	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	4940	4988	1553	0	1315
Flt Permitted						
Satd. Flow (perm)	0	4940	4988	1553	0	1315
Link Speed (mph)		45	45		25	
Link Distance (ft)		218	553		229	
Travel Time (s)		3.3	8.4		6.2	
Peak Hour Factor	1.00	0.97	0.95	0.95	1.00	0.44
Heavy Vehicles (%)	5%	5%	4%	4%	25%	25%
Adj. Flow (vph)	0	2090	2103	47	0	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2090	2103	47	0	111
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 48.6% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	34	182	1605	44	111	1644	245	171	19	96	269	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	350	
Storage Lanes		2		0	1		1	1		1	2	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	0.97	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor		1.00	1.00		1.00		0.99	0.99		0.98	0.99	
Frt			0.996				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3377	4963	0	1752	5036	1568	1752	1845	1568	3367	1827
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3376	4963	0	1751	5036	1546	1740	1845	1537	3341	1827
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			553			576			537			671
Travel Time (s)			8.4			8.7			14.6			18.3
Confl. Peds. (#/hr)		1		3	3		1	5		6	6	
Peak Hour Factor	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82
Heavy Vehicles (%)	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%	4%	4%
Adj. Flow (vph)	37	207	1824	50	121	1787	266	197	22	110	328	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	244	1874	0	121	1787	266	197	22	110	328	23
Turn Type	Prot	Prot			Prot		pm+ov	Prot		pm+ov	Prot	
Protected Phases	5!	5	2		1	6	7	3	8	1	7	4
Permitted Phases							6			8		
Detector Phase	5	5	2		1	6	7	3	8	1	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0	28.0		29.0	26.0	14.0	14.0	41.0	29.0	14.0	39.0
Total Split (s)	20.0	20.0	60.0	0.0	29.0	69.0	20.0	22.0	41.0	29.0	20.0	39.0
Total Split (%)	13.3%	13.3%	40.0%	0.0%	19.3%	46.0%	13.3%	14.7%	27.3%	19.3%	13.3%	26.0%
Maximum Green (s)	13.0	13.0	54.4		23.6	63.1	13.0	15.0	34.6	23.6	13.0	32.5
Yellow Time (s)	5.0	5.0	3.8		3.0	4.1	5.0	5.0	3.1	3.0	5.0	3.2
All-Red Time (s)	2.0	2.0	1.8		2.4	1.8	2.0	2.0	3.3	2.4	2.0	3.3
Lost Time Adjust (s)	0.0	-2.0	-0.6	0.0	-0.4	-0.9	-2.0	-2.0	-1.4	-0.4	-2.0	-1.5
Total Lost Time (s)	7.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	1.0	1.0	3.0		1.0	3.0	3.0	3.0	1.0	1.0	3.0	1.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Dont Walk (s)			12.0			13.0			27.0			25.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		28.0	95.5		14.2	81.7	97.5	17.0	9.8	20.7	15.8	8.7
Actuated g/C Ratio		0.19	0.64		0.09	0.54	0.65	0.11	0.07	0.14	0.11	0.06
v/c Ratio		0.39	0.59		0.73	0.65	0.26	0.99	0.18	0.51	0.92	0.22
Control Delay		51.1	17.0		97.4	10.5	3.8	126.3	69.3	63.2	97.6	72.5

Lane Group	SBR
Lane Configurations	
Volume (vph)	230
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1553
Flt Permitted	
Satd. Flow (perm)	1524
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Peak Hour Factor	0.82
Heavy Vehicles (%)	4%
Adj. Flow (vph)	280
Shared Lane Traffic (%)	
Lane Group Flow (vph)	280
Turn Type	pm+ov
Protected Phases	5!
Permitted Phases	4
Detector Phase	5
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	20.0
Total Split (%)	13.3%
Maximum Green (s)	13.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	1.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	33.3
Actuated g/C Ratio	0.22
v/c Ratio	0.82
Control Delay	72.4

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		51.1	17.0		97.4	10.5	3.8	126.3	69.3	63.2	97.6	72.5
LOS		D	B		F	B	A	F	E	E	F	E
Approach Delay			20.9			14.5			101.4			85.5
Approach LOS			C			B			F			F
Queue Length 50th (ft)		101	391		122	132	31	196	21	94	168	22
Queue Length 95th (ft)		128	462		191	120	36	#346	49	143	#230	49
Internal Link Dist (ft)			473			496			457			591
Turn Bay Length (ft)		300			250		150	150		150	350	
Base Capacity (vph)		631	3161		280	2744	1008	199	443	317	355	414
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.39	0.59		0.43	0.65	0.26	0.99	0.05	0.35	0.92	0.06

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 75 (50%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 31.1

Intersection LOS: C

Intersection Capacity Utilization 78.8%

ICU Level of Service D

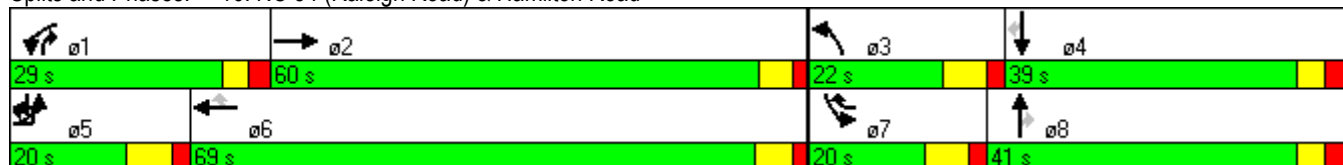
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road





Lane Group	SBR
Queue Delay	0.0
Total Delay	72.4
LOS	E
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	250
Queue Length 95th (ft)	289
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	343
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.82
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	1970	48	86	1949	17	34	6	152	28	10	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.996			0.999				0.850		0.931	
Flt Protected	0.950			0.950				0.959			0.982	
Satd. Flow (prot)	1736	4964	0	1752	5029	0	0	1752	1553	0	1526	0
Flt Permitted	0.067			0.039				0.664			0.874	
Satd. Flow (perm)	122	4964	0	72	5029	0	0	1211	1553	0	1358	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	5		3	3		5	2					2
Peak Hour Factor	0.85	0.85	0.85	0.96	0.96	0.96	0.83	0.83	0.83	0.74	0.74	0.74
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Adj. Flow (vph)	53	2318	56	90	2030	18	41	7	183	38	14	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	2374	0	90	2048	0	0	48	183	0	106	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	88.0	0.0	14.0	89.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	8.7%	58.7%	0.0%	9.3%	59.3%	0.0%	32.0%	32.0%	32.0%	32.0%	32.0%	0.0%
Maximum Green (s)	7.1	81.8		8.1	82.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	112.6	101.7		111.6	106.2			23.4	23.4		23.4	
Actuated g/C Ratio	0.75	0.68		0.74	0.71			0.16	0.16		0.16	
v/c Ratio	0.30	0.71		0.55	0.58			0.25	0.75		0.50	
Control Delay	12.8	11.0		47.5	7.9			56.6	79.0		64.7	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.2			0.0	0.0		0.0	
Total Delay	12.8	11.0		47.5	8.1			56.6	79.0		64.7	
LOS	B	B		D	A			E	E		E	
Approach Delay		11.0			9.8			74.3			64.7	
Approach LOS		B			A			E			E	
Queue Length 50th (ft)	10	222		22	545			42	174		96	
Queue Length 95th (ft)	m18	234		m78	189			72	224		122	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	178	3367		169	3559			347	445		389	
Starvation Cap Reductn	0	0		0	581			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.30	0.71		0.53	0.69			0.14	0.41		0.27	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 66 (44%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	190	1743	34	17	1758	18	48	7	35	17	6	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98		0.99		1.00		
Frt			0.850			0.850		0.875			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	4988	1553	1736	4988	1553	1770	1607	0	1736	1562	0
Flt Permitted	0.075			0.091			0.320			0.707		
Satd. Flow (perm)	135	4988	1553	166	4988	1514	596	1607	0	1286	1562	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	4					4			3	3		
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.59	0.59	0.59	0.86	0.86	0.86
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	198	1816	35	18	1851	19	81	12	59	20	7	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	198	1816	35	18	1851	19	81	71	0	20	216	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	44.0	44.0	14.0	44.0	44.0	14.0	14.0		15.0	15.0	
Total Split (s)	24.0	103.0	103.0	14.0	66.0	66.0	33.0	33.0	0.0	33.0	33.0	0.0
Total Split (%)	16.0%	68.7%	68.7%	9.3%	44.0%	44.0%	22.0%	22.0%	0.0%	22.0%	22.0%	0.0%
Maximum Green (s)	17.7	96.7	96.7	7.7	59.7	59.7	26.2	26.2		25.7	25.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lag	Lead	Lead	Lag								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effect Green (s)	110.2	106.8	106.8	112.2	92.1	92.1	24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.73	0.71	0.71	0.75	0.61	0.61	0.17	0.17		0.17	0.17	
v/c Ratio	0.69	0.51	0.03	0.08	0.60	0.02	0.83	0.27		0.09	0.84	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	18%
Maximum Green (s)	23.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	33.0	20.0	14.8	3.4	8.1	6.6	111.6	56.2		52.4	86.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	33.0	20.0	14.8	3.4	8.1	6.6	111.6	56.2		52.4	86.5	
LOS	C	B	B	A	A	A	F	E		D	F	
Approach Delay	21.1			8.1			85.7			83.6		
Approach LOS	C			A			F			F		
Queue Length 50th (ft)	119	466	18	2	149	4	76	60		17	204	
Queue Length 95th (ft)	209	623	m29	m3	152	m5	86	70		40	283	
Internal Link Dist (ft)	767			1857			371			455		
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	318	3552	1106	218	3063	930	111	300		240	292	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.62	0.51	0.03	0.08	0.60	0.02	0.73	0.24		0.08	0.74	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 35 (23%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 21.1
 Intersection LOS: C
 Intersection Capacity Utilization 78.4%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø2	 ø1	 ø4
103 s	14 s	33 s
 ø10	 ø5	 ø6
27 s	24 s	66 s
		 ø8
		33 s

Lane Group	ø10
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	145	1597	83	79	1495	70	82	38	110	150	28	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00		0.99	1.00	1.00				
Frt			0.850			0.850		0.935	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.995		0.950		
Satd. Flow (prot)	3401	5037	1568	3350	4963	1545	1648	1546	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.995		0.950		
Satd. Flow (perm)	3400	5037	1520	3340	4963	1524	1645	1546	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	1		12	12		1	1					1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.65	0.65	0.65	0.83	0.83	0.83
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	156	1717	89	82	1557	73	126	58	169	181	34	230
Shared Lane Traffic (%)							10%		32%			
Lane Group Flow (vph)	156	1717	89	82	1557	73	113	125	115	181	34	230
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	42.0	15.0	15.0	42.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	18.0	74.0	31.0	15.0	71.0	30.0	31.0	31.0	46.0	30.0	30.0	48.0
Total Split (%)	12.0%	49.3%	20.7%	10.0%	47.3%	20.0%	20.7%	20.7%	30.7%	20.0%	20.0%	32.0%
Maximum Green (s)	10.8	67.4	23.9	7.9	64.5	22.7	23.9	23.9		22.7	22.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	13.0	86.6	104.4	10.0	83.6	99.2	17.8	17.8	32.8	15.6	15.6	28.6
Actuated g/C Ratio	0.09	0.58	0.70	0.07	0.56	0.66	0.12	0.12	0.22	0.10	0.10	0.19
v/c Ratio	0.53	0.59	0.08	0.37	0.56	0.07	0.58	0.68	0.36	0.50	0.17	0.75

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	71.0	15.2	1.6	67.3	12.5	4.4	73.2	80.8	51.7	67.3	60.8	56.2
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	71.0	15.2	1.6	67.3	12.5	4.4	73.2	80.8	51.7	67.3	60.8	56.2
LOS	E	B	A	E	B	A	E	F	D	E	E	E
Approach Delay	19.0			14.8			68.9			61.0		
Approach LOS	B			B			E			E		
Queue Length 50th (ft)	80	180	2	40	141	17	111	130	101	88	31	166
Queue Length 95th (ft)	123	113	7	m74	497	m19	121	139	109	110	58	179
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300	200		300	200		450		250			
Base Capacity (vph)	295	2907	1149	223	2765	1054	286	268	403	581	315	407
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	0.53	0.59	0.08	0.37	0.56	0.07	0.40	0.47	0.29	0.31	0.11	0.57

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 7 (5%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 25.5

Intersection LOS: C

Intersection Capacity Utilization 60.2%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

 ø2	 ø1	 ø4	 ø3
74 s	15 s	31 s	30 s
 ø6	 ø5		
71 s	18 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	12	1631	244	44	1459	120	186	58	64	106	47	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96				1.00	1.00			1.00	
Frt			0.850			0.850		0.936			0.971	
Flt Protected	0.950			0.950			0.950	0.990		0.950	0.987	
Satd. Flow (prot)	1727	4363	1545	1761	5061	1576	1656	1616	0	1648	1658	0
Flt Permitted	0.115			0.054			0.950	0.990		0.950	0.987	
Satd. Flow (perm)	209	4363	1490	100	5061	1576	1654	1615	0	1648	1658	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	13	1735	260	46	1536	126	202	63	70	118	52	18
Shared Lane Traffic (%)							16%			20%		
Lane Group Flow (vph)	13	1735	260	46	1536	126	170	165	0	94	94	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	27.0	15.0	14.0	29.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	14.0	82.0	31.0	14.0	82.0	23.0	31.0	31.0	0.0	23.0	23.0	0.0
Total Split (%)	9.3%	54.7%	20.7%	9.3%	54.7%	15.3%	20.7%	20.7%	0.0%	15.3%	15.3%	0.0%
Maximum Green (s)	7.2	74.5	23.8	7.0	74.5	15.8	23.8	23.8		15.8	15.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	1.8	5.0	5.0	1.8
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	96.2	87.0	109.2	94.2	92.6	112.2	22.2	22.2		14.6	14.6	
Actuated g/C Ratio	0.64	0.58	0.73	0.63	0.62	0.75	0.15	0.15		0.10	0.10	
v/c Ratio	0.06	0.69	0.24	0.28	0.49	0.11	0.69	0.69		0.59	0.58	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	5.5	7.6	2.3	15.7	18.4	6.9	75.2	75.3		79.1	78.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.5	7.6	2.3	15.7	18.4	6.9	75.2	75.3		79.1	78.8	
LOS	A	A	A	B	B	A	E	E		E	E	
Approach Delay		6.9			17.4			75.3			78.9	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	1	135	33	16	268	26	166	162		93	93	
Queue Length 95th (ft)	m4	209	33	35	423	68	251	245		157	157	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	225	2531	1132	162	3125	1165	287	280		198	199	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.06	0.69	0.23	0.28	0.49	0.11	0.59	0.59		0.47	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 63.8%

ICU Level of Service B

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø1	 ø2	 ø4	 ø3
14 s	82 s	31 s	23 s
 ø6	 ø5		
82 s	14 s		

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	348	331	35	227	354	269	56	664	197	152	537	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		1.00		0.97	0.99	0.99				0.96
Frt		0.986				0.850		0.966				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3230	3450	0	1719	1810	1538	1736	3333	0	1752	3505	1568
Flt Permitted	0.950			0.950			0.386			0.157		
Satd. Flow (perm)	3185	3450	0	1715	1810	1498	700	3333	0	290	3505	1501
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	8		3	3		8	5		10	10		5
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Parking (#/hr)	0											
Adj. Flow (vph)	395	376	40	252	393	299	58	692	205	163	577	272
Shared Lane Traffic (%)												
Lane Group Flow (vph)	395	416	0	252	393	299	58	897	0	163	577	272
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	29.0	38.0	0.0	37.0	46.0	20.0	15.0	55.0	0.0	20.0	60.0	29.0
Total Split (%)	19.3%	25.3%	0.0%	24.7%	30.7%	13.3%	10.0%	36.7%	0.0%	13.3%	40.0%	19.3%
Maximum Green (s)	23.1	32.1		31.4	40.4	14.1	8.8	49.3		14.1	54.6	23.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	22.1	32.2		26.2	36.3	49.2	67.3	58.7		76.2	65.6	87.7
Actuated g/C Ratio	0.15	0.21		0.17	0.24	0.33	0.45	0.39		0.51	0.44	0.58
v/c Ratio	0.83	0.56		0.84	0.90	0.60	0.16	0.69		0.60	0.38	0.31

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	77.4	55.6		78.7	71.2	27.9	22.2	43.2		30.9	31.4	11.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	77.4	55.6		78.7	71.2	27.9	22.2	43.2		30.9	31.4	11.6
LOS	E	E		E	E	C	C	D		C	C	B
Approach Delay		66.2			59.5			41.9			26.0	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)	194	189		223	330	150	29	398		88	211	96
Queue Length 95th (ft)	246	242		m336	#425	196	59	507		142	281	149
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	517	773		367	495	516	390	1305		294	1534	905
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.76	0.54		0.69	0.79	0.58	0.15	0.69		0.55	0.38	0.30

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 11 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 47.3

Intersection LOS: D

Intersection Capacity Utilization 80.0%

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.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street

 ø1	 ø2	 ø3	 ø4
20 s	55 s	37 s	38 s
 ø5	 ø6	 ø8	 ø7
15 s	60 s	46 s	29 s

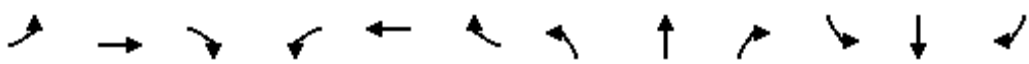
Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	240	409	6	5	421	54	8	5	7	89	11	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.998			0.983			0.951				0.850
Flt Protected	0.950			0.950				0.980			0.957	
Satd. Flow (prot)	1719	3430	0	1736	3398	0	0	1657	0	0	1732	1538
Flt Permitted	0.382			0.476				0.847			0.733	
Satd. Flow (perm)	687	3430	0	864	3398	0	0	1431	0	0	1315	1518
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		6	6		8	2		10	10		2
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	5%	5%	5%
Adj. Flow (vph)	279	476	7	5	463	59	9	5	8	93	11	380
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	483	0	5	522	0	0	22	0	0	104	380
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	20.0	46.0	0.0	26.0	26.0	0.0	29.0	29.0	0.0	29.0	29.0	20.0
Total Split (%)	26.7%	61.3%	0.0%	34.7%	34.7%	0.0%	38.7%	38.7%	0.0%	38.7%	38.7%	26.7%
Maximum Green (s)	14.9	40.9		20.8	20.8		23.3	23.3		23.2	23.2	14.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	56.9	57.9		37.7	37.7			10.7			10.7	23.3
Actuated g/C Ratio	0.76	0.77		0.50	0.50			0.14			0.14	0.31
v/c Ratio	0.39	0.18		0.01	0.31			0.11			0.56	0.80
Control Delay	4.8	1.9		13.8	13.5			27.4			40.7	33.4
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	4.8	1.9		13.8	13.5			27.4			40.7	33.4
LOS	A	A		B	B			C			D	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		2.9			13.5			27.4			35.0	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	24	17		1	73			9			46	142
Queue Length 95th (ft)	62	49		8	134			27			87	184
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	734	2647		434	1708			458			421	502
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.38	0.18		0.01	0.31			0.05			0.25	0.76

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 15.0

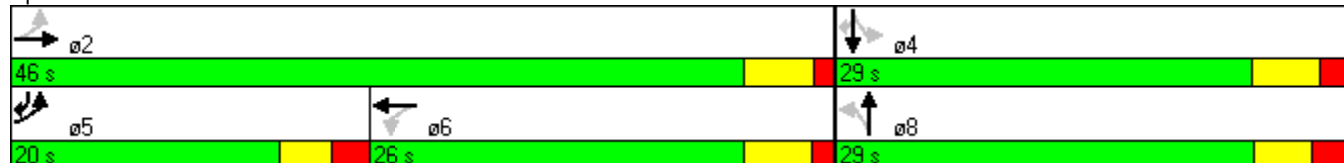
Intersection LOS: B

Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2028 With Site Phase 3 Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	77	4	2	59	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1814	0	0	1823	1770	0
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1814	0	0	1823	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Peak Hour Factor	0.79	0.79	0.71	0.71	0.46	0.46
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	97	5	3	83	4	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	86	4	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.7%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	44	9	1	35	2	9	0	2	3	2	3
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			0.992			0.979			0.951	
Flt Protected		0.996			0.999			0.959			0.982	
Satd. Flow (prot)	0	1700	0	0	1828	0	0	1749	0	0	1740	0
Flt Permitted		0.996			0.999			0.959			0.982	
Satd. Flow (perm)	0	1700	0	0	1828	0	0	1749	0	0	1740	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.83	0.83	0.83	0.67	0.67	0.67
Heavy Vehicles (%)	9%	9%	9%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	7	63	13	1	47	3	11	0	2	4	3	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	51	0	0	13	0	0	11	0
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	15.3%						ICU Level of Service A					
Analysis Period (min)	15											

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↔↔	↔↔	↔		↔↔	↔↔
Volume (vph)	0	197	1864	108	16	139	1617
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	717		659				802
Travel Time (s)	19.6		10.0				12.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	219	2071	120	18	154	1797
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	219	2071	120	0	172	1797
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	21.0	99.0	99.0	21.0	21.0	120.0
Total Split (%)	0.0%	17.5%	82.5%	82.5%	17.5%	17.5%	100.0%
Maximum Green (s)		14.0	92.0	92.0	14.0	14.0	113.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		16.0	94.0	94.0		16.0	120.0
Actuated g/C Ratio		0.13	0.78	0.78		0.13	1.00
v/c Ratio		0.59	0.75	0.10		0.38	0.51
Control Delay		56.1	7.0	2.5		46.1	0.4
Queue Delay		0.0	0.0	0.0		0.0	0.0
Total Delay		56.1	7.0	2.5		46.1	0.4
LOS		E	A	A		D	A
Approach Delay			6.8				4.4
Approach LOS			A				A
Queue Length 50th (ft)		92	262	14		64	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
 10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		138	295	23		100	0
Internal Link Dist (ft)	637		579				722
Turn Bay Length (ft)						300	
Base Capacity (vph)		372	2772	1240		458	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	34	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.59	0.76	0.10		0.38	0.51

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 57 (48%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 8.2

Intersection LOS: A

Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

 ø2	 ø1
99 s	21 s
 ø6	
120 s	

Lanes, Volumes, Timings
38: US 15-501 (Fordham Blvd) &

2028 With Site Phase 3 Noon Peak
10/18/2013



Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations				↔↔	↔↔	↔
Volume (vph)	0	0	0	1963	1231	942
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	667		536		1201	
Travel Time (s)	15.2		8.1		18.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	2181	1368	1047
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2181	1368	1047
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 72.0% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
46: NC 54 EB Off Ramp &

2028 With Site Phase 3 Noon Peak
10/18/2013

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	942	0	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			667	476	
Travel Time (s)	4.7			15.2	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1047	0	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1047	0	122
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	52.9%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	8	0	2043	0	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		74			78				1006			
Travel Time (s)		1.7			1.8				15.2			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	9	0	2270	0	7	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	9	0	2270	0	7	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	101.0	0.0	19.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	0.0%	84.2%	0.0%	15.8%	0.0%
Maximum Green (s)							7.0		94.0		12.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		116.2		9.0	
Actuated g/C Ratio							0.08		0.97		0.08	
v/c Ratio							0.07		0.66		0.05	
Control Delay							54.6		1.1		48.5	
Queue Delay							0.0		0.0		0.0	
Total Delay							54.6		1.1		48.5	
LOS							D		A		D	
Approach Delay									1.4			
Approach LOS									A			
Queue Length 50th (ft)							7		7		5	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	1786	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1031	
Travel Time (s)	15.6	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	1984	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	1984	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	106.0	0.0
Total Split (%)	88.3%	0.0%
Maximum Green (s)	99.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	116.2	
Actuated g/C Ratio	0.97	
v/c Ratio	0.58	
Control Delay	1.0	
Queue Delay	0.0	
Total Delay	1.0	
LOS	A	
Approach Delay	1.2	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m11		75		m8	
Internal Link Dist (ft)		1			1				926			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							133		3426		207	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.07		0.66		0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 74 (62%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 1.3

Intersection LOS: A

Intersection Capacity Utilization 60.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	
ø1	ø2
19 s	101 s
	
ø5	ø6
14 s	106 s



Lane Group	SBT	SBR
Queue Length 95th (ft)	107	
Internal Link Dist (ft)	951	
Turn Bay Length (ft)		
Base Capacity (vph)	3427	
Starvation Cap Reductn	12	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.58	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	128	0	2259	0	92	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		107			124				776			
Travel Time (s)		2.4			2.8				11.8			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	142	0	2510	0	102	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	142	0	2510	0	102	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0	104.0	0.0	16.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.3%	0.0%	86.7%	0.0%	13.3%	0.0%
Maximum Green (s)							15.0		97.0		9.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lead		Lag	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							15.3		99.0		11.0	
Actuated g/C Ratio							0.13		0.82		0.09	
v/c Ratio							0.63		0.86		0.63	
Control Delay							60.9		6.5		54.2	
Queue Delay							0.0		0.0		0.0	
Total Delay							60.9		6.5		54.2	
LOS							E		A		D	
Approach Delay									9.4			
Approach LOS									A			
Queue Length 50th (ft)							109		174		78	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2121	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Frt		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	706	
Travel Time (s)	10.7	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2357	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2357	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	98.0	0.0
Total Split (%)	81.7%	0.0%
Maximum Green (s)	91.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	94.7	
Actuated g/C Ratio	0.79	
v/c Ratio	0.76	
Control Delay	2.6	
Queue Delay	0.1	
Total Delay	2.7	
LOS	A	
Approach Delay	4.8	
Approach LOS	A	
Queue Length 50th (ft)	79	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m145		507		m96	
Internal Link Dist (ft)		27			44				696			
Turn Bay Length (ft)											250	
Base Capacity (vph)							251		2920		162	
Starvation Cap Reductn							0		15		0	
Spillback Cap Reductn							0		3		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.57		0.86		0.63	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 7.2

Intersection LOS: A

Intersection Capacity Utilization 76.6%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø2	 ø1
104 s	16 s
 ø5	 ø6
22 s	98 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	81	
Internal Link Dist (ft)	626	
Turn Bay Length (ft)		
Base Capacity (vph)	3086	
Starvation Cap Reductn	62	
Spillback Cap Reductn	8	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.78	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	0	0	184	30	2173	1963	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95	1.00
Frt							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	3539	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	3539	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	195				906	1201	
Travel Time (s)	5.3				13.7	18.2	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	204	33	2414	2181	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	237	2414	2181	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	30.0	30.0	120.0	90.0	0.0
Total Split (%)	0.0%	0.0%	25.0%	25.0%	100.0%	75.0%	0.0%
Maximum Green (s)			23.0	23.0	113.0	83.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				21.9	120.0	88.1	
Actuated g/C Ratio				0.18	1.00	0.73	
v/c Ratio				0.73	0.68	0.84	
Control Delay				51.4	0.4	10.4	
Queue Delay				0.0	0.0	0.0	
Total Delay				51.4	0.4	10.4	
LOS				D	A	B	
Approach Delay					4.9	10.4	
Approach LOS					A	B	
Queue Length 50th (ft)				180	0	380	
Queue Length 95th (ft)				m203	m0	427	
Internal Link Dist (ft)	115				826	1121	
Turn Bay Length (ft)							

Lanes, Volumes, Timings
 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 Noon Peak
 10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Base Capacity (vph)				369	3539	2598	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	0	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.64	0.68	0.84	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 7.4

Intersection LOS: A

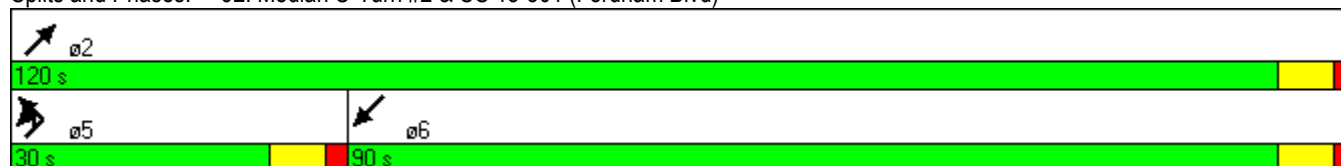
Intersection Capacity Utilization 74.5%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2028 With Site Phase 3 Noon Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1085	116	0	2101	0	942
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			218	476	
Travel Time (s)	1.4			3.3	9.3	
Peak Hour Factor	0.84	0.84	0.90	0.90	0.90	0.97
Adj. Flow (vph)	1292	138	0	2334	0	971
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1292	138	0	2334	0	971
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	95.0%			ICU Level of Service F		
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

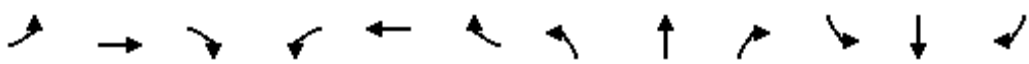
2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	139	86	316	103	63	181	1583	3	131	1373	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		0	250		0	375		0	225		0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97				0.98							
Frt		0.943			0.943						0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1690	0	3302	1718	0	1761	3522	0	1719	3550	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1657	1690	0	3302	1718	0	1761	3522	0	1719	3550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	17					17						
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	109	148	91	333	108	66	191	1666	3	139	1461	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	239	0	333	174	0	191	1669	0	139	1480	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0		35.0	35.0		25.0	80.0		15.0	68.0	
Total Split (s)	32.0	32.0	0.0	35.0	35.0	0.0	25.0	93.0	0.0	20.0	88.0	0.0
Total Split (%)	17.8%	17.8%	0.0%	19.4%	19.4%	0.0%	13.9%	51.7%	0.0%	11.1%	48.9%	0.0%
Maximum Green (s)	25.7	25.7		29.2	29.2		18.8	87.2		13.7	82.3	
Yellow Time (s)	3.0	3.0		3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3		2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	0.0	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	26.8	26.8		23.8	23.8		20.0	90.8		18.7	89.5	
Actuated g/C Ratio	0.15	0.15		0.13	0.13		0.11	0.50		0.10	0.50	
v/c Ratio	0.43	0.95		0.76	0.77		0.97	0.94		0.78	0.84	
Control Delay	75.6	119.3		86.9	96.6		101.1	35.8		104.6	45.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	75.6	119.3		86.9	96.6		101.1	35.8		104.6	45.0	
LOS	E	F		F	F		F	D		F	D	
Approach Delay		105.6			90.2			42.5			50.1	
Approach LOS		F			F			D			D	
Queue Length 50th (ft)	119	284		199	202		224	884		160	784	
Queue Length 95th (ft)	189	#468		247	284		m#273	m#1155		#321	955	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125			250			375			225		
Base Capacity (vph)	255	254		550	286		196	1776		178	1764	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.43	0.94		0.61	0.61		0.97	0.94		0.78	0.84	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 49 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 56.0

Intersection LOS: E

Intersection Capacity Utilization 89.4%

ICU Level of Service E

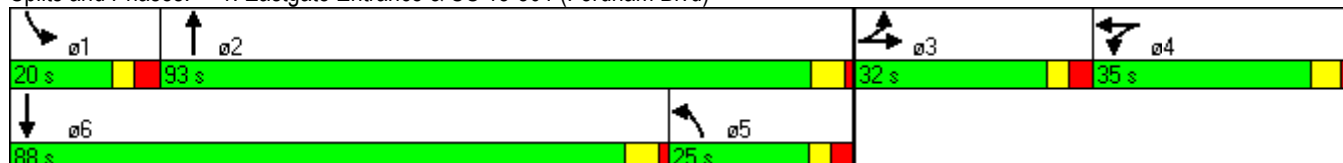
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	171	86	308	294	46	72	248	1743	304	15	31	1505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	12	12	12	12	13	12	12
Storage Length (ft)	175		275	225		125	250		0		125	
Storage Lanes	1		1	2		1	1		0		1	
Taper Length (ft)	25		25	25		25	25		25		25	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95
Ped Bike Factor							1.00					
Frt			0.850			0.850		0.978				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	1863	1531	3433	1863	1583	1770	3461	0	0	1770	3539
Flt Permitted	0.950			0.950			0.041				0.042	
Satd. Flow (perm)	1770	1863	1531	3433	1863	1583	76	3461	0	0	78	3539
Right Turn on Red			No			No			No			
Satd. Flow (RTOR)												
Link Speed (mph)		35			30			45				45
Link Distance (ft)		423			542			800				1344
Travel Time (s)		8.2			12.3			12.1				20.4
Confl. Peds. (#/hr)							3					
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	180	91	324	327	51	80	264	1854	323	16	34	1636
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	91	324	327	51	80	264	2177	0	0	50	1636
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt			pm+pt	pm+pt	
Protected Phases	7	4	5	3	8	1!	5	2		1!	1	6
Permitted Phases			4			8	2			6!	6	
Detector Phase	7	4	5	3	8	1	5	2		1	1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	19.0		14.0	14.0	19.0
Total Split (s)	28.0	17.0	37.0	25.0	14.0	14.0	37.0	124.0	0.0	14.0	14.0	101.0
Total Split (%)	15.6%	9.4%	20.6%	13.9%	7.8%	7.8%	20.6%	68.9%	0.0%	7.8%	7.8%	56.1%
Maximum Green (s)	21.0	10.0	30.0	18.0	7.0	7.0	30.0	117.0		7.0	7.0	94.0
Yellow Time (s)	5.0	5.0	5.0	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		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-0.3	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.7	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0		1.0	1.0	2.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	C-Max
Act Effct Green (s)	24.8	11.5	43.5	19.9	9.4	16.6	133.6	119.6			105.6	96.6
Actuated g/C Ratio	0.14	0.06	0.24	0.11	0.05	0.09	0.74	0.66			0.59	0.54
v/c Ratio	0.74	0.76	0.88	0.86	0.53	0.55	0.74	0.95			0.38	0.86
Control Delay	93.2	118.8	68.3	99.9	102.8	70.7	60.8	17.5			35.5	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2			0.0	0.5
Total Delay	93.2	118.8	68.3	99.9	102.8	70.7	60.8	22.7			35.5	15.5
LOS	F	F	E	F	F	E	E	C			D	B

Lane Group	SBR
Lane Configurations	
Volume (vph)	229
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Storage Length (ft)	125
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.98
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1548
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	3
Peak Hour Factor	0.92
Adj. Flow (vph)	249
Shared Lane Traffic (%)	
Lane Group Flow (vph)	249
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Detector Phase	7
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	28.0
Total Split (%)	15.6%
Maximum Green (s)	21.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	121.4
Actuated g/C Ratio	0.67
v/c Ratio	0.24
Control Delay	3.3
Queue Delay	0.0
Total Delay	3.3
LOS	A

Lanes, Volumes, Timings
2: Elliott Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Approach Delay		83.6			95.1			26.8				14.5
Approach LOS		F			F			C				B
Queue Length 50th (ft)	210	108	285	199	60	72	271	1047			12	399
Queue Length 95th (ft)	#337	#203	#417	#281	#115	122	m311	m456			m27	367
Internal Link Dist (ft)		343			462			720				1264
Turn Bay Length (ft)	175		275	225		125	250				125	
Base Capacity (vph)	248	124	370	381	97	146	357	2300			130	1899
Starvation Cap Reductn	0	0	0	0	0	0	0	105			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	55
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.73	0.73	0.88	0.86	0.53	0.55	0.74	0.99			0.38	0.89

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 28 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 34.4

Intersection LOS: C

Intersection Capacity Utilization 95.7%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 2: Elliott Road & US 15-501 (Fordham Blvd)

											
ø2	ø1	ø3	ø4	ø6	ø5	ø7	ø8				
124 s	14 s	25 s	17 s	101 s	37 s	28 s	14 s				

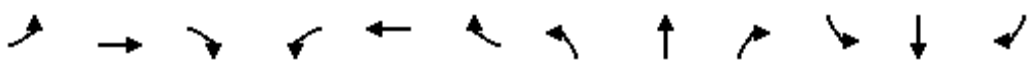


Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	32
Queue Length 95th (ft)	m31
Internal Link Dist (ft)	
Turn Bay Length (ft)	125
Base Capacity (vph)	1052
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.24
Intersection Summary	

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

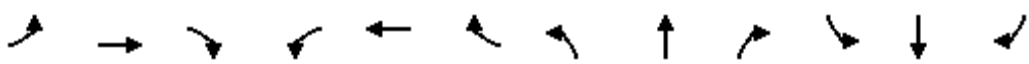
2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	206	71	35	56	67	28	54	1887	58	51	1765	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%			-1%			-1%	
Storage Length (ft)	200		0	100		0	200		0	150		500
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99				1.00				0.96
Frt		0.950			0.956			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1767	0	1744	1755	0	1778	3540	0	1778	3557	1591
Flt Permitted	0.359			0.677			0.047			0.034		
Satd. Flow (perm)	672	1767	0	1234	1755	0	88	3540	0	64	3557	1529
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		580			628			488			800	
Travel Time (s)		11.3			12.2			7.4			12.1	
Confl. Peds. (#/hr)			4	4			3		1	1		3
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	240	83	41	64	76	32	59	2074	64	54	1878	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	124	0	64	108	0	59	2138	0	54	1878	298
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0
Minimum Split (s)	15.0	33.0		14.0	14.0		15.0	19.0		15.0	19.0	19.0
Total Split (s)	20.0	48.0	0.0	28.0	28.0	0.0	15.0	117.0	0.0	15.0	117.0	117.0
Total Split (%)	11.1%	26.7%	0.0%	15.6%	15.6%	0.0%	8.3%	65.0%	0.0%	8.3%	65.0%	65.0%
Maximum Green (s)	13.7	41.6		21.6	21.6		8.9	110.9		9.4	110.9	110.9
Yellow Time (s)	3.0	3.9		3.9	3.9		3.0	4.6		3.0	4.6	4.6
All-Red Time (s)	3.3	2.5		2.5	2.5		3.1	1.5		2.6	1.5	1.5
Lost Time Adjust (s)	-1.3	-1.4	0.0	-1.5	-1.4	0.0	-1.1	-1.1	0.0	-0.6	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	4.0	4.9	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		4.0									5.0	5.0
Flash Dont Walk (s)		22.0									9.0	9.0
Pedestrian Calls (#/hr)		2									2	2
Act Effct Green (s)	38.2	38.2		17.0	16.9		127.8	120.7		126.7	118.1	118.1
Actuated g/C Ratio	0.21	0.21		0.09	0.09		0.71	0.67		0.70	0.66	0.66
v/c Ratio	0.99	0.33		0.55	0.65		0.41	0.90		0.43	0.80	0.30

Lanes, Volumes, Timings
3: Willow Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	118.8	61.9		94.1	96.5		22.1	18.6		39.5	12.8	8.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	3.4		0.0	1.0	0.0
Total Delay	118.8	61.9		94.1	96.5		22.1	22.0		39.5	13.8	8.0
LOS	F	E		F	F		C	C		D	B	A
Approach Delay	99.4			95.6			22.0			13.6		
Approach LOS	F			F			C			B		
Queue Length 50th (ft)	261	125		74	126		9	316		17	352	94
Queue Length 95th (ft)	#408	179		124	187		m14	m876		m26	628	m114
Internal Link Dist (ft)	500			548			408			720		
Turn Bay Length (ft)	200			100			200			150		500
Base Capacity (vph)	243	422		158	224		157	2374		141	2333	1003
Starvation Cap Reductn	0	0		0	0		0	0		0	217	0
Spillback Cap Reductn	0	0		0	0		0	165		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.99	0.29		0.41	0.48		0.38	0.97		0.38	0.89	0.30

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 24 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 26.5

Intersection LOS: C

Intersection Capacity Utilization 80.9%

ICU Level of Service D

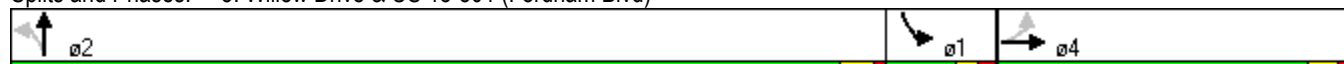
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Willow Drive & US 15-501 (Fordham Blvd)

		
117 s	15 s	48 s
117 s	15 s	20 s 28 s

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	145	16	490	8	11	21	6	628	1972	10	21	1765
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%				1%			-1%
Storage Length (ft)	0		400	0		0		400		0	100	
Storage Lanes	0		1	0		0		2		0	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.95	0.97	0.95	0.95	1.00	0.95
Ped Bike Factor		0.98			0.98							
Frt			0.850		0.930				0.999			
Flt Protected		0.957			0.990			0.950			0.950	
Satd. Flow (prot)	0	1774	2773	0	1624	0	0	3416	3518	0	1778	3557
Flt Permitted		0.957			0.990			0.950			0.950	
Satd. Flow (perm)	0	1745	2773	0	1624	0	0	3416	3518	0	1778	3557
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		35			35				45			45
Link Distance (ft)		566			126				1593			286
Travel Time (s)		35.6			10.9				24.1			4.3
Confl. Peds. (#/hr)	12					12						
Peak Hour Factor	0.92	0.92	0.92	0.75	0.75	0.75	0.98	0.98	0.98	0.98	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	158	17	533	11	15	28	6	641	2012	10	22	1820
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	175	533	0	54	0	0	647	2022	0	22	1820
Turn Type	Split		pm+ov	Split			Prot	Prot			Prot	
Protected Phases	3	3	5!	4	4		5!	5	2		1	6
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	5	2		1	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	14.0	14.0	14.0	42.0	42.0		14.0	14.0	19.0		15.0	19.0
Total Split (s)	20.0	20.0	34.0	42.0	42.0	0.0	34.0	34.0	103.0	0.0	15.0	84.0
Total Split (%)	11.1%	11.1%	18.9%	23.3%	23.3%	0.0%	18.9%	18.9%	57.2%	0.0%	8.3%	46.7%
Maximum Green (s)	13.4	13.4	27.3	35.3	35.3		27.3	27.3	96.9		8.5	77.9
Yellow Time (s)	3.8	3.8	3.0	3.2	3.2		3.0	3.0	4.4		3.0	4.6
All-Red Time (s)	2.8	2.8	3.7	3.5	3.5		3.7	3.7	1.7		3.5	1.5
Lost Time Adjust (s)	0.0	-1.6	-1.7	0.0	-1.7	0.0	0.0	-1.7	-1.1	0.0	-1.5	-1.1
Total Lost Time (s)	6.6	5.0	5.0	6.7	5.0	4.0	6.7	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	1.0	1.0	2.0	1.0	1.0		2.0	2.0	6.0		2.0	6.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	None	None	None		None	None	C-Max		None	C-Max
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				27.0	27.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013

Lane Group	SBR
Lane Configurations	
Volume (vph)	119
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1591
Flt Permitted	
Satd. Flow (perm)	1591
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.97
Heavy Vehicles (%)	2%
Adj. Flow (vph)	123
Shared Lane Traffic (%)	
Lane Group Flow (vph)	123
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Detector Phase	3
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	20.0
Total Split (%)	11.1%
Maximum Green (s)	13.4
Yellow Time (s)	3.8
All-Red Time (s)	2.8
Lost Time Adjust (s)	-1.6
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Minimum Gap (s)	1.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Lanes, Volumes, Timings
4: Estes Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Act Effect Green (s)		15.0	66.7		11.6			50.7	132.1		9.4	85.4
Actuated g/C Ratio		0.08	0.37		0.06			0.28	0.73		0.05	0.47
v/c Ratio		1.18	0.52		0.51			0.67	0.78		0.24	1.08
Control Delay		196.8	39.5		97.8			62.0	20.6		61.7	67.7
Queue Delay		0.0	0.0		0.0			0.0	0.0		0.0	0.0
Total Delay		196.8	39.5		97.8			62.0	20.6		61.7	67.7
LOS		F	D		F			E	C		E	E
Approach Delay		78.4			97.8				30.6			63.7
Approach LOS		E			F				C			E
Queue Length 50th (ft)		~247	235		63			361	872		25	~1239
Queue Length 95th (ft)		#418	271		94			429	1068		m32	#1452
Internal Link Dist (ft)		486			46				1513			206
Turn Bay Length (ft)			400					400			100	
Base Capacity (vph)		148	1028		334			963	2582		99	1687
Starvation Cap Reductn		0	0		0			0	0		0	0
Spillback Cap Reductn		0	0		0			0	0		0	0
Storage Cap Reductn		0	0		0			0	0		0	0
Reduced v/c Ratio		1.18	0.52		0.16			0.67	0.78		0.22	1.08

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 70 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 49.6

Intersection LOS: D

Intersection Capacity Utilization 113.9%

ICU Level of Service H

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.

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

! Phase conflict between lane groups.

Splits and Phases: 4: Estes Drive & US 15-501 (Fordham Blvd)

 ø2		 ø1		 ø3		 ø4	
103 s		15 s		20 s		42 s	
 ø5		 ø6					
34 s		84 s					



Lane Group	SBR
Act Effect Green (s)	105.4
Actuated g/C Ratio	0.59
v/c Ratio	0.13
Control Delay	3.9
Queue Delay	0.0
Total Delay	3.9
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	26
Queue Length 95th (ft)	m31
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	931
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.13
Intersection Summary	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	5	0	0	167	2	2460	109	208	2055	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	200		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor									0.98	1.00		
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1611	1770	3539	1583	1770	3539	1583
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1611	1770	3539	1550	1769	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1003			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	1.00	1.00	0.50	1.00	1.00	0.70	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	0	0	10	0	0	239	2	2645	117	217	2141	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	10	0	0	239	2	2645	117	217	2141	24
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	28.0	14.0	112.0	112.0	28.0	126.0	126.0
Total Split (%)	0.0%	0.0%	10.0%	0.0%	0.0%	20.0%	10.0%	80.0%	80.0%	20.0%	90.0%	90.0%
Maximum Green (s)			7.0			21.0	7.0	105.0	105.0	21.0	119.0	119.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			22.8	9.0	107.2	107.2	22.8	132.4	132.4
Actuated g/C Ratio			0.06			0.16	0.06	0.77	0.77	0.16	0.95	0.95
v/c Ratio			0.10			0.91	0.02	0.98	0.10	0.75	0.64	0.02
Control Delay			64.0			93.9	53.5	16.5	2.4	72.9	2.7	1.0
Queue Delay			0.0			0.0	0.0	4.4	0.0	0.0	0.0	0.0
Total Delay			64.0			93.9	53.5	20.9	2.4	72.9	2.7	1.0
LOS			E			F	D	C	A	E	A	A
Approach Delay								20.1			9.0	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS								C	A			
Queue Length 50th (ft)			9			216	1	521	10	191	0	0
Queue Length 95th (ft)			16			237	m1	#1401	m10	#304	303	6
Internal Link Dist (ft)	208				43			923			1513	
Turn Bay Length (ft)						150			150	200	150	
Base Capacity (vph)			104			265	114	2710	1187	291	3347	1497
Starvation Cap Reductn			0			0	0	67	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.10			0.90	0.02	1.00	0.10	0.75	0.64	0.02

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 29 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 87.9%

ICU Level of Service E

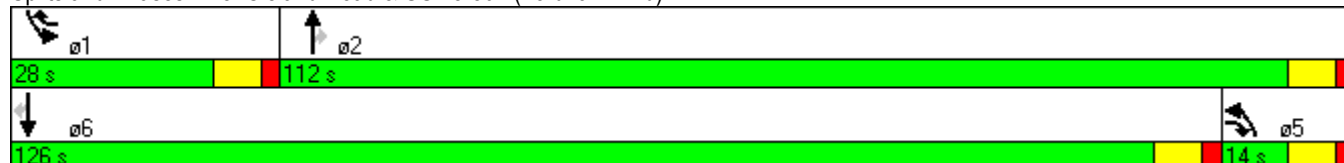
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Volume (vph)	0	0	17	0	0	58	105	12	2536	34	96	1944
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		250		150	250	
Storage Lanes	0		1	0		1		1		1	1	
Taper Length (ft)	25		25	25		25		25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95
Frt			0.865			0.865				0.850		
Flt Protected								0.950			0.950	
Satd. Flow (prot)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Flt Permitted								0.950			0.950	
Satd. Flow (perm)	0	0	1536	0	0	1611	0	1770	3539	1583	1770	3539
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			25				45			45
Link Distance (ft)		104			85				801			1035
Travel Time (s)		2.8			2.3				12.1			15.7
Peak Hour Factor	1.00	1.00	0.68	1.00	1.00	0.80	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	25	0	0	72	109	12	2642	35	100	2025
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	25	0	0	72	0	121	2642	35	100	2025
Turn Type			Over			Over	Prot	Prot		Perm	Prot	
Protected Phases			5!			1	5!	5	2		1	6
Permitted Phases										2		
Detector Phase			5			1	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	7.0	12.0	12.0	7.0	12.0
Minimum Split (s)			14.0			14.0	14.0	14.0	20.0	20.0	14.0	20.0
Total Split (s)	0.0	0.0	22.0	0.0	0.0	18.0	22.0	22.0	122.0	122.0	18.0	118.0
Total Split (%)	0.0%	0.0%	15.7%	0.0%	0.0%	12.9%	15.7%	15.7%	87.1%	87.1%	12.9%	84.3%
Maximum Green (s)			15.0			11.0	15.0	15.0	115.0	115.0	11.0	111.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max	None	C-Max
Act Effct Green (s)			17.0			12.4		17.0	117.6	117.6	12.4	113.0
Actuated g/C Ratio			0.12			0.09		0.12	0.84	0.84	0.09	0.81
v/c Ratio			0.13			0.50		0.56	0.89	0.03	0.64	0.71
Control Delay			57.0			73.2		57.8	6.6	2.0	73.0	7.2
Queue Delay			0.0			0.0		0.0	0.8	0.0	0.0	0.1
Total Delay			57.0			73.2		57.8	7.4	2.0	73.0	7.3
LOS			E			E		E	A	A	E	A
Approach Delay									9.5			10.3
Approach LOS									A			B

Lane Group	SBR
Lane Configurations	
Volume (vph)	19
Ideal Flow (vphpl)	1900
Storage Length (ft)	150
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.96
Heavy Vehicles (%)	2%
Adj. Flow (vph)	20
Shared Lane Traffic (%)	
Lane Group Flow (vph)	20
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phase	6
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	118.0
Total Split (%)	84.3%
Maximum Green (s)	111.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	113.0
Actuated g/C Ratio	0.81
v/c Ratio	0.02
Control Delay	2.7
Queue Delay	0.0
Total Delay	2.7
LOS	A
Approach Delay	
Approach LOS	

Lanes, Volumes, Timings
6: Brandon Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Queue Length 50th (ft)			21			63		105	296	4	89	363
Queue Length 95th (ft)			39			103		m116	467	m5	m138	424
Internal Link Dist (ft)		24			5				721			955
Turn Bay Length (ft)								250		150	250	
Base Capacity (vph)			187			150		215	2972	1329	164	2856
Starvation Cap Reductn			0			0		0	120	0	0	101
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.13			0.48		0.56	0.93	0.03	0.61	0.74

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 137 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 84.3%

ICU Level of Service E

Analysis Period (min) 15

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brandon Road & US 15-501 (Fordham Blvd)





Lane Group	SBR
Queue Length 50th (ft)	3
Queue Length 95th (ft)	m4
Internal Link Dist (ft)	
Turn Bay Length (ft)	150
Base Capacity (vph)	1278
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.02
Intersection Summary	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1237	0	0	559	0	1846	22	0	1845	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		2	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Flt Permitted												
Satd. Flow (perm)	0	0	2733	0	0	1580	0	3539	1583	0	3539	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	0	0	1455	0	0	665	0	2051	24	0	1922	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1455	0	0	665	0	2051	24	0	1922	118
Turn Type			custom			Free			Perm			Free
Protected Phases			4					Free			2	
Permitted Phases						Free			Free			Free
Detector Phase			4								2	
Switch Phase												
Minimum Initial (s)			7.0								12.0	
Minimum Split (s)			13.0								20.0	
Total Split (s)	0.0	0.0	67.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.0	0.0
Total Split (%)	0.0%	0.0%	47.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	52.1%	0.0%
Maximum Green (s)			61.9								67.2	
Yellow Time (s)			3.1								4.5	
All-Red Time (s)			2.0								1.3	
Lost Time Adjust (s)	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.8	0.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0								6.0	
Recall Mode			None								C-Max	
Act Effct Green (s)			62.0			140.0		140.0	140.0		68.0	140.0
Actuated g/C Ratio			0.44			1.00		1.00	1.00		0.49	1.00
v/c Ratio			1.20			0.42		0.58	0.02		1.12	0.08
Control Delay			134.6			0.8		0.6	0.0		90.1	0.1
Queue Delay			4.9			0.0		0.0	0.0		0.0	0.0
Total Delay			139.5			0.8		0.6	0.0		90.1	0.1
LOS			F			A		A	A		F	A
Approach Delay								0.6			84.9	
Approach LOS								A			F	

Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			~912			0		0	0		~1042	0
Queue Length 95th (ft)			#968			0		0	m0		#1185	0
Internal Link Dist (ft)		588			580			951			295	
Turn Bay Length (ft)			450						200			
Base Capacity (vph)			1210			1580		3539	1583		1719	1568
Starvation Cap Reductn			11			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			1.21			0.42		0.58	0.02		1.12	0.08

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 114 (81%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 60.6

Intersection LOS: E

Intersection Capacity Utilization 102.6%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

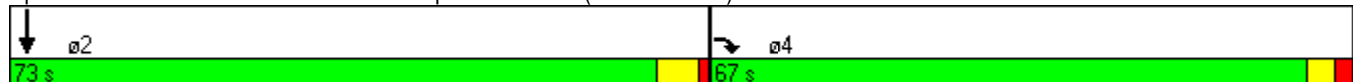
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2028 With Site Phase 3 PM Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	258	0	1609	0	0	2706	375	0	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	3505	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	287	0	1788	0	0	3007	417	0	76
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	287	0	1788	0	0	3007	417	0	76
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 85.8% ICU Level of Service E

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations									
Volume (vph)	14	151	131	1	2689	183	2725	26	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		100	
Storage Lanes	1		2			0		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	0.91	*1.00	1.00	0.95
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850		0.990			0.850	
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	5532	0	3725	1583	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	0	*3771	1583	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					748		913		
Travel Time (s)					11.3		13.8		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.39	0.86	0.59	0.59	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	36	176	222	2	2923	199	3028	29	8
Shared Lane Traffic (%)									
Lane Group Flow (vph)	36	176	224	0	3122	0	3028	37	0
Turn Type	custom	custom	custom					Perm	
Protected Phases	3	3 4	4		2		6		
Permitted Phases	3	4	4					6	
Detector Phase	3	3 4	4		2		6	6	
Switch Phase									
Minimum Initial (s)	7.0		7.0		12.0		12.0	12.0	
Minimum Split (s)	14.0		14.0		33.0		25.0	25.0	
Total Split (s)	14.0	30.0	16.0	0.0	110.0	0.0	110.0	110.0	0.0
Total Split (%)	10.0%	21.4%	11.4%	0.0%	78.6%	0.0%	78.6%	78.6%	0.0%
Maximum Green (s)	7.0		9.0		103.0		103.0	103.0	
Yellow Time (s)	5.0		5.0		5.0		5.0	5.0	
All-Red Time (s)	2.0		2.0		2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	-1.6	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	2.4	5.0	5.0	4.0
Lead/Lag	Lag		Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0		2.0		2.0		2.0	2.0	
Recall Mode	None		None		C-Max		C-Max	C-Max	
Walk Time (s)					7.0		7.0	7.0	
Flash Dont Walk (s)					16.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0	
Act Effct Green (s)	9.0	25.0	11.0		105.0		105.0	105.0	
Actuated g/C Ratio	0.06	0.18	0.08		0.75		0.75	0.75	
v/c Ratio	0.35	0.62	1.03		0.75		1.08	0.03	
Control Delay	72.3	63.8	131.2		6.7		52.5	3.7	

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		1.5		19.4	0.0	
Total Delay	72.3	63.8	131.2		8.2		71.9	3.7	
LOS	E	E	F		A		E	A	
Approach Delay					8.2		71.1		
Approach LOS					A		E		
Queue Length 50th (ft)	32	150	~123		288		~1539	5	
Queue Length 95th (ft)	30	221	107		m303		m#1464	m5	
Internal Link Dist (ft)					668		833		
Turn Bay Length (ft)								100	
Base Capacity (vph)	104	283	217		4149		2794	1187	
Starvation Cap Reductn	0	0	0		773		110	0	
Spillback Cap Reductn	0	0	0		0		0	0	
Storage Cap Reductn	0	0	0		0		0	0	
Reduced v/c Ratio	0.35	0.62	1.03		0.92		1.13	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 117 (84%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 43.3

Intersection LOS: D

Intersection Capacity Utilization 99.5%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 Ø2	 Z Ø4	 Z Ø3
110 s	16 s	14 s
 Ø6		
110 s		

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	758	0	178	16	0	26	0	2093	16	0	2411	463
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	9	12	12	12	12	12	12	12
Grade (%)		-4%			0%			-5%			0%	
Storage Length (ft)	0		225	0		75	0		0	0		0
Storage Lanes	0		1	1		1	2		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*0.70	0.91	1.00	0.95	1.00
Ped Bike Factor			0.99	0.99				1.00				
Frt			0.850			0.850		0.999				0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3502	0	1615	1770	0	1583	0	3966	0	0	3539	1583
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	*3819	0	1593	1755	0	1583	0	*3811	0	0	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		382			515			584			735	
Travel Time (s)		7.4			14.0			8.8			11.1	
Confl. Peds. (#/hr)			5	5					1	1		
Peak Hour Factor	0.85	1.00	0.85	0.84	1.00	0.84	1.00	0.96	0.96	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	892	0	209	19	0	31	0	2180	17	0	2511	482
Shared Lane Traffic (%)												
Lane Group Flow (vph)	892	0	209	19	0	31	0	2197	0	0	2511	482
Turn Type	Prot		Free	Prot		Free						Free
Protected Phases	3			3				2			6	
Permitted Phases			Free			Free						Free
Detector Phase	3			3				2			6	
Switch Phase												
Minimum Initial (s)	7.0			7.0				12.0			12.0	
Minimum Split (s)	32.0			32.0				19.0			19.0	
Total Split (s)	39.0	0.0	0.0	39.0	0.0	0.0	0.0	101.0	0.0	0.0	101.0	0.0
Total Split (%)	27.9%	0.0%	0.0%	27.9%	0.0%	0.0%	0.0%	72.1%	0.0%	0.0%	72.1%	0.0%
Maximum Green (s)	32.0			32.0				94.0			94.0	
Yellow Time (s)	5.0			5.0				5.0			5.0	
All-Red Time (s)	2.0			2.0				2.0			2.0	
Lost Time Adjust (s)	-2.0	-1.2	0.0	-2.0	-1.2	0.0	-1.2	-2.0	0.0	-1.2	-2.0	0.0
Total Lost Time (s)	5.0	2.8	4.0	5.0	2.8	4.0	2.8	5.0	4.0	2.8	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0				6.0			6.0	
Recall Mode	None			None				C-Max			C-Max	
Walk Time (s)	7.0			7.0								
Flash Dont Walk (s)	18.0			18.0								
Pedestrian Calls (#/hr)	0			0								
Act Effct Green (s)	34.0		140.0	34.0		140.0		96.0			96.0	140.0
Actuated g/C Ratio	0.24		1.00	0.24		1.00		0.69			0.69	1.00

Lanes, Volumes, Timings
10: Manning Drive & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
v/c Ratio	1.05		0.13	0.04		0.02		0.81			1.03	0.30
Control Delay	95.1		0.2	41.1		0.0		18.6			36.4	0.2
Queue Delay	0.9		0.0	0.0		0.0		0.2			29.7	0.0
Total Delay	96.0		0.2	41.1		0.0		18.8			66.2	0.2
LOS	F		A	D		A		B			E	A
Approach Delay								18.8			55.5	
Approach LOS								B			E	
Queue Length 50th (ft)	~454		0	13		0		619			~1284	0
Queue Length 95th (ft)	#530		0	33		0		709			#1412	m0
Internal Link Dist (ft)		302			435			504			655	
Turn Bay Length (ft)			225			75						
Base Capacity (vph)	850		1593	430		1583		2720			2427	1583
Starvation Cap Reductn	0		0	0		0		0			158	0
Spillback Cap Reductn	2		0	0		0		75			0	0
Storage Cap Reductn	0		0	0		0		0			0	0
Reduced v/c Ratio	1.05		0.13	0.04		0.02		0.83			1.11	0.30

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 1 (1%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 46.3

Intersection LOS: D

Intersection Capacity Utilization 96.6%

ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ 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.

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

Splits and Phases: 10: Manning Drive & US 15-501 (Fordham Blvd)

	ø2			ø3
101 s			39 s	
	ø6			
101 s				

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	589	42	239	418	578	24	174	298	596	162	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	12	12	14	12	15	12	11	16	12
Storage Length (ft)	100		0	150		0	0		100	175		0
Storage Lanes	1		0	1		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.97	1.00				0.93		1.00	0.98		0.99	
Frt		0.990				0.850			0.850		0.988	
Flt Protected	0.950			0.950				0.994		0.950	0.975	
Satd. Flow (prot)	1662	3390	0	1770	1863	1689	0	2037	1583	1625	1921	0
Flt Permitted	0.503			0.117				0.994		0.950	0.975	
Satd. Flow (perm)	849	3390	0	218	1863	1575	0	2028	1559	1625	1921	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		362			1042			215			421	
Travel Time (s)		9.9			28.4			4.2			14.7	
Confl. Peds. (#/hr)	22		12	12		22	49					49
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	48	685	49	257	449	622	28	200	343	641	174	33
Shared Lane Traffic (%)										34%		
Lane Group Flow (vph)	48	734	0	257	449	622	0	228	343	423	425	0
Turn Type	Perm			pm+pt		pm+ov	Split		pm+ov	Split		
Protected Phases		2		1	6	4	8	8	1	4	4	
Permitted Phases	2			6		6		8	8			
Detector Phase	2	2		1	6	4	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0	10.0	10.0	10.0	7.0	10.0	10.0	
Minimum Split (s)	33.0	33.0		14.0	30.0	37.0	17.0	17.0	14.0	37.0	37.0	
Total Split (s)	34.0	34.0	0.0	24.0	58.0	45.0	27.0	27.0	24.0	45.0	45.0	0.0
Total Split (%)	26.2%	26.2%	0.0%	18.5%	44.6%	34.6%	20.8%	20.8%	18.5%	34.6%	34.6%	0.0%
Maximum Green (s)	26.7	26.7		17.2	50.7	38.3	20.3	20.3	17.2	38.3	38.3	
Yellow Time (s)	4.5	4.5		4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	
Lost Time Adjust (s)	-2.3	-2.3	0.0	-1.8	-2.3	-1.7	-2.7	-1.7	-1.8	-1.7	-1.7	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max	None	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0			7.0	7.0				7.0	7.0	
Flash Dont Walk (s)	18.0	18.0			15.0	23.0				23.0	23.0	
Pedestrian Calls (#/hr)	0	0			0	0				0	0	
Act Effect Green (s)	29.8	29.8		53.0	53.0	91.7		23.3	41.5	38.7	38.7	
Actuated g/C Ratio	0.23	0.23		0.41	0.41	0.71		0.18	0.32	0.30	0.30	

Lanes, Volumes, Timings
11: South Road & Country Club Road

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.25	0.95		0.84	0.59	0.54		0.62	0.68	0.87	0.74	
Control Delay	45.7	71.0		56.1	34.0	9.1		58.3	43.6	63.0	50.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	45.7	71.0		56.1	34.0	9.1		58.3	43.6	63.0	50.0	
LOS	D	E		E	C	A		E	D	E	D	
Approach Delay		69.4			26.6			49.5			56.5	
Approach LOS		E			C			D			E	
Queue Length 50th (ft)	34	325		159	292	178		182	237	351	334	
Queue Length 95th (ft)	69	#418		#297	404	246		261	328	#536	465	
Internal Link Dist (ft)		282			962			135			341	
Turn Bay Length (ft)	100			150					100	175		
Base Capacity (vph)	194	776		316	760	1162		366	511	500	591	
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	
Reduced v/c Ratio	0.25	0.95		0.81	0.59	0.54		0.62	0.67	0.85	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 8:NBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 47.0

Intersection LOS: D

Intersection Capacity Utilization 85.6%

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: 11: South Road & Country Club Road

 ø1	 ø2	 ø4	 ø8
24 s	34 s	45 s	27 s
 ø6			
58 s			

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗			↗
Volume (vph)	0	1636	70	0	1130	1237	0	0	375	0	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		275	0		0	0		0	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	0	1611	0	0	1611
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		468			434			598			668	
Travel Time (s)		7.1			6.6			13.6			15.2	
Peak Hour Factor	1.00	0.92	0.92	1.00	0.92	0.92	1.00	1.00	0.92	1.00	1.00	0.92
Adj. Flow (vph)	0	1778	76	0	1228	1345	0	0	408	0	0	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1778	76	0	1228	1345	0	0	408	0	0	123
Turn Type			Free			Free			custom			Free
Protected Phases		2			6 8				8			
Permitted Phases			Free			Free			8			Free
Detector Phase		2			6 8				8			
Switch Phase												
Minimum Initial (s)		12.0							7.0			
Minimum Split (s)		20.0							20.0			
Total Split (s)	0.0	113.0	0.0	0.0	180.0	0.0	0.0	0.0	67.0	0.0	0.0	0.0
Total Split (%)	0.0%	62.8%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	37.2%	0.0%	0.0%	0.0%
Maximum Green (s)		106.0							60.0			
Yellow Time (s)		5.0							5.0			
All-Red Time (s)		2.0							2.0			
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	4.0	4.0	7.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0			
Recall Mode		C-Max							None			
Act Effct Green (s)		113.3	180.0		180.0	180.0			56.7			180.0
Actuated g/C Ratio		0.63	1.00		1.00	1.00			0.32			1.00
v/c Ratio		0.80	0.05		0.35	0.85			0.80			0.08
Control Delay		29.3	0.1		0.1	16.5			69.0			0.1
Queue Delay		0.0	0.0		0.0	0.0			0.0			0.0
Total Delay		29.3	0.1		0.1	16.5			69.0			0.1
LOS		C	A		A	B			E			A
Approach Delay		28.1			8.7							
Approach LOS		C			A							
Queue Length 50th (ft)		836	0		0	502			433			0

Lane Group	ø6
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	12.0
Minimum Split (s)	20.0
Total Split (s)	113.0
Total Split (%)	63%
Maximum Green (s)	106.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	C-Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

Lanes, Volumes, Timings
12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		966	0		m0	m441			566			0
Internal Link Dist (ft)		388			354			518			588	
Turn Bay Length (ft)			275									
Base Capacity (vph)		2228	1583		3519	1583			555			1611
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		0.80	0.05		0.35	0.85			0.74			0.08

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 173 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 20.7

Intersection LOS: C

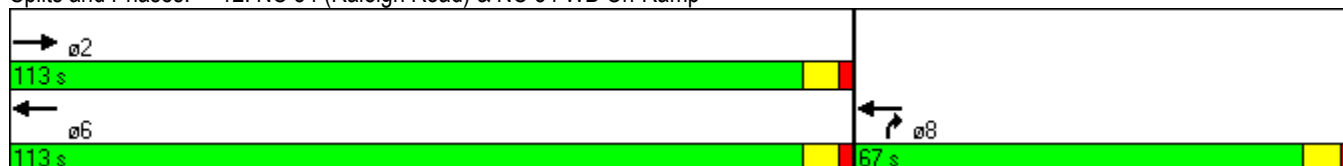
Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 12: NC 54 (Raleigh Road) & NC 54 WB On-Ramp

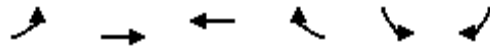


Lane Group	ø6
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
13: NC 54 (Raleigh Road) & NC 54 WB Off Ramp

2028 With Site Phase 3 PM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	1993	2345	559	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		434	94		660	
Travel Time (s)		6.6	1.4		18.0	
Peak Hour Factor	1.00	0.90	0.86	0.86	1.00	0.85
Adj. Flow (vph)	0	2214	2727	650	0	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2214	2727	650	0	26
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 55.3%

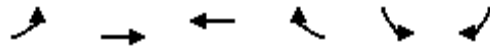
ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
15: NC 54 (Raleigh Road) & Glen Lennox Dr #2

2028 With Site Phase 3 PM Peak

10/18/2013



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑
Volume (vph)	0	2869	2975	62	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	1583	0	1611
Link Speed (mph)		45	45		25	
Link Distance (ft)		224	547		229	
Travel Time (s)		3.4	8.3		6.2	
Peak Hour Factor	1.00	0.94	0.91	0.91	1.00	0.67
Adj. Flow (vph)	0	3052	3269	68	0	113
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3052	3269	68	0	113
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 68.9% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	31	183	2397	77	113	2290	248	186	29	122	401	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		0	250		150	150		150	350	
Storage Lanes		2		0	1		1	1		1	2	
Taper Length (ft)		25		25	25		25	25		25	25	
Lane Util. Factor	0.91	0.97	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor		1.00	1.00		1.00		0.97	0.99		0.95	0.96	
Frt			0.995				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3433	5049	0	1770	5085	1583	1770	1863	1583	3433	1863
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3430	5049	0	1767	5085	1535	1747	1863	1503	3305	1863
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			25			25
Link Distance (ft)			547			576			537			612
Travel Time (s)			8.3			8.7			14.6			16.7
Confl. Peds. (#/hr)		7		11	11		7	8		25	25	
Peak Hour Factor	0.92	0.94	0.94	0.94	0.89	0.89	0.89	0.65	0.65	0.65	0.89	0.89
Adj. Flow (vph)	34	195	2550	82	127	2573	279	286	45	188	451	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	229	2632	0	127	2573	279	286	45	188	451	30
Turn Type	Prot	Prot			Prot		pm+ov	Prot		pm+ov	Prot	
Protected Phases	5!	5	2		1	6	7	3	8	1	7	4
Permitted Phases							6			8		
Detector Phase	5	5	2		1	6	7	3	8	1	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	14.0	27.0		13.0	26.0	14.0	14.0	41.0	13.0	14.0	39.0
Total Split (s)	18.0	18.0	93.0	0.0	17.0	92.0	29.0	31.0	41.0	17.0	29.0	39.0
Total Split (%)	10.0%	10.0%	51.7%	0.0%	9.4%	51.1%	16.1%	17.2%	22.8%	9.4%	16.1%	21.7%
Maximum Green (s)	11.0	11.0	87.4		11.6	86.1	22.0	24.0	34.6	11.6	22.0	32.5
Yellow Time (s)	5.0	5.0	3.8		3.0	4.1	5.0	5.0	3.1	3.0	5.0	3.2
All-Red Time (s)	2.0	2.0	1.8		2.4	1.8	2.0	2.0	3.3	2.4	2.0	3.3
Lost Time Adjust (s)	0.0	-2.0	-0.6	0.0	-0.4	-0.9	-2.0	-2.0	-1.4	-0.4	-2.0	-1.5
Total Lost Time (s)	7.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	2.0		2.0	2.0	3.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Walk Time (s)			7.0			7.0			7.0			7.0
Flash Dont Walk (s)			12.0			13.0			27.0			25.0
Pedestrian Calls (#/hr)			0			0			0			0
Act Effct Green (s)		39.8	114.8		12.0	87.0	111.4	26.0	11.5	21.8	24.4	9.9
Actuated g/C Ratio		0.22	0.64		0.07	0.48	0.62	0.14	0.06	0.12	0.14	0.06
v/c Ratio		0.30	0.82		1.08	1.05	0.29	1.12	0.38	1.00	0.97	0.29
Control Delay		67.0	20.5		135.2	49.8	8.7	157.5	89.2	127.8	110.3	88.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	355
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Ped Bike Factor	0.97
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1543
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	8
Peak Hour Factor	0.89
Adj. Flow (vph)	399
Shared Lane Traffic (%)	
Lane Group Flow (vph)	399
Turn Type	pm+ov
Protected Phases	5!
Permitted Phases	4
Detector Phase	5
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	14.0
Total Split (s)	18.0
Total Split (%)	10.0%
Maximum Green (s)	11.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-1.5
Total Lost Time (s)	5.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	47.1
Actuated g/C Ratio	0.26
v/c Ratio	0.97
Control Delay	100.3
Queue Delay	0.0

Lanes, Volumes, Timings
16: NC 54 (Raleigh Road) & Hamilton Road

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay		67.0	20.5		135.2	49.8	8.7	157.5	89.2	127.8	110.3	88.4
LOS		E	C		F	D	A	F	F	F	F	F
Approach Delay			24.2			49.6			140.8			105.0
Approach LOS			C			D			F			F
Queue Length 50th (ft)		118	706		~165	~1192	137	~387	52	173	278	35
Queue Length 95th (ft)		m160	753		m#216	#1236	m110	#340	70	168	#392	72
Internal Link Dist (ft)			467			496			457			532
Turn Bay Length (ft)		300			250		150	150		150	350	
Base Capacity (vph)		759	3220		118	2458	957	256	373	188	466	352
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.30	0.82		1.08	1.05	0.29	1.12	0.12	1.00	0.97	0.09

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 38 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 52.8

Intersection LOS: D

Intersection Capacity Utilization 100.6%

ICU Level of Service G

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.

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

! Phase conflict between lane groups.

Splits and Phases: 16: NC 54 (Raleigh Road) & Hamilton Road

	ø2				ø1			ø3			ø4
93 s				17 s			31 s			39 s	
	ø5		ø6				ø7			ø8	
18 s		92 s				29 s			41 s		

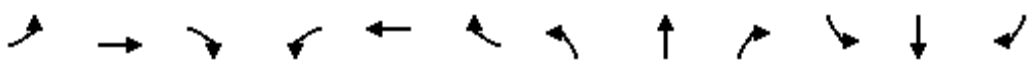


Lane Group	SBR
Total Delay	100.3
LOS	F
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	454
Queue Length 95th (ft)	#697
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	413
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.97
Intersection Summary	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 With Site Phase 3 PM Peak

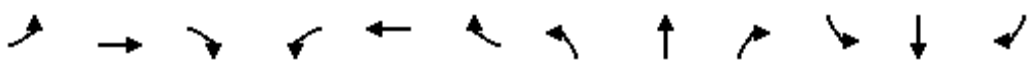
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	2905	33	179	2622	58	33	15	206	31	38	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		0	0		450	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.998			0.997				0.850		0.942	
Flt Protected	0.950			0.950				0.967			0.987	
Satd. Flow (prot)	1770	5070	0	1770	5062	0	0	1801	1583	0	1714	0
Flt Permitted	0.032			0.037				0.659			0.908	
Satd. Flow (perm)	60	5070	0	69	5062	0	0	1220	1583	0	1577	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1026			847			548			457	
Travel Time (s)		20.0			16.5			10.7			12.5	
Confl. Peds. (#/hr)	14		18	18		14	9					9
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.86	0.86	0.86	0.83	0.83	0.83
Adj. Flow (vph)	87	3058	35	201	2946	65	38	17	240	37	46	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	3093	0	201	3011	0	0	55	240	0	146	0
Turn Type	D.P+P			D.P+P			Perm		Perm	Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	1	6		5	2		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.0	30.0		13.0	32.0		48.0	48.0	48.0	46.0	46.0	
Total Split (s)	13.0	112.0	0.0	20.0	119.0	0.0	48.0	48.0	48.0	48.0	48.0	0.0
Total Split (%)	7.2%	62.2%	0.0%	11.1%	66.1%	0.0%	26.7%	26.7%	26.7%	26.7%	26.7%	0.0%
Maximum Green (s)	7.1	105.8		14.1	112.8		41.8	41.8	41.8	41.7	41.7	
Yellow Time (s)	3.0	4.9		3.0	4.9		3.7	3.7	3.7	3.2	3.2	
All-Red Time (s)	2.9	1.3		2.9	1.3		2.5	2.5	2.5	3.1	3.1	
Lost Time Adjust (s)	-0.9	-1.2	-1.0	-0.9	-1.2	-1.0	-3.0	-1.2	-1.2	-3.0	-1.3	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	3.0	3.2	5.0	5.0	3.3	5.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes			Yes								
Vehicle Extension (s)	2.0	6.0		2.0	6.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		16.0			18.0		34.0	34.0	34.0	32.0	32.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	132.1	109.5		132.1	124.1			32.9	32.9		32.9	
Actuated g/C Ratio	0.73	0.61		0.73	0.69			0.18	0.18		0.18	
v/c Ratio	0.72	1.00		0.76	0.86			0.25	0.83		0.51	
Control Delay	56.2	34.7		65.8	21.5			63.3	93.3		71.2	
Queue Delay	0.0	0.2		0.0	0.1			0.0	0.0		0.0	

Lanes, Volumes, Timings
18: NC 54 (Raleigh Road) & Burning Tree Drive

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	56.2	34.9		65.8	21.6			63.3	93.3		71.2	
LOS	E	C		E	C			E	F		E	
Approach Delay		35.5			24.4			87.7			71.2	
Approach LOS		D			C			F			E	
Queue Length 50th (ft)	52	~1430		196	582			56	277		158	
Queue Length 95th (ft)	m73	m#1458		m#293	m651			94	343		203	
Internal Link Dist (ft)		946			767			468			377	
Turn Bay Length (ft)	250			275					450			
Base Capacity (vph)	120	3083		265	3490			291	378		377	
Starvation Cap Reductn	0	0		0	50			0	0		0	
Spillback Cap Reductn	0	2		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.72	1.00		0.76	0.88			0.19	0.63		0.39	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 8 (4%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 33.3

Intersection LOS: C

Intersection Capacity Utilization 98.1%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

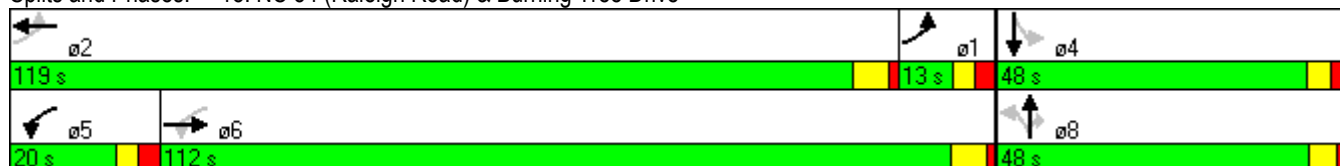
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 18: NC 54 (Raleigh Road) & Burning Tree Drive



Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	221	2851	44	13	2512	28	126	13	123	17	0	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		150	375		100	0		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.89			0.96						
Frt			0.850			0.850		0.864			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1741	5085	1583	1770	5085	1583	1770	1609	0	1770	1583	0
Flt Permitted	0.037			0.033			0.331			0.499		
Satd. Flow (perm)	68	5085	1405	61	5085	1528	617	1609	0	930	1583	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		847			1937			451			535	
Travel Time (s)		12.8			29.3			12.3			14.6	
Confl. Peds. (#/hr)	15		22	22		15						
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.80	0.80	0.80	0.93	0.93	0.93
Bus Blockages (#/hr)	4	0	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	228	2939	45	14	2644	29	158	16	154	18	0	259
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	2939	45	14	2644	29	158	170	0	18	259	0
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	44.0	44.0	16.0	44.0	44.0	18.0	18.0		18.0	18.0	
Total Split (s)	21.0	118.0	118.0	16.0	93.0	93.0	46.0	46.0	0.0	46.0	46.0	0.0
Total Split (%)	11.7%	65.6%	65.6%	8.9%	51.7%	51.7%	25.6%	25.6%	0.0%	25.6%	25.6%	0.0%
Maximum Green (s)	14.7	111.7	111.7	9.7	86.7	86.7	39.2	39.2		38.7	38.7	
Yellow Time (s)	3.0	4.7	4.7	3.0	4.7	4.7	3.0	3.0		3.5	3.5	
All-Red Time (s)	3.3	1.6	1.6	3.3	1.6	1.6	3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.8	-1.8	0.0	-2.3	-2.3	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	6.0	1.0	6.0	6.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min		Min	Min	
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		14.0	14.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	124.0	123.7	123.7	127.0	108.0	108.0	41.0	41.0		41.0	41.0	
Actuated g/C Ratio	0.69	0.69	0.69	0.71	0.60	0.60	0.23	0.23		0.23	0.23	
v/c Ratio	1.16	0.84	0.05	0.11	0.87	0.03	1.12	0.46		0.08	0.72	
Control Delay	156.7	4.4	3.3	3.7	8.3	5.1	171.3	64.9		56.3	76.6	

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	11%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lanes, Volumes, Timings
19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.6	0.0	0.0	0.2	0.0	0.0	0.0		0.0	0.0	
Total Delay	156.7	5.1	3.3	3.7	8.6	5.1	171.3	64.9		56.3	76.6	
LOS	F	A	A	A	A	A	F	E		E	E	
Approach Delay		15.8			8.5			116.1			75.3	
Approach LOS		B			A			F			E	
Queue Length 50th (ft)	~275	112	5	2	175	4	~215	176		17	286	
Queue Length 95th (ft)	m#287	m111	m5	m2	180	m5	#317	227		43	399	
Internal Link Dist (ft)		767			1857			371			455	
Turn Bay Length (ft)	350		150	375		100						
Base Capacity (vph)	196	3494	965	148	3051	917	141	366		212	361	
Starvation Cap Reductn	0	230	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	63	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.16	0.90	0.05	0.09	0.88	0.03	1.12	0.46		0.08	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 40 (22%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 20.4

Intersection LOS: C

Intersection Capacity Utilization 99.5%

ICU Level of Service F

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.

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

Splits and Phases: 19: NC 54 (Raleigh Road) & W. Barbee Chapel Road

 ø1	 ø2	 ø4
16 s	118 s	46 s
 ø5	 ø10	 ø6
21 s	20 s	93 s
		 ø8
		46 s

Lane Group	ø10
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	2738	107	58	2208	110	147	21	379	186	11	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			1%			2%			-3%	
Storage Length (ft)	300		200	300		200	0		450	250		0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.91	0.95	0.97	1.00	1.00
Ped Bike Factor	1.00		0.94	1.00		0.98	0.99	1.00				
Frt			0.850			0.850		0.876	0.850			0.850
Flt Protected	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (prot)	3467	5136	1599	3416	5060	1575	1648	1451	1475	3485	1891	1607
Flt Permitted	0.950			0.950			0.950	0.997		0.950		
Satd. Flow (perm)	3466	5136	1504	3411	5060	1546	1639	1451	1475	3485	1891	1607
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1937			1009			522			626	
Travel Time (s)		29.3			15.3			14.2			17.1	
Confl. Peds. (#/hr)	4		25	25		4	4					4
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	166	2882	113	64	2426	121	173	25	446	216	13	230
Shared Lane Traffic (%)							10%		46%			
Lane Group Flow (vph)	166	2882	113	64	2426	121	156	247	241	216	13	230
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pt+ov	Split		pt+ov
Protected Phases	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Permitted Phases			2			6						
Detector Phase	5	2	4	1	6	3	4	4	4 1	3	3	3 5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	42.0	18.0	16.0	42.0	18.0	18.0	18.0		18.0	18.0	
Total Split (s)	16.0	102.0	44.0	16.0	102.0	18.0	44.0	44.0	60.0	18.0	18.0	34.0
Total Split (%)	8.9%	56.7%	24.4%	8.9%	56.7%	10.0%	24.4%	24.4%	33.3%	10.0%	10.0%	18.9%
Maximum Green (s)	8.8	95.4	36.9	8.9	95.5	10.7	36.9	36.9		10.7	10.7	
Yellow Time (s)	3.2	4.6	3.7	3.1	4.4	4.0	3.7	3.7		4.0	4.0	
All-Red Time (s)	4.0	2.0	3.4	4.0	2.1	3.3	3.4	3.4		3.3	3.3	
Lost Time Adjust (s)	-2.2	-1.6	-2.1	-2.1	-1.5	-2.3	-2.1	-2.1	-2.1	-2.3	-2.3	-2.3
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	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	6.0	1.0	1.0	6.0	1.0	1.0	1.0		1.0	1.0	
Recall Mode	None	C-Max	Min	None	C-Max	Min	Min	Min		Min	Min	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		21.0			25.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	15.2	101.2	136.0	11.0	97.0	110.0	34.8	34.8	45.8	13.0	13.0	28.2
Actuated g/C Ratio	0.08	0.56	0.76	0.06	0.54	0.61	0.19	0.19	0.25	0.07	0.07	0.16
v/c Ratio	0.56	1.00	0.10	0.31	0.89	0.13	0.49	0.88	0.64	0.86	0.09	0.91

Lanes, Volumes, Timings
20: NC 54 (Raleigh Road) & Meadowmont Lane

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	74.9	57.3	7.2	69.3	27.4	5.5	69.4	100.4	59.2	111.0	79.8	88.2
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	57.3	7.2	69.3	27.6	5.5	69.4	100.4	59.2	111.0	79.8	88.2
LOS	E	E	A	E	C	A	E	F	E	F	E	F
Approach Delay	56.5			27.6			77.4			98.7		
Approach LOS	E			C			E			F		
Queue Length 50th (ft)	104	~1310	42	38	956	26	171	309	215	132	15	~193
Queue Length 95th (ft)	m126	#1389	m53	m57	434	m38	238	404	281	#193	39	#333
Internal Link Dist (ft)	1857			929			442			546		
Turn Bay Length (ft)	300		200	300		200			450	250		
Base Capacity (vph)	294	2889	1176	209	2727	947	357	314	410	252	137	252
Starvation Cap Reductn	0	0	0	0	25	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	0.56	1.00	0.10	0.31	0.90	0.13	0.44	0.79	0.59	0.86	0.09	0.91

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 3 (2%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 50.3

Intersection LOS: D

Intersection Capacity Utilization 90.7%

ICU Level of Service E

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.

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

Splits and Phases: 20: NC 54 (Raleigh Road) & Meadowmont Lane

											
102 s			16 s			18 s			44 s		
											
16 s			102 s								

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	7	2536	774	173	2088	208	296	71	46	134	94	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	300		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.80	1.00	1.00	0.91	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor			0.95			0.98						
Frt			0.850			0.850		0.967			0.985	
Flt Protected	0.950			0.950			0.950	0.979		0.950	0.994	
Satd. Flow (prot)	1761	4448	1575	1778	5111	1591	1673	1667	0	1664	1715	0
Flt Permitted	0.041			0.041			0.950	0.979		0.950	0.994	
Satd. Flow (perm)	76	4448	1500	77	5111	1553	1673	1667	0	1664	1715	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			500			753	
Travel Time (s)		15.3			6.3			7.6			14.7	
Confl. Peds. (#/hr)	1		6	6		1						
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	7	2642	806	184	2221	221	329	79	51	152	107	14
Shared Lane Traffic (%)							30%			11%		
Lane Group Flow (vph)	7	2642	806	184	2221	221	230	229	0	135	138	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	108.0	34.0	18.0	110.0	20.0	34.0	34.0	0.0	20.0	20.0	0.0
Total Split (%)	8.9%	60.0%	18.9%	10.0%	61.1%	11.1%	18.9%	18.9%	0.0%	11.1%	11.1%	0.0%
Maximum Green (s)	9.2	100.5	26.8	11.0	102.5	12.8	26.8	26.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	120.0	103.0	132.0	116.0	118.2	133.2	29.0	29.0		15.0	15.0	
Actuated g/C Ratio	0.67	0.57	0.73	0.64	0.66	0.74	0.16	0.16		0.08	0.08	
v/c Ratio	0.05	1.04	0.72	1.07	0.66	0.19	0.85	0.85		0.97	0.97	
Control Delay	5.0	42.4	5.9	148.5	20.5	6.6	100.2	100.2		148.0	145.5	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	7.2	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.0	49.6	6.0	148.5	20.5	6.6	100.2	100.2		148.0	145.5	
LOS	A	D	A	F	C	A	F	F		F	F	
Approach Delay		39.3			28.3			100.2			146.7	
Approach LOS		D			C			F			F	
Queue Length 50th (ft)	1	~1381	170	~184	529	59	283	281		170	174	
Queue Length 95th (ft)	m1	m#1400	m157	#362	716	119	#446	#442		#321	#323	
Internal Link Dist (ft)		929			334			420			673	
Turn Bay Length (ft)	275		300	350		125	300					
Base Capacity (vph)	154	2545	1112	172	3358	1153	270	269		139	143	
Starvation Cap Reductn	0	44	23	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	57	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	1.06	0.74	1.07	0.67	0.19	0.85	0.85		0.97	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 6 (3%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 43.5

Intersection LOS: D

Intersection Capacity Utilization 89.2%

ICU Level of Service E

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ 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.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2			 ø1			 ø3			 ø4		
108 s			18 s			20 s			34 s		
 ø5			 ø6								
16 s			110 s								

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

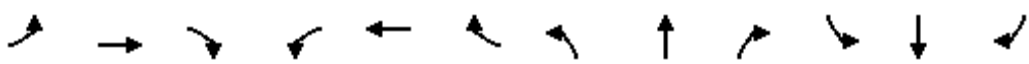
2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	411	406	67	248	495	259	86	934	216	133	756	466
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	0		0	0		200
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	1.00		0.99		0.98		0.99				0.92
Frt		0.979				0.850		0.972				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3453	0	1770	1863	1583	1770	3421	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.214			0.073		
Satd. Flow (perm)	3409	3453	0	1758	1863	1551	399	3421	0	136	3539	1457
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		798			732			599			679	
Travel Time (s)		15.5			14.3			11.7			13.2	
Confl. Peds. (#/hr)	5		9	9		5	14		13	13		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	424	419	69	256	510	267	92	1004	232	141	804	496
Shared Lane Traffic (%)												
Lane Group Flow (vph)	424	488	0	256	510	267	92	1236	0	141	804	496
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	15.0	35.0		15.0	31.0	15.0	15.0	37.0		15.0	24.0	15.0
Total Split (s)	23.0	37.0	0.0	30.0	44.0	15.0	15.0	58.0	0.0	15.0	58.0	23.0
Total Split (%)	16.4%	26.4%	0.0%	21.4%	31.4%	10.7%	10.7%	41.4%	0.0%	10.7%	41.4%	16.4%
Maximum Green (s)	17.1	31.1		24.4	38.4	9.1	8.8	52.3		9.1	52.6	17.1
Yellow Time (s)	3.0	3.9		3.0	3.6	3.0	3.0	3.7		3.0	3.9	3.0
All-Red Time (s)	2.9	2.0		2.6	2.0	2.9	3.2	2.0		2.9	1.5	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.0	-0.6	-0.6	-0.9	-1.2	-0.7	0.0	-0.9	-0.4	-0.9
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	1.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		22.0			18.0			24.0			9.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	18.0	33.9		23.1	39.0	48.8	62.2	53.2		63.8	54.0	72.0
Actuated g/C Ratio	0.13	0.24		0.16	0.28	0.35	0.44	0.38		0.46	0.39	0.51
v/c Ratio	0.96	0.58		0.88	0.98	0.49	0.35	0.95		0.80	0.59	0.65
Control Delay	94.4	50.6		84.6	80.3	24.4	23.5	57.9		60.8	36.4	21.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0

Lanes, Volumes, Timings
22: Estes Drive & E. Franklin Street

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	94.4	50.6		84.6	80.3	24.4	23.5	57.9		60.8	36.4	21.9
LOS	F	D		F	F	C	C	E		E	D	C
Approach Delay		71.0			66.9			55.5			33.8	
Approach LOS		E			E			E			C	
Queue Length 50th (ft)	201	211		233	394	128	45	573		76	302	216
Queue Length 95th (ft)	#307	273		m#339	#701	m194	78	#724		#191	377	300
Internal Link Dist (ft)		718			652			519			599	
Turn Bay Length (ft)	250											200
Base Capacity (vph)	441	836		316	519	545	278	1300		179	1366	766
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.96	0.58		0.81	0.98	0.49	0.33	0.95		0.79	0.59	0.65

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 96 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 54.4

Intersection LOS: D

Intersection Capacity Utilization 94.8%

ICU Level of Service F

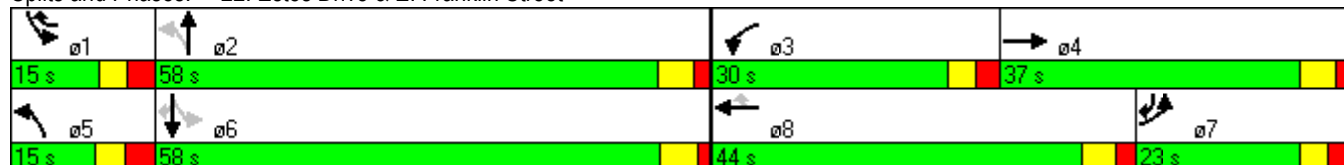
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: Estes Drive & E. Franklin Street



Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

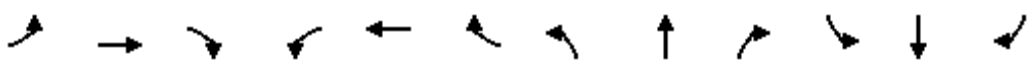
2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	473	10	6	555	65	15	10	15	105	12	397
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	0.99
Frt		0.997			0.984			0.949				0.850
Flt Protected	0.950			0.950				0.981			0.957	
Satd. Flow (prot)	1770	3526	0	1770	3469	0	0	1720	0	0	1765	1568
Flt Permitted	0.277			0.465				0.833			0.707	
Satd. Flow (perm)	514	3526	0	857	3469	0	0	1460	0	0	1293	1548
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		665			1261			318			350	
Travel Time (s)		13.0			24.6			7.2			8.0	
Confl. Peds. (#/hr)	8		11	11		8	1		11	11		1
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.69	0.69	0.69	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	285	498	11	7	638	75	22	14	22	111	13	418
Shared Lane Traffic (%)												
Lane Group Flow (vph)	285	509	0	7	713	0	0	58	0	0	124	418
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.0	17.0		23.0	23.0		29.0	29.0		13.0	13.0	13.0
Total Split (s)	17.0	41.0	0.0	24.0	24.0	0.0	29.0	29.0	0.0	29.0	29.0	17.0
Total Split (%)	24.3%	58.6%	0.0%	34.3%	34.3%	0.0%	41.4%	41.4%	0.0%	41.4%	41.4%	24.3%
Maximum Green (s)	11.9	35.9		18.8	18.8		23.3	23.3		23.2	23.2	11.9
Yellow Time (s)	3.0	3.8		3.8	3.8		3.3	3.3		3.8	3.8	3.0
All-Red Time (s)	2.1	1.3		1.4	1.4		2.4	2.4		2.0	2.0	2.1
Lost Time Adjust (s)	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.0	-0.7	0.0	0.8	-0.8	-0.1
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.7	5.0	4.0	6.6	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	1.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)				7.0	7.0		7.0	7.0				
Flash Dont Walk (s)				10.0	10.0		16.0	16.0				
Pedestrian Calls (#/hr)				0	0		0	0				
Act Effct Green (s)	51.2	52.2		33.0	33.0			11.4			11.4	23.0
Actuated g/C Ratio	0.73	0.75		0.47	0.47			0.16			0.16	0.33
v/c Ratio	0.47	0.19		0.02	0.44			0.24			0.59	0.82
Control Delay	4.6	1.3		14.3	15.3			26.6			37.9	31.5
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	4.6	1.3		14.3	15.3			26.6			37.9	31.5
LOS	A	A		B	B			C			D	C

Lanes, Volumes, Timings
23: Estes Drive & Willow Drive

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		2.5			15.3			26.6			33.0	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	21	19		2	106			22			51	142
Queue Length 95th (ft)	m54	m39		10	179			36			92	181
Internal Link Dist (ft)		585			1181			238			270	
Turn Bay Length (ft)												
Base Capacity (vph)	615	2627		404	1636			501			443	517
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.46	0.19		0.02	0.44			0.12			0.28	0.81

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 28 (40%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 15.3

Intersection LOS: B

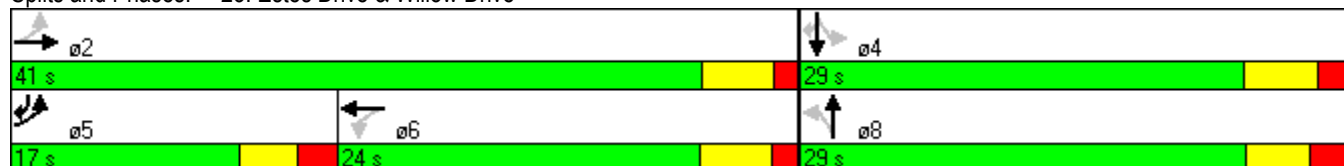
Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 23: Estes Drive & Willow Drive



Lanes, Volumes, Timings
24: Cleland Road & Hayes Road

2028 With Site Phase 3 PM Peak
10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	295	19	1	151	12	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.951	
Flt Protected					0.969	
Satd. Flow (prot)	1848	0	0	1863	1717	0
Flt Permitted					0.969	
Satd. Flow (perm)	1848	0	0	1863	1717	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	123			492	205	
Travel Time (s)	3.4			13.4	5.6	
Confl. Peds. (#/hr)						11
Peak Hour Factor	0.62	0.62	0.62	0.62	0.85	0.85
Adj. Flow (vph)	476	31	2	244	14	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	507	0	0	246	22	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.7%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
29: Brandon Road & Hayes Road

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	52	11	0	38	3	12	2	0	4	2	10
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		0.978			0.991						0.916	
Flt Protected		0.996						0.959			0.988	
Satd. Flow (prot)	0	1814	0	0	1846	0	0	1786	0	0	1607	0
Flt Permitted		0.996						0.959			0.988	
Satd. Flow (perm)	0	1814	0	0	1846	0	0	1786	0	0	1607	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		85			668			245			225	
Travel Time (s)		2.3			18.2			6.7			6.1	
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.65	0.65	0.65	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%
Adj. Flow (vph)	6	55	12	0	41	3	18	3	0	5	3	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	0	44	0	0	21	0	0	21	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 18.5% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

							
Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Volume (vph)	0	336	2244	95	5	124	1856
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		300	
Storage Lanes	0	2		1		2	
Taper Length (ft)	25	25		25		25	
Lane Util. Factor	1.00	0.88	0.95	1.00	0.95	0.97	0.95
Frt		0.850		0.850			
Flt Protected						0.950	
Satd. Flow (prot)	0	2787	3539	1583	0	3433	3539
Flt Permitted						0.950	
Satd. Flow (perm)	0	2787	3539	1583	0	3433	3539
Right Turn on Red		No		No			
Satd. Flow (RTOR)							
Link Speed (mph)	25		45				45
Link Distance (ft)	697		659				801
Travel Time (s)	19.0		10.0				12.1
Peak Hour Factor	1.00	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	373	2493	106	6	138	2062
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	373	2493	106	0	144	2062
Turn Type		Over		Perm	Prot	Prot	
Protected Phases		1!	2		1!	1	6
Permitted Phases				2			
Detector Phase		1	2	2	1	1	6
Switch Phase							
Minimum Initial (s)		7.0	12.0	12.0	7.0	7.0	12.0
Minimum Split (s)		14.0	20.0	20.0	14.0	14.0	20.0
Total Split (s)	0.0	26.0	114.0	114.0	26.0	26.0	140.0
Total Split (%)	0.0%	18.6%	81.4%	81.4%	18.6%	18.6%	100.0%
Maximum Green (s)		19.0	107.0	107.0	19.0	19.0	133.0
Yellow Time (s)		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	5.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag		Lead	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode		None	C-Max	C-Max	None	None	C-Max
Act Effct Green (s)		21.0	109.0	109.0		21.0	140.0
Actuated g/C Ratio		0.15	0.78	0.78		0.15	1.00
v/c Ratio		0.89	0.90	0.09		0.28	0.58
Control Delay		82.2	13.2	3.9		55.4	0.5
Queue Delay		0.0	0.3	0.0		0.0	0.0
Total Delay		82.2	13.5	3.9		55.4	0.5
LOS		F	B	A		E	A
Approach Delay			13.1				4.1
Approach LOS			B				A
Queue Length 50th (ft)		192	393	20		53	0

Lanes, Volumes, Timings
 31: Glen Lennox Access & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Queue Length 95th (ft)		#292	419	34		m80	0
Internal Link Dist (ft)	617		579				721
Turn Bay Length (ft)						300	
Base Capacity (vph)		418	2755	1232		515	3539
Starvation Cap Reductn		0	0	0		0	0
Spillback Cap Reductn		0	39	0		0	0
Storage Cap Reductn		0	0	0		0	0
Reduced v/c Ratio		0.89	0.92	0.09		0.28	0.58

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 18 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 14.2

Intersection LOS: B

Intersection Capacity Utilization 82.1%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

! Phase conflict between lane groups.

Splits and Phases: 31: Glen Lennox Access & US 15-501 (Fordham Blvd)





Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations				←←	←←	←
Volume (vph)	0	0	0	2776	1609	1134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.88	0.97	1.00
Frt				0.850		0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	2787	3433	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	2787	3433	1583
Link Speed (mph)	30		45		45	
Link Distance (ft)	667		536		1194	
Travel Time (s)	15.2		8.1		18.1	
Peak Hour Factor	0.90	0.90	0.90	1.00	0.90	0.90
Adj. Flow (vph)	0	0	0	2776	1788	1260
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2776	1788	1260
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 100.4%

ICU Level of Service G

Analysis Period (min) 15

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1134	0	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	0	0	1863	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1863	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	205			667	476	
Travel Time (s)	4.7			15.2	10.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1260	0	287
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1260	0	287
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	63.0%			ICU Level of Service B		
Analysis Period (min)	15					

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations									 			
Volume (vph)	0	0	0	0	0	0	6	0	2590	0	4	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		200		0		200
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		120			134				1035			
Travel Time (s)		2.7			3.0				15.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	7	0	2878	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	7	0	2878	0	4	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		23.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	126.0	0.0	14.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	90.0%	0.0%	10.0%	0.0%
Maximum Green (s)							7.0		119.0		7.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							9.0		136.2		9.0	
Actuated g/C Ratio							0.06		0.97		0.06	
v/c Ratio							0.06		0.84		0.04	
Control Delay							64.3		2.4		64.5	
Queue Delay							0.0		0.3		0.0	
Total Delay							64.3		2.7		64.5	
LOS							E		A		E	
Approach Delay									2.9			
Approach LOS									A			
Queue Length 50th (ft)							6		14		4	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013



Lane Group	SBT	SBR
Lane Configurations	↑↑	
Volume (vph)	2056	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	0.95	1.00
Fr		
Flt Protected		
Satd. Flow (prot)	3539	0
Flt Permitted		
Satd. Flow (perm)	3539	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	1003	
Travel Time (s)	15.2	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2284	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2284	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	23.0	
Total Split (s)	126.0	0.0
Total Split (%)	90.0%	0.0%
Maximum Green (s)	119.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	136.2	
Actuated g/C Ratio	0.97	
v/c Ratio	0.66	
Control Delay	1.2	
Queue Delay	0.0	
Total Delay	1.2	
LOS	A	
Approach Delay	1.3	
Approach LOS	A	
Queue Length 50th (ft)	0	

Lanes, Volumes, Timings
61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Queue Length 95th (ft)							m9		48		m6	
Internal Link Dist (ft)		40			54				955			
Turn Bay Length (ft)							200				200	
Base Capacity (vph)							114		3443		114	
Starvation Cap Reductn							0		2		0	
Spillback Cap Reductn							0		131		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.06		0.87		0.04	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 9 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 2.2

Intersection LOS: A

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 61: Median U-Turn #3 & US 15-501 (Fordham Blvd)

	ø1		ø2
14 s		126 s	
	ø5		ø6
14 s		126 s	



Lane Group	SBT	SBR
Queue Length 95th (ft)	70	
Internal Link Dist (ft)	923	
Turn Bay Length (ft)		
Base Capacity (vph)	3443	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.66	
Intersection Summary		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	140	0	2737	0	76	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	3539	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		107			71				735			
Travel Time (s)		2.4			1.6				11.1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	156	0	3041	0	84	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	156	0	3041	0	84	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	18.0	0.0	126.0	0.0	14.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.9%	0.0%	90.0%	0.0%	10.0%	0.0%
Maximum Green (s)							11.0		119.0		7.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							13.0		121.0		9.0	
Actuated g/C Ratio							0.09		0.86		0.06	
v/c Ratio							0.95		0.99		0.74	
Control Delay							106.0		18.4		63.0	
Queue Delay							0.0		0.0		0.0	
Total Delay							106.0		18.4		63.0	
LOS							F		B		E	
Approach Delay									22.6			
Approach LOS									C			
Queue Length 50th (ft)							148		1415		77	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2794	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Frt		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	748	
Travel Time (s)	11.3	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	3104	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	3104	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	122.0	0.0
Total Split (%)	87.1%	0.0%
Maximum Green (s)	115.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	117.0	
Actuated g/C Ratio	0.84	
v/c Ratio	0.95	
Control Delay	3.7	
Queue Delay	3.7	
Total Delay	7.3	
LOS	A	
Approach Delay	8.8	
Approach LOS	A	
Queue Length 50th (ft)	115	

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m#193		m#592		m73	
Internal Link Dist (ft)		27			1				655			
Turn Bay Length (ft)											250	
Base Capacity (vph)							164		3059		114	
Starvation Cap Reductn							0		0		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.95		0.99		0.74	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 116 (83%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 15.7

Intersection LOS: B

Intersection Capacity Utilization 89.8%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

	ø1		ø2
14 s		126 s	
	ø5		ø6
18 s		122 s	



Lane Group	SWT	SWR
Queue Length 95th (ft)	m101	
Internal Link Dist (ft)	668	
Turn Bay Length (ft)		
Base Capacity (vph)	3269	
Starvation Cap Reductn	127	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.99	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak

10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	←←←	←←	
Volume (vph)	0	0	103	27	2743	2778	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.95	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	3539	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	3539	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	221				913	1194	
Travel Time (s)	6.0				13.8	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	114	30	3048	3087	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	144	3048	3087	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	16.0	16.0	140.0	124.0	0.0
Total Split (%)	0.0%	0.0%	11.4%	11.4%	100.0%	88.6%	0.0%
Maximum Green (s)			9.0	9.0	133.0	117.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				11.0	140.0	119.0	
Actuated g/C Ratio				0.08	1.00	0.85	
v/c Ratio				1.04	0.60	1.03	
Control Delay				129.2	0.4	23.3	
Queue Delay				0.0	0.0	0.0	
Total Delay				129.2	0.4	23.3	
LOS				F	A	C	
Approach Delay					6.2	23.3	
Approach LOS					A	C	
Queue Length 50th (ft)				~143	0	~1568	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 With Site Phase 3 PM Peak
10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m#240	0	m439	
Internal Link Dist (ft)	141				833	1114	
Turn Bay Length (ft)				250			
Base Capacity (vph)				139	5085	3008	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	0	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				1.04	0.60	1.03	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 104 (74%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 92.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

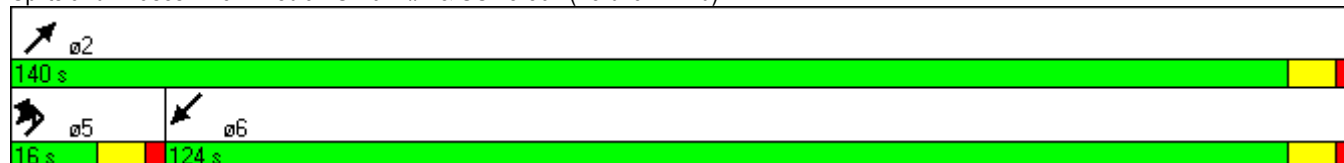
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
131: NC 54 (Raleigh Road) & NC 54 EB Off Ramp

2028 With Site Phase 3 PM Peak

10/18/2013

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1735	258	0	2904	0	1134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3539	1583	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	1583	0	6408	0	1611
Link Speed (mph)	45			45	35	
Link Distance (ft)	94			224	476	
Travel Time (s)	1.4			3.4	9.3	
Peak Hour Factor	0.84	0.84	1.00	0.90	1.00	0.97
Adj. Flow (vph)	2065	307	0	3227	0	1169
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2065	307	0	3227	0	1169
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	124.8%			ICU Level of Service H		
Analysis Period (min)	15					

2028 With Site Phase 3 Mitigated

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	67	36	221	75	51	88	1295	4	166	1490	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		150	250		0	375		0	225		0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99							
Frt			0.850		0.940							0.999
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1792	1575	3208	1683	0	1744	3487	0	1702	3519	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1699	1792	1575	3208	1683	0	1744	3487	0	1702	3519	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	34	79	42	235	80	54	94	1378	4	189	1693	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	79	42	235	134	0	94	1382	0	189	1710	0
Turn Type	Split		pm+ov	Split			Prot			Prot		
Protected Phases	3	3	5	4	4		5	2		1	6	
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	20.0	20.0	20.0	33.0	33.0		20.0	80.0		18.0	68.0	
Total Split (s)	20.0	20.0	23.0	33.0	33.0	0.0	23.0	100.0	0.0	37.0	114.0	0.0
Total Split (%)	10.5%	10.5%	12.1%	17.4%	17.4%	0.0%	12.1%	52.6%	0.0%	19.5%	60.0%	0.0%
Maximum Green (s)	13.7	13.7	16.8	27.2	27.2		16.8	94.2		30.7	108.3	
Yellow Time (s)	3.0	3.0	3.0	3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3	3.2	2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	-1.2	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	12.9	12.9	35.9	20.6	20.6		18.0	111.0		25.5	118.5	
Actuated g/C Ratio	0.07	0.07	0.19	0.11	0.11		0.09	0.58		0.13	0.62	
v/c Ratio	0.29	0.65	0.14	0.68	0.74		0.57	0.68		0.83	0.78	
Control Delay	89.9	109.8	64.7	90.9	104.3		77.4	16.9		107.3	30.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	89.9	109.8	64.7	90.9	104.3		77.4	16.9		107.3	30.6	
LOS	F	F	E	F	F		E	B		F	C	
Approach Delay		93.2			95.8			20.8			38.2	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	41	98	44	148	165		116	465		233	807	
Queue Length 95th (ft)	79	154	80	192	240		m153	723		313	965	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125		150	250			375			225		
Base Capacity (vph)	134	141	298	473	248		165	2037		288	2194	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.56	0.14	0.50	0.54		0.57	0.68		0.66	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 16 (8%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 39.2

Intersection LOS: D

Intersection Capacity Utilization 77.6%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
37 s	100 s	20 s	33 s
 ø6	 ø5		
114 s	23 s		

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	9	0	0	121	0	1922	21	67	2024	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	300		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected										0.950		
Satd. Flow (prot)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Flt Permitted										0.950		
Satd. Flow (perm)	0	0	1611	0	0	1580	1845	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1002			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.71	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	13	0	0	170	0	2067	23	78	2353	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	13	0	0	170	0	2067	23	78	2353	15
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	30.0	14.0	110.0	110.0	30.0	126.0	126.0
Total Split (%)	0.0%	0.0%	10.0%	0.0%	0.0%	21.4%	10.0%	78.6%	78.6%	21.4%	90.0%	90.0%
Maximum Green (s)			7.0			23.0	7.0	103.0	103.0	23.0	119.0	119.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			21.3		108.7	108.7	19.3	132.4	132.4
Actuated g/C Ratio			0.06			0.15		0.78	0.78	0.14	0.95	0.95
v/c Ratio			0.12			0.71		0.76	0.02	0.32	0.71	0.01
Control Delay			64.8			72.2		6.0	3.0	57.0	3.5	1.0
Queue Delay			0.0			0.0		0.1	0.0	0.0	0.0	0.0
Total Delay			64.8			72.2		6.1	3.0	57.0	3.5	1.0
LOS			E			E		A	A	E	A	A
Approach Delay								6.1			5.2	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			11			148		182	3	65	0	0
Queue Length 95th (ft)			27			171		193	m3	109	350	4
Internal Link Dist (ft)		208			43			922			1513	
Turn Bay Length (ft)									150	300		150
Base Capacity (vph)			104			282		2723	1218	288	3315	1483
Starvation Cap Reductn			0			0		100	0	0	0	0
Spillback Cap Reductn			0			0		0	0	0	0	0
Storage Cap Reductn			0			0		0	0	0	0	0
Reduced v/c Ratio			0.13			0.60		0.79	0.02	0.27	0.71	0.01

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 77 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 8.2

Intersection LOS: A

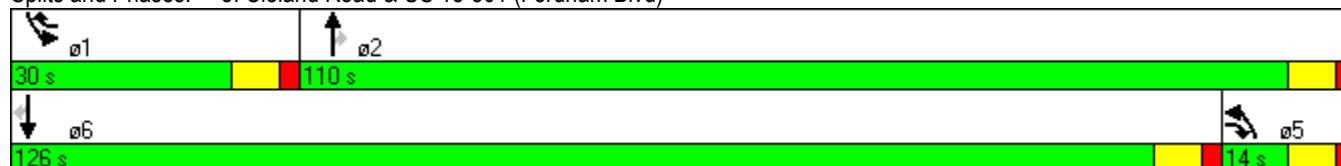
Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

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

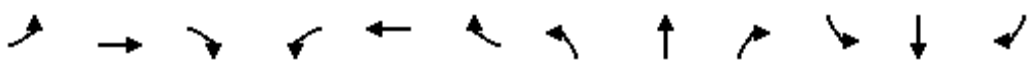
Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1120	0	0	405	0	1630	30	0	1569	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1580	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	1580	0	0	1580	0	3505	1583	0	3505	1568
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	1318	0	0	482	0	1811	33	0	1634	211
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1318	0	0	482	0	1811	33	0	1634	211
Sign Control		Free			Free			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 119.4% ICU Level of Service H

Analysis Period (min) 15

Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2028 Mitigated Phase 3 AM Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	79	0	1582	0	0	2280	408	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		200	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	5036	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	5036	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	88	0	1758	0	0	2533	453	0	14
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	88	0	1758	0	0	2533	453	0	14
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 55.3% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations									
Volume (vph)	27	115	236	16	3132	269	2154	6	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			0		0	
Storage Lanes	1		2			1		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	0.91	*1.00	0.91	0.91
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850		0.988				
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	5521	0	5588	0	0
Flt Permitted									
Satd. Flow (perm)	1611	1566	2759	0	*3787	0	*3771	0	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					709		916		
Travel Time (s)					10.7		13.9		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.61	0.52	0.47	0.47	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	44	221	502	34	3262	280	2476	7	1
Shared Lane Traffic (%)									
Lane Group Flow (vph)	44	221	536	0	3542	0	2484	0	0
Turn Type	custom	custom	custom						
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3				
Detector Phase	3	4	4		2		6		
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0		
Minimum Split (s)	14.0	14.0	14.0		33.0		25.0		
Total Split (s)	14.0	34.0	34.0	0.0	92.0	0.0	92.0	0.0	0.0
Total Split (%)	10.0%	24.3%	24.3%	0.0%	65.7%	0.0%	65.7%	0.0%	0.0%
Maximum Green (s)	7.0	27.0	27.0		85.0		85.0		
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0		
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	2.0	4.0
Lead/Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes								
Vehicle Extension (s)	3.0	2.0	2.0		2.0		2.0		
Recall Mode	None	None	None		C-Max		C-Max		
Walk Time (s)					7.0		7.0		
Flash Dont Walk (s)					16.0		11.0		
Pedestrian Calls (#/hr)					0		0		
Act Effct Green (s)	9.0	28.9	28.9		97.1		89.9		
Actuated g/C Ratio	0.06	0.21	0.21		0.69		0.64		
v/c Ratio	0.42	0.67	0.94		0.95		0.69		
Control Delay	75.9	62.7	80.2		14.4		9.4		



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		3.6		0.1		
Total Delay	75.9	62.7	80.2		18.0		9.4		
LOS	E	E	F		B		A		
Approach Delay					18.0		9.4		
Approach LOS					B		A		
Queue Length 50th (ft)	39	187	275		809		494		
Queue Length 95th (ft)	54	147	162		672		112		
Internal Link Dist (ft)					629		836		
Turn Bay Length (ft)									
Base Capacity (vph)	104	329	572		3741		3589		
Starvation Cap Reductn	0	0	0		157		138		
Spillback Cap Reductn	0	0	0		0		0		
Storage Cap Reductn	0	0	0		0		0		
Reduced v/c Ratio	0.42	0.67	0.94		0.99		0.72		

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 129 (92%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 82.3%

ICU Level of Service E

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 Ø2	 Ø3	 Ø4
92 s	14 s	34 s
 Ø6		
92 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Mitigated Phase 3 AM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	1856	162	36	2885	213	602	113	75	166	31	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	500		0	0		0
Storage Lanes	1		1	1		1	2		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.940			0.978	
Flt Protected	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (prot)	1761	5060	1575	1761	5061	1576	3383	1725	0	1664	1667	0
Flt Permitted	0.040			0.047			0.950			0.950	0.973	
Satd. Flow (perm)	74	5060	1523	87	5061	1576	3383	1725	0	1664	1667	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			716			753	
Travel Time (s)		15.3			6.3			10.8			14.7	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	11	1996	174	38	3037	224	634	119	79	200	37	19
Shared Lane Traffic (%)										36%		
Lane Group Flow (vph)	11	1996	174	38	3037	224	634	198	0	128	128	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	100.0	34.0	16.0	100.0	20.0	34.0	34.0	0.0	20.0	20.0	0.0
Total Split (%)	9.4%	58.8%	20.0%	9.4%	58.8%	11.8%	20.0%	20.0%	0.0%	11.8%	11.8%	0.0%
Maximum Green (s)	9.2	92.5	26.8	9.0	92.5	12.8	26.8	26.8		12.8	12.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	109.0	98.2	127.3	107.0	105.5	125.4	29.1	29.1		14.9	14.9	
Actuated g/C Ratio	0.64	0.58	0.75	0.63	0.62	0.74	0.17	0.17		0.09	0.09	
v/c Ratio	0.08	0.68	0.15	0.24	0.97	0.19	1.10	0.67		0.88	0.88	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Mitigated Phase 3 AM Peak

10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.4	2.7	0.5	31.9	40.5	8.0	129.3	78.4		121.8	121.8	
Queue Delay	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0		0.0	0.0	
Total Delay	2.4	2.7	0.5	31.9	42.1	8.0	129.3	78.4		121.8	121.8	
LOS	A	A	A	C	D	A	F	E		F	F	
Approach Delay	2.5			39.7			117.2			121.8		
Approach LOS	A			D			F			F		
Queue Length 50th (ft)	0	41	2	14	1024	60	~410	210		151	150	
Queue Length 95th (ft)	m1	49	m3	30	#1404	122	#540	307		#253	#253	
Internal Link Dist (ft)	929			334			636			673		
Turn Bay Length (ft)	275		300	350		125	500					
Base Capacity (vph)	157	2923	1149	163	3141	1163	578	295		147	147	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	48	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.07	0.68	0.15	0.23	0.98	0.19	1.10	0.67		0.87	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 169 (99%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 40.4

Intersection LOS: D

Intersection Capacity Utilization 91.3%

ICU Level of Service F

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

~ 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.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 $\phi 2$										 $\phi 1$		 $\phi 3$		 $\phi 4$	
100 s										16 s		20 s		34 s	
 $\phi 5$										 $\phi 6$					
16 s										100 s					

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬅		⬆⬆⬆		⬅	
Volume (vph)	0	0	0	0	0	0	256	0	3079	0	197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	5085	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	5085	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		126			121				774			
Travel Time (s)		2.9			2.8				11.7			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	284	0	3421	0	219	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	284	0	3421	0	219	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	35.0	0.0	111.0	0.0	29.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	79.3%	0.0%	20.7%	0.0%
Maximum Green (s)							28.0		104.0		22.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lag		Lead		Lag	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							28.2		107.8		22.2	
Actuated g/C Ratio							0.20		0.77		0.16	
v/c Ratio							0.80		0.87		0.78	
Control Delay							65.0		7.3		78.9	
Queue Delay							0.0		3.3		0.0	
Total Delay							65.0		10.6		78.9	
LOS							E		B		E	
Approach Delay									14.8			
Approach LOS									B			
Queue Length 50th (ft)							263		470		209	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2220	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	709	
Travel Time (s)	10.7	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2467	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2467	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	105.0	0.0
Total Split (%)	75.0%	0.0%
Maximum Green (s)	98.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	101.8	
Actuated g/C Ratio	0.73	
v/c Ratio	0.87	
Control Delay	9.7	
Queue Delay	0.0	
Total Delay	9.7	
LOS	A	
Approach Delay	15.4	
Approach LOS	B	
Queue Length 50th (ft)	245	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m271		m292		m281	
Internal Link Dist (ft)		46			41				694			
Turn Bay Length (ft)											250	
Base Capacity (vph)							379		3916		303	
Starvation Cap Reductn							0		405		0	
Spillback Cap Reductn							0		218		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.75		0.97		0.72	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 114 (81%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 15.0

Intersection LOS: B

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø2	 ø1
111 s	29 s
 ø6	 ø5
105 s	35 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	250	
Internal Link Dist (ft)	629	
Turn Bay Length (ft)		
Base Capacity (vph)	2845	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.87	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↑↑↑	↑↑↑	
Volume (vph)	0	0	99	117	2992	2293	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.91	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	5085	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	5085	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	128				916	1192	
Travel Time (s)	3.5				13.9	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	110	130	3324	2548	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	240	3324	2548	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	23.0	23.0	
Total Split (s)	0.0	0.0	38.0	38.0	140.0	102.0	0.0
Total Split (%)	0.0%	0.0%	27.1%	27.1%	100.0%	72.9%	0.0%
Maximum Green (s)			31.0	31.0	133.0	95.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				26.0	140.0	104.0	
Actuated g/C Ratio				0.19	1.00	0.74	
v/c Ratio				0.73	0.65	0.67	
Control Delay				51.8	0.4	9.5	
Queue Delay				0.0	0.0	0.0	
Total Delay				51.8	0.4	9.5	
LOS				D	A	A	
Approach Delay					3.9	9.5	
Approach LOS					A	A	
Queue Length 50th (ft)				218	0	306	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 AM Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m236	0	437	
Internal Link Dist (ft)	48				836	1112	
Turn Bay Length (ft)				250			
Base Capacity (vph)				417	5085	3779	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	0	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.58	0.65	0.67	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 116 (83%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 6.2

Intersection LOS: A

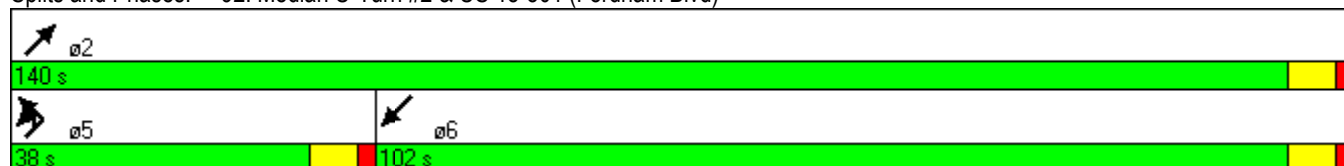
Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	125	86	269	89	57	188	1242	4	149	1132	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		150	250		0	375		0	225		0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99				0.99							
Frt			0.850		0.942						0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1792	1575	3270	1716	0	1744	3487	0	1686	3478	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1691	1792	1575	3270	1716	0	1744	3487	0	1686	3478	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	115	144	99	299	99	63	204	1350	4	159	1204	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	144	99	299	162	0	204	1354	0	159	1231	0
Turn Type	Split		pm+ov	Split			Prot			Prot		
Protected Phases	3	3	5	4	4		5	2		1	6	
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0	25.0	35.0	35.0		25.0	80.0		18.0	68.0	
Total Split (s)	26.0	26.0	35.0	35.0	35.0	0.0	35.0	89.0	0.0	30.0	84.0	0.0
Total Split (%)	14.4%	14.4%	19.4%	19.4%	19.4%	0.0%	19.4%	49.4%	0.0%	16.7%	46.7%	0.0%
Maximum Green (s)	19.7	19.7	28.8	29.2	29.2		28.8	83.2		23.7	78.3	
Yellow Time (s)	3.0	3.0	3.0	3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3	3.2	2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	-1.2	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5	3.0	3.0	3.0		3.0	6.0		3.0	6.0	
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak
10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)				0	0							
Act Effect Green (s)	19.3	19.3	54.3	23.4	23.4		30.0	95.0		22.3	87.3	
Actuated g/C Ratio	0.11	0.11	0.30	0.13	0.13		0.17	0.53		0.12	0.48	
v/c Ratio	0.63	0.75	0.21	0.70	0.73		0.70	0.74		0.76	0.73	
Control Delay	92.2	101.1	47.7	83.8	93.3		61.7	19.2		98.5	41.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	92.2	101.1	47.7	83.8	93.3		61.7	19.2		98.5	41.2	
LOS	F	F	D	F	F		E	B		F	D	
Approach Delay		83.5			87.2			24.8			47.8	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	131	166	87	177	187		232	325		183	613	
Queue Length 95th (ft)	199	242	136	223	266		m308	635		272	757	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125		150	250			375			225		
Base Capacity (vph)	199	209	475	545	286		291	1840		237	1687	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.58	0.69	0.21	0.55	0.57		0.70	0.74		0.67	0.73	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 85 (47%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 160

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 46.5

Intersection LOS: D

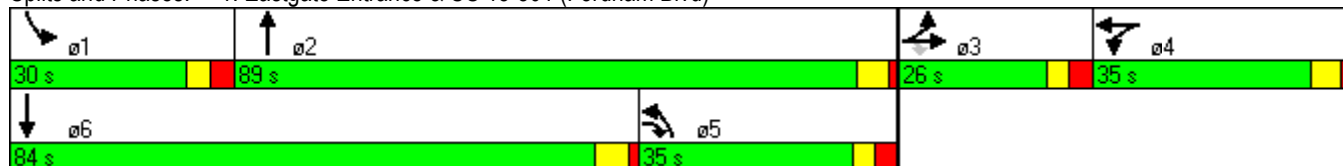
Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	11	0	0	82	5	1921	10	79	1781	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	300		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1596	1752	3505	1568	1752	3505	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1031			1593	
Travel Time (s)		7.9			3.4			15.6			24.1	
Peak Hour Factor	1.00	1.00	0.69	1.00	1.00	0.77	0.98	0.98	0.98	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	16	0	0	106	5	1960	10	92	2071	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	16	0	0	106	5	1960	10	92	2071	22
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	15.0	0.0	0.0	22.0	15.0	98.0	98.0	22.0	105.0	105.0
Total Split (%)	0.0%	0.0%	12.5%	0.0%	0.0%	18.3%	12.5%	81.7%	81.7%	18.3%	87.5%	87.5%
Maximum Green (s)			8.0			15.0	8.0	91.0	91.0	15.0	98.0	98.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.4			14.4	9.4	95.6	95.6	14.4	112.0	112.0
Actuated g/C Ratio			0.08			0.12	0.08	0.80	0.80	0.12	0.93	0.93
v/c Ratio			0.13			0.55	0.04	0.70	0.01	0.44	0.63	0.02
Control Delay			53.7			60.4	43.2	2.8	1.2	54.9	3.1	1.3
Queue Delay			0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay			53.7			60.4	43.2	2.8	1.2	54.9	3.1	1.3
LOS			D			E	D	A	A	D	A	A
Approach Delay								2.9			5.3	
Approach LOS								A			A	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak

10/18/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			12			78	4	91	1	67	0	0
Queue Length 95th (ft)			27			114	m6	57	m1	113	280	6
Internal Link Dist (ft)		208			43			951			1513	
Turn Bay Length (ft)							150		150	300		150
Base Capacity (vph)			134			226	146	2792	1249	248	3271	1464
Starvation Cap Reductn			0			0	0	59	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.12			0.47	0.03	0.72	0.01	0.37	0.63	0.02

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 5.7

Intersection LOS: A

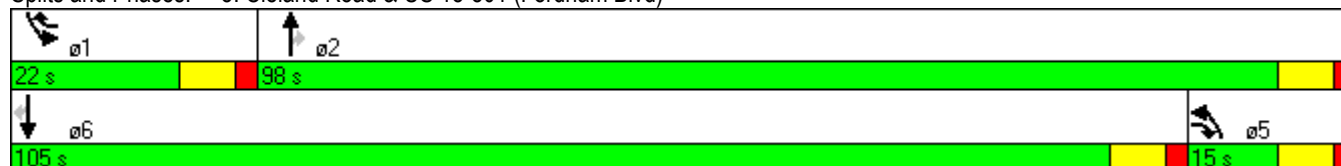
Intersection Capacity Utilization 67.3%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	816	0	0	491	0	1321	27	0	1498	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1580	0	0	1580	0	3505	1583	0	3505	1568
Flt Permitted												
Satd. Flow (perm)	0	0	1580	0	0	1580	0	3505	1583	0	3505	1568
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	960	0	0	585	0	1468	30	0	1560	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	960	0	0	585	0	1468	30	0	1560	180
Sign Control		Free			Free			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 98.6% ICU Level of Service F

Analysis Period (min) 15

Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2028 Mitigated Phase 3 Noon Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	116	0	1231	0	0	1930	384	0	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		150	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	5036	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	5036	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	129	0	1368	0	0	2144	427	0	36
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	129	0	1368	0	0	2144	427	0	36
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 47.9% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		  		  		
Volume (vph)	33	227	104	4	2203	208	2076	22	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			0		0	
Storage Lanes	1		2			0		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	0.91	*1.00	0.91	0.91
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850		0.987				
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	5516	0	5588	0	0
Flt Permitted									
Satd. Flow (perm)	1611	1563	2759	0	*3787	0	*3771	0	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					706		906		
Travel Time (s)					10.7		13.7		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.70	0.77	0.72	0.72	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	47	295	144	6	2448	231	2185	23	12
Shared Lane Traffic (%)									
Lane Group Flow (vph)	47	295	150	0	2679	0	2220	0	0
Turn Type	custom	custom	custom						
Protected Phases	3	4	4		2		6		
Permitted Phases	3	4	4		3				
Detector Phase	3	4	4		2		6		
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0		12.0		12.0		
Minimum Split (s)	36.0	17.0	17.0		33.0		25.0		
Total Split (s)	36.0	17.0	17.0	0.0	67.0	0.0	67.0	0.0	0.0
Total Split (%)	30.0%	14.2%	14.2%	0.0%	55.8%	0.0%	55.8%	0.0%	0.0%
Maximum Green (s)	29.0	10.0	10.0		60.0		60.0		
Yellow Time (s)	5.0	5.0	5.0		5.0		5.0		
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	2.0	4.0
Lead/Lag	Lag	Lead	Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0	2.0		2.0		2.0		
Recall Mode	None	None	None		C-Max		C-Max		
Walk Time (s)					7.0		7.0		
Flash Dont Walk (s)					16.0		11.0		
Pedestrian Calls (#/hr)					0		0		
Act Effct Green (s)	10.6	12.0	12.0		94.0		85.2		
Actuated g/C Ratio	0.09	0.10	0.10		0.78		0.71		
v/c Ratio	0.33	1.86	0.54		0.64		0.56		
Control Delay	57.2	438.7	59.3		3.6		4.8		



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.0		0.0		
Total Delay	57.2	438.7	59.3		3.6		4.8		
LOS	E	F	E		A		A		
Approach Delay					3.6		4.8		
Approach LOS					A		A		
Queue Length 50th (ft)	35	~348	63		67		92		
Queue Length 95th (ft)	56	#431	80		203		103		
Internal Link Dist (ft)					626		826		
Turn Bay Length (ft)									
Base Capacity (vph)	416	159	276		4195		3970		
Starvation Cap Reductn	0	0	0		81		0		
Spillback Cap Reductn	0	0	0		0		0		
Storage Cap Reductn	0	0	0		0		0		
Reduced v/c Ratio	0.11	1.86	0.54		0.65		0.56		

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 18 (15%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.86

Intersection Signal Delay: 29.9

Intersection LOS: C

Intersection Capacity Utilization 69.7%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

~ 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: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 02	 04	 03
67 s	17 s	36 s
 06		
67 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Mitigated Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	1631	244	44	1459	120	186	58	64	106	47	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	500		0	0		0
Storage Lanes	1		1	1		1	2		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor			0.96				1.00				1.00	
Frt			0.850			0.850		0.921			0.971	
Flt Protected	0.950			0.950			0.950			0.950	0.987	
Satd. Flow (prot)	1727	4963	1545	1761	5061	1576	3383	1690	0	1648	1658	0
Flt Permitted	0.118			0.085			0.950			0.950	0.987	
Satd. Flow (perm)	214	4963	1490	158	5061	1576	3378	1690	0	1648	1658	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			775			753	
Travel Time (s)		15.3			6.3			11.7			14.7	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	13	1735	260	46	1536	126	202	63	70	118	52	18
Shared Lane Traffic (%)										20%		
Lane Group Flow (vph)	13	1735	260	46	1536	126	202	133	0	94	94	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	27.0	15.0	14.0	29.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	14.0	82.0	31.0	14.0	82.0	23.0	31.0	31.0	0.0	23.0	23.0	0.0
Total Split (%)	9.3%	54.7%	20.7%	9.3%	54.7%	15.3%	20.7%	20.7%	0.0%	15.3%	15.3%	0.0%
Maximum Green (s)	7.2	74.5	23.8	7.0	74.5	15.8	23.8	23.8		15.8	15.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	1.8	5.0	5.0	1.8
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	98.7	89.5	109.2	96.7	95.1	114.7	19.7	19.7		14.6	14.6	
Actuated g/C Ratio	0.66	0.60	0.73	0.64	0.63	0.76	0.13	0.13		0.10	0.10	
v/c Ratio	0.06	0.59	0.24	0.23	0.48	0.10	0.45	0.60		0.59	0.58	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Mitigated Phase 3 Noon Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	5.3	6.6	2.4	13.1	17.1	6.3	62.5	71.8		79.1	78.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.3	6.6	2.4	13.1	17.1	6.3	62.5	71.8		79.1	78.8	
LOS	A	A	A	B	B	A	E	E		E	E	
Approach Delay		6.0			16.2			66.2			78.9	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	1	117	26	15	248	23	95	124		93	93	
Queue Length 95th (ft)	m4	183	33	35	423	68	131	189		157	157	
Internal Link Dist (ft)		929			334			695			673	
Turn Bay Length (ft)	275		300	350		125	500					
Base Capacity (vph)	231	2961	1157	198	3208	1191	586	293		198	199	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.06	0.59	0.22	0.23	0.48	0.11	0.34	0.45		0.47	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 18.1

Intersection LOS: B

Intersection Capacity Utilization 62.1%

ICU Level of Service B

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø1	 ø2	 ø4	 ø3
14 s	82 s	31 s	23 s
 ø6	 ø5		
82 s	14 s		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬅		⬆⬆⬆		⬅	
Volume (vph)	0	0	0	0	0	0	128	0	2259	0	92	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Flt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	5085	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	5085	0	1770	0
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		107			124				776			
Travel Time (s)		2.4			2.8				11.8			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	142	0	2510	0	102	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	142	0	2510	0	102	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0	102.0	0.0	18.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.3%	0.0%	85.0%	0.0%	15.0%	0.0%
Maximum Green (s)							15.0		95.0		11.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lead		Lag	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							15.3		97.0		13.0	
Actuated g/C Ratio							0.13		0.81		0.11	
v/c Ratio							0.63		0.61		0.53	
Control Delay							60.7		3.6		55.9	
Queue Delay							0.0		0.1		0.0	
Total Delay							60.7		3.8		55.9	
LOS							E		A		E	
Approach Delay									6.8			
Approach LOS									A			
Queue Length 50th (ft)							108		118		78	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak

10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2121	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Flt		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	706	
Travel Time (s)	10.7	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	2357	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	2357	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	98.0	0.0
Total Split (%)	81.7%	0.0%
Maximum Green (s)	91.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	94.7	
Actuated g/C Ratio	0.79	
v/c Ratio	0.76	
Control Delay	5.9	
Queue Delay	0.0	
Total Delay	6.0	
LOS	A	
Approach Delay	8.0	
Approach LOS	A	
Queue Length 50th (ft)	166	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak
 10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m144		208		139	
Internal Link Dist (ft)		27			44				696			
Turn Bay Length (ft)											250	
Base Capacity (vph)							251		4110		192	
Starvation Cap Reductn							0		525		0	
Spillback Cap Reductn							0		0		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.57		0.70		0.53	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 119 (99%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 7.4

Intersection LOS: A

Intersection Capacity Utilization 57.8%

ICU Level of Service B

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø2	 ø1
102 s	18 s
 ø5	 ø6
22 s	98 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	177	
Internal Link Dist (ft)	626	
Turn Bay Length (ft)		
Base Capacity (vph)	3086	
Starvation Cap Reductn	41	
Spillback Cap Reductn	1	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.77	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak

10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Lane Configurations				↔	↑↑↑	↑↑↑	
Volume (vph)	0	0	184	30	2173	1963	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		200			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.91	1.00
Fr t							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	5085	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	5085	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	195				906	1201	
Travel Time (s)	5.3				13.7	18.2	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	204	33	2414	2181	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	237	2414	2181	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	30.0	30.0	120.0	90.0	0.0
Total Split (%)	0.0%	0.0%	25.0%	25.0%	100.0%	75.0%	0.0%
Maximum Green (s)			23.0	23.0	113.0	83.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				21.9	120.0	88.1	
Actuated g/C Ratio				0.18	1.00	0.73	
v/c Ratio				0.73	0.47	0.58	
Control Delay				56.5	0.2	8.1	
Queue Delay				0.0	0.0	0.0	
Total Delay				56.5	0.2	8.1	
LOS				E	A	A	
Approach Delay					5.2	8.1	
Approach LOS					A	A	
Queue Length 50th (ft)				180	0	225	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 Noon Peak
10/18/2013



Lane Group	SEL	SER	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m249	m0	284	
Internal Link Dist (ft)	115				826	1121	
Turn Bay Length (ft)				200			
Base Capacity (vph)				369	5085	3733	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	0	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				0.64	0.47	0.58	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 6.5

Intersection LOS: A

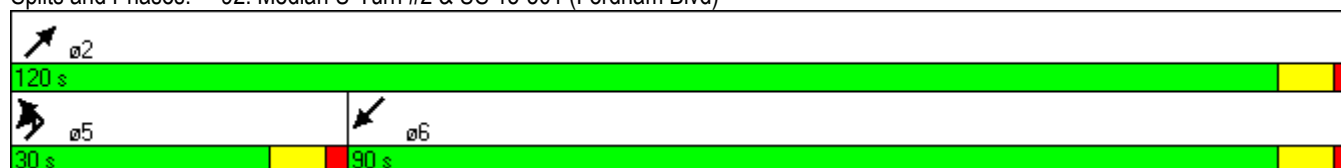
Intersection Capacity Utilization 58.1%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	139	86	316	103	63	181	1583	3	131	1373	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	12	12	11	11	12	12
Grade (%)		1%			1%			1%			-1%	
Storage Length (ft)	125		150	250		0	375		0	225		0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97				0.98							
Frt			0.850		0.943							0.998
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1792	1575	3302	1718	0	1761	3522	0	1719	3550	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1657	1792	1575	3302	1718	0	1761	3522	0	1719	3550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		470			489			1344			800	
Travel Time (s)		16.0			9.5			20.4			12.1	
Confl. Peds. (#/hr)	17					17						
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	109	148	91	333	108	66	191	1666	3	139	1461	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	148	91	333	174	0	191	1669	0	139	1480	0
Turn Type	Split		pm+ov	Split			Prot			Prot		
Protected Phases	3	3	5	4	4		5	2		1	6	
Permitted Phases			3									
Detector Phase	3	3	5	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	25.0	25.0	25.0	35.0	35.0		25.0	80.0		15.0	68.0	
Total Split (s)	25.0	25.0	29.0	35.0	35.0	0.0	29.0	97.0	0.0	23.0	91.0	0.0
Total Split (%)	13.9%	13.9%	16.1%	19.4%	19.4%	0.0%	16.1%	53.9%	0.0%	12.8%	50.6%	0.0%
Maximum Green (s)	18.7	18.7	22.8	29.2	29.2		22.8	91.2		16.7	85.3	
Yellow Time (s)	3.0	3.0	3.0	3.8	3.8		3.0	4.5		3.0	4.5	
All-Red Time (s)	3.3	3.3	3.2	2.0	2.0		3.2	1.3		3.3	1.2	
Lost Time Adjust (s)	-1.3	-1.3	-1.2	-0.8	-0.8	0.0	-1.2	-0.8	0.0	-1.3	-0.7	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0		1.0	6.0		1.0	6.0	
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	20.0		0.0	20.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	60.0		0.0	60.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0							
Flash Dont Walk (s)				20.0	20.0							
Pedestrian Calls (#/hr)				0	0							

Lanes, Volumes, Timings
1: Eastgate Entrance & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	18.4	18.4	47.4	23.8	23.8		24.0	99.7		18.1	93.8	
Actuated g/C Ratio	0.10	0.10	0.26	0.13	0.13		0.13	0.55		0.10	0.52	
v/c Ratio	0.63	0.81	0.22	0.76	0.77		0.81	0.86		0.80	0.80	
Control Delay	93.4	108.9	52.9	86.9	96.6		73.3	24.7		109.4	40.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	93.4	108.9	52.9	86.9	96.6		73.3	24.7		109.4	40.6	
LOS	F	F	D	F	F		E	C		F	D	
Approach Delay		89.4			90.2			29.7			46.5	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	125	173	84	199	202		215	679		161	756	
Queue Length 95th (ft)	198	#277	139	247	284		m243	m963		#286	923	
Internal Link Dist (ft)		390			409			1264			720	
Turn Bay Length (ft)	125		150	250			375			225		
Base Capacity (vph)	189	199	415	550	286		235	1951		183	1850	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.58	0.74	0.22	0.61	0.61		0.81	0.86		0.76	0.80	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 54 (30%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 47.9

Intersection LOS: D

Intersection Capacity Utilization 89.0%

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.

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

Splits and Phases: 1: Eastgate Entrance & US 15-501 (Fordham Blvd)

 ø1	 ø2	 ø3	 ø4
23 s	97 s	25 s	35 s
 ø6	 ø5		
91 s	29 s		

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	5	0	0	167	2	2460	109	208	2055	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		150	300		150
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor									0.98	1.00		
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1611	1770	3539	1583	1770	3539	1583
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1611	1770	3539	1550	1769	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		288			123			1003			1593	
Travel Time (s)		7.9			3.4			15.2			24.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	1.00	1.00	0.50	1.00	1.00	0.70	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	0	0	10	0	0	239	2	2645	117	217	2141	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	10	0	0	239	2	2645	117	217	2141	24
Turn Type			Over			Over	Prot		Perm	Prot		Perm
Protected Phases			5			1	5	2		1	6	
Permitted Phases									2			6
Detector Phase			5			1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)			7.0			7.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)			14.0			14.0	14.0	20.0	20.0	14.0	20.0	20.0
Total Split (s)	0.0	0.0	14.0	0.0	0.0	28.0	14.0	112.0	112.0	28.0	126.0	126.0
Total Split (%)	0.0%	0.0%	10.0%	0.0%	0.0%	20.0%	10.0%	80.0%	80.0%	20.0%	90.0%	90.0%
Maximum Green (s)			7.0			21.0	7.0	105.0	105.0	21.0	119.0	119.0
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)	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag			Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)			3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode			None			None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)			9.0			22.8	9.0	107.2	107.2	22.8	132.4	132.4
Actuated g/C Ratio			0.06			0.16	0.06	0.77	0.77	0.16	0.95	0.95
v/c Ratio			0.10			0.91	0.02	0.98	0.10	0.75	0.64	0.02
Control Delay			64.0			93.9	53.5	16.5	2.4	72.9	2.7	1.0
Queue Delay			0.0			0.0	0.0	4.4	0.0	0.0	0.0	0.0
Total Delay			64.0			93.9	53.5	20.9	2.4	72.9	2.7	1.0
LOS			E			F	D	C	A	E	A	A
Approach Delay								20.1			9.0	

Lanes, Volumes, Timings
5: Cleland Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS							C			A		
Queue Length 50th (ft)			9			216	1	521	10	191	0	0
Queue Length 95th (ft)			16			237	m1	#1401	m10	#304	303	6
Internal Link Dist (ft)		208			43			923			1513	
Turn Bay Length (ft)							150		150	300		150
Base Capacity (vph)			104			265	114	2710	1187	291	3347	1497
Starvation Cap Reductn			0			0	0	67	0	0	0	0
Spillback Cap Reductn			0			0	0	0	0	0	0	0
Storage Cap Reductn			0			0	0	0	0	0	0	0
Reduced v/c Ratio			0.10			0.90	0.02	1.00	0.10	0.75	0.64	0.02

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 29 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 87.9%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Cleland Road & US 15-501 (Fordham Blvd)



Lanes, Volumes, Timings
7: NC 54 WB On-Ramp & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (vph)	0	0	1237	0	0	559	0	1846	22	0	1845	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		450	0		0	0		200	0		0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1580	0	0	1580	0	3539	1583	0	3539	1568
Flt Permitted												
Satd. Flow (perm)	0	0	1580	0	0	1580	0	3539	1583	0	3539	1568
Link Speed (mph)		30			25			45			45	
Link Distance (ft)		668			660			1031			375	
Travel Time (s)		15.2			18.0			15.6			5.7	
Peak Hour Factor	1.00	1.00	0.85	1.00	1.00	0.84	1.00	0.90	0.90	1.00	0.96	0.96
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	0	0	1455	0	0	665	0	2051	24	0	1922	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	1455	0	0	665	0	2051	24	0	1922	118
Sign Control		Free			Free			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 134.3% ICU Level of Service H

Analysis Period (min) 15

Lanes, Volumes, Timings
8: US 15-501 (Fordham Blvd) &

2028 Mitigated Phase 3 PM Peak

10/18/2013

											
Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Volume (vph)	0	0	258	0	1609	0	0	2706	375	0	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0		0	0		200	0	0
Storage Lanes	0	1		0		0	0		1	0	1
Taper Length (ft)	25	25		25		25	25		25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00
Frt			0.865						0.850		0.865
Flt Protected											
Satd. Flow (prot)	0	0	1580	0	3505	0	0	5036	1568	0	1580
Flt Permitted											
Satd. Flow (perm)	0	0	1580	0	3505	0	0	5036	1568	0	1580
Link Speed (mph)	30				45			45		30	
Link Distance (ft)	205				536			1031		598	
Travel Time (s)	4.7				8.1			15.6		13.6	
Peak Hour Factor	1.00	1.00	0.90	1.00	0.90	1.00	1.00	0.90	0.90	1.00	0.92
Heavy Vehicles (%)	2%	2%	4%	2%	3%	2%	2%	3%	3%	2%	4%
Adj. Flow (vph)	0	0	287	0	1788	0	0	3007	417	0	76
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	0	287	0	1788	0	0	3007	417	0	76
Sign Control	Stop				Free			Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 67.1% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013

									
Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Lane Configurations			 		  		  		
Volume (vph)	14	151	131	1	2689	183	2725	26	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)					0%		0%		
Storage Length (ft)	0		0			300		0	
Storage Lanes	1		2			0		1	
Taper Length (ft)	25		25			25		25	
Lane Util. Factor	1.00	1.00	0.88	1.00	*1.00	0.91	*1.00	0.91	0.91
Ped Bike Factor		0.99							
Frt	0.865	0.865	0.850		0.990				
Flt Protected									
Satd. Flow (prot)	1611	1587	2759	0	5532	0	5588	0	0
Flt Permitted									
Satd. Flow (perm)	1611	1565	2759	0	*3787	0	*3771	0	0
Right Turn on Red	No	No		No		No			No
Satd. Flow (RTOR)									
Link Speed (mph)					45		45		
Link Distance (ft)					748		913		
Travel Time (s)					11.3		13.8		
Confl. Peds. (#/hr)		1							
Peak Hour Factor	0.39	0.86	0.59	0.59	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	36	176	222	2	2923	199	3028	29	8
Shared Lane Traffic (%)									
Lane Group Flow (vph)	36	176	224	0	3122	0	3065	0	0
Turn Type	custom	custom	custom						
Protected Phases	3	3 4	4		2		6		
Permitted Phases	3	4	4						
Detector Phase	3	3 4	4		2		6		
Switch Phase									
Minimum Initial (s)	7.0		7.0		12.0		12.0		
Minimum Split (s)	14.0		14.0		33.0		25.0		
Total Split (s)	14.0	30.0	16.0	0.0	110.0	0.0	110.0	0.0	0.0
Total Split (%)	10.0%	21.4%	11.4%	0.0%	78.6%	0.0%	78.6%	0.0%	0.0%
Maximum Green (s)	7.0		9.0		103.0		103.0		
Yellow Time (s)	5.0		5.0		5.0		5.0		
All-Red Time (s)	2.0		2.0		2.0		2.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	0.0	-2.0	-1.6	-2.0	-2.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	2.4	5.0	2.0	4.0
Lead/Lag	Lag		Lead						
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0		2.0		2.0		2.0		
Recall Mode	None		None		C-Max		C-Max		
Walk Time (s)					7.0		7.0		
Flash Dont Walk (s)					16.0		11.0		
Pedestrian Calls (#/hr)					0		0		
Act Effct Green (s)	9.0	25.0	11.0		105.0		105.0		
Actuated g/C Ratio	0.06	0.18	0.08		0.75		0.75		
v/c Ratio	0.35	0.62	1.03		0.75		0.73		
Control Delay	72.3	63.8	131.2		5.6		9.7		

Lanes, Volumes, Timings
9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013



Lane Group	EBR	WBR2	SER	SER2	NET	NER	SWT	SWR	SWR2
Queue Delay	0.0	0.0	0.0		0.1		0.1		
Total Delay	72.3	63.8	131.2		5.7		9.8		
LOS	E	E	F		A		A		
Approach Delay					5.7		9.8		
Approach LOS					A		A		
Queue Length 50th (ft)	32	150	~123		130		546		
Queue Length 95th (ft)	30	221	107		179		m478		
Internal Link Dist (ft)					668		833		
Turn Bay Length (ft)									
Base Capacity (vph)	104	283	217		4149		4191		
Starvation Cap Reductn	0	0	0		176		211		
Spillback Cap Reductn	0	0	0		0		0		
Storage Cap Reductn	0	0	0		0		0		
Reduced v/c Ratio	0.35	0.62	1.03		0.79		0.77		

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 117 (84%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 13.8

Intersection LOS: B

Intersection Capacity Utilization 77.6%

ICU Level of Service D

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Old Mason Farm Road & US 15-501 (Fordham Blvd)

 ø2	 ø4	 ø3
110 s	16 s	14 s
 ø6		
110 s		

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Mitigated Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 				 	
Volume (vph)	7	2536	774	173	2088	208	296	71	46	134	94	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			2%	
Storage Length (ft)	275		300	350		125	500		0	0		0
Storage Lanes	1		1	1		1	2		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor			0.95			0.98						
Frt			0.850			0.850		0.941			0.985	
Flt Protected	0.950			0.950			0.950			0.950	0.994	
Satd. Flow (prot)	1761	5060	1575	1778	5111	1591	3416	1744	0	1664	1715	0
Flt Permitted	0.041			0.042			0.950			0.950	0.994	
Satd. Flow (perm)	76	5060	1500	79	5111	1553	3416	1744	0	1664	1715	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1009			414			797			753	
Travel Time (s)		15.3			6.3			12.1			14.7	
Confl. Peds. (#/hr)	1		6	6		1						
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	7	2642	806	184	2221	221	329	79	51	152	107	14
Shared Lane Traffic (%)										11%		
Lane Group Flow (vph)	7	2642	806	184	2221	221	329	130	0	135	138	0
Turn Type	D.P+P		pm+ov	D.P+P		pm+ov	Split			Split		
Protected Phases	5	2	4	1	6	3	4	4		3	3	
Permitted Phases	6		2	2		6						
Detector Phase	5	2	4	1	6	3	4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	16.0	30.0	18.0	16.0	30.0	20.0	18.0	18.0		20.0	20.0	
Total Split (s)	16.0	106.0	33.0	20.0	110.0	21.0	33.0	33.0	0.0	21.0	21.0	0.0
Total Split (%)	8.9%	58.9%	18.3%	11.1%	61.1%	11.7%	18.3%	18.3%	0.0%	11.7%	11.7%	0.0%
Maximum Green (s)	9.2	98.5	25.8	13.0	102.5	13.8	25.8	25.8		13.8	13.8	
Yellow Time (s)	3.0	4.8	4.3	3.0	4.8	3.9	4.3	4.3		3.9	3.9	
All-Red Time (s)	3.8	2.7	2.9	4.0	2.7	3.3	2.9	2.9		3.3	3.3	
Lost Time Adjust (s)	-1.8	-2.5	-2.2	-2.0	-2.5	-2.2	-2.2	-2.2	0.0	-2.2	-2.2	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	6.0	3.0	2.0	6.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		12.0			14.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	120.0	101.0	129.0	116.0	118.2	134.2	28.0	28.0		16.0	16.0	
Actuated g/C Ratio	0.67	0.56	0.72	0.64	0.66	0.75	0.16	0.16		0.09	0.09	
v/c Ratio	0.05	0.93	0.74	0.96	0.66	0.19	0.62	0.48		0.91	0.91	
Control Delay	6.0	18.2	4.9	119.3	20.5	6.4	76.7	76.0		132.5	130.8	

Lanes, Volumes, Timings
21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

2028 Mitigated Phase 3 PM Peak

10/18/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	3.9	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	6.0	22.1	5.0	119.3	20.5	6.4	76.7	76.0		132.5	130.8	
LOS	A	C	A	F	C	A	E	E		F	F	
Approach Delay		18.1			26.2			76.5			131.6	
Approach LOS		B			C			E			F	
Queue Length 50th (ft)	1	629	151	165	529	57	190	142		169	173	
Queue Length 95th (ft)	m2	m609	m125	#337	716	116	247	220		#309	#310	
Internal Link Dist (ft)		929			334			717			673	
Turn Bay Length (ft)	275		300	350		125	500					
Base Capacity (vph)	154	2839	1087	192	3358	1161	531	271		148	152	
Starvation Cap Reductn	0	149	20	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	20	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	0.98	0.76	0.96	0.67	0.19	0.62	0.48		0.91	0.91	

Intersection Summary

Area Type: Other

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 14 (8%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 29.7

Intersection LOS: C

Intersection Capacity Utilization 86.2%

ICU Level of Service E

Analysis Period (min) 15

Description: NC 54 & Barbee Chapel Road

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 21: NC 54 (Raleigh Road) & E. Barbee Chapel Road

 ø2	 ø1	 ø3	 ø4
106 s	20 s	21 s	33 s
 ø5	 ø6		
16 s	110 s		

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Lane Configurations							⬅		⬆⬆⬆		⬅	
Volume (vph)	0	0	0	0	0	0	140	0	2737	0	76	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		0		0		250
Storage Lanes	0		0	0		0		1		0		1
Taper Length (ft)	25		25	25		25		25		25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Frt												
Flt Protected							0.950				0.950	
Satd. Flow (prot)	0	0	0	0	0	0	1770	0	5085	0	1770	0
Flt Permitted							0.950				0.950	
Satd. Flow (perm)	0	0	0	0	0	0	1770	0	5085	0	1770	0
Right Turn on Red			No			No					No	
Satd. Flow (RTOR)												
Link Speed (mph)		30			30				45			
Link Distance (ft)		107			71				735			
Travel Time (s)		2.4			1.6				11.1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	0.90	1.00	0.90	1.00
Adj. Flow (vph)	0	0	0	0	0	0	156	0	3041	0	84	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	156	0	3041	0	84	0
Turn Type							Prot				Prot	
Protected Phases							5		2		1	
Permitted Phases												
Detector Phase							5		2		1	
Switch Phase												
Minimum Initial (s)							7.0		12.0		7.0	
Minimum Split (s)							14.0		20.0		14.0	
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	19.0	0.0	122.0	0.0	18.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.6%	0.0%	87.1%	0.0%	12.9%	0.0%
Maximum Green (s)							12.0		115.0		11.0	
Yellow Time (s)							5.0		5.0		5.0	
All-Red Time (s)							2.0		2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lead/Lag							Lead		Lag		Lead	
Lead-Lag Optimize?							Yes		Yes		Yes	
Vehicle Extension (s)							3.0		3.0		3.0	
Recall Mode							None		C-Max		None	
Act Effct Green (s)							14.0		117.9		12.1	
Actuated g/C Ratio							0.10		0.84		0.09	
v/c Ratio							0.88		0.71		0.55	
Control Delay							92.5		3.2		71.7	
Queue Delay							0.0		0.3		0.0	
Total Delay							92.5		3.5		71.7	
LOS							F		A		E	
Approach Delay									7.9			
Approach LOS									A			
Queue Length 50th (ft)							147		187		76	

Lanes, Volumes, Timings
91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013



Lane Group	SWT	SWR
Lane Configurations	↑↑↑	
Volume (vph)	2794	0
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		0
Storage Lanes		0
Taper Length (ft)		25
Lane Util. Factor	*0.70	1.00
Fr t		
Flt Protected		
Satd. Flow (prot)	3912	0
Flt Permitted		
Satd. Flow (perm)	3912	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	45	
Link Distance (ft)	748	
Travel Time (s)	11.3	
Peak Hour Factor	0.90	1.00
Adj. Flow (vph)	3104	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	3104	0
Turn Type		
Protected Phases	6	
Permitted Phases		
Detector Phase	6	
Switch Phase		
Minimum Initial (s)	12.0	
Minimum Split (s)	20.0	
Total Split (s)	121.0	0.0
Total Split (%)	86.4%	0.0%
Maximum Green (s)	114.0	
Yellow Time (s)	5.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-2.0	0.0
Total Lost Time (s)	5.0	4.0
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Vehicle Extension (s)	3.0	
Recall Mode	C-Max	
Act Effct Green (s)	116.0	
Actuated g/C Ratio	0.83	
v/c Ratio	0.96	
Control Delay	15.0	
Queue Delay	0.0	
Total Delay	15.0	
LOS	B	
Approach Delay	16.5	
Approach LOS	B	
Queue Length 50th (ft)	407	

Lanes, Volumes, Timings
 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak
 10/18/2013

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWU	SWL
Queue Length 95th (ft)							m#180		m196		m104	
Internal Link Dist (ft)		27			1				655			
Turn Bay Length (ft)											250	
Base Capacity (vph)							177		4283		164	
Starvation Cap Reductn							0		548		0	
Spillback Cap Reductn							0		2		0	
Storage Cap Reductn							0		0		0	
Reduced v/c Ratio							0.88		0.81		0.51	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 115 (82%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 12.2

Intersection LOS: B

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 91: Median U-Turn #1 & US 15-501 (Fordham Blvd)

 ø1	 ø2
18 s	122 s
 ø5	 ø6
19 s	121 s



Lane Group	SWT	SWR
Queue Length 95th (ft)	m312	
Internal Link Dist (ft)	668	
Turn Bay Length (ft)		
Base Capacity (vph)	3241	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.96	
Intersection Summary		

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak

10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations					↑↑↑	↑↑↑	
Volume (vph)	0	0	103	27	2743	2778	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		250			0
Storage Lanes	0	0		1			0
Taper Length (ft)	25	25		25			25
Lane Util. Factor	1.00	1.00	0.91	1.00	0.91	0.91	1.00
Flt							
Flt Protected				0.950			
Satd. Flow (prot)	0	0	0	1770	5085	5085	0
Flt Permitted				0.950			
Satd. Flow (perm)	0	0	0	1770	5085	5085	0
Right Turn on Red		No					No
Satd. Flow (RTOR)							
Link Speed (mph)	25				45	45	
Link Distance (ft)	221				913	1194	
Travel Time (s)	6.0				13.8	18.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.90	0.90	1.00
Adj. Flow (vph)	0	0	114	30	3048	3087	0
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	0	144	3048	3087	0
Turn Type			Prot	Prot			
Protected Phases			5	5	2	6	
Permitted Phases							
Detector Phase			5	5	2	6	
Switch Phase							
Minimum Initial (s)			7.0	7.0	12.0	12.0	
Minimum Split (s)			14.0	14.0	20.0	20.0	
Total Split (s)	0.0	0.0	16.0	16.0	140.0	124.0	0.0
Total Split (%)	0.0%	0.0%	11.4%	11.4%	100.0%	88.6%	0.0%
Maximum Green (s)			9.0	9.0	133.0	117.0	
Yellow Time (s)			5.0	5.0	5.0	5.0	
All-Red Time (s)			2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	7.0	5.0	5.0	5.0	4.0
Lead/Lag			Lead	Lead		Lag	
Lead-Lag Optimize?			Yes	Yes		Yes	
Vehicle Extension (s)			3.0	3.0	3.0	3.0	
Recall Mode			None	None	C-Max	C-Max	
Act Effect Green (s)				11.0	140.0	119.0	
Actuated g/C Ratio				0.08	1.00	0.85	
v/c Ratio				1.04	0.60	0.71	
Control Delay				129.6	0.4	4.6	
Queue Delay				0.0	0.0	0.0	
Total Delay				129.6	0.4	4.6	
LOS				F	A	A	
Approach Delay					6.2	4.6	
Approach LOS					A	A	
Queue Length 50th (ft)				~144	0	290	

Lanes, Volumes, Timings
92: Median U-Turn #2 & US 15-501 (Fordham Blvd)

2028 Mitigated Phase 3 PM Peak
10/18/2013



Lane Group	EBL	EBR	NEU	NEL	NET	SWT	SWR
Queue Length 95th (ft)				m#239	0	284	
Internal Link Dist (ft)	141				833	1114	
Turn Bay Length (ft)				250			
Base Capacity (vph)				139	5085	4322	
Starvation Cap Reductn				0	0	0	
Spillback Cap Reductn				0	0	0	
Storage Cap Reductn				0	0	0	
Reduced v/c Ratio				1.04	0.60	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 104 (74%), Referenced to phase 2:NET and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 5.4

Intersection LOS: A

Intersection Capacity Utilization 69.2%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

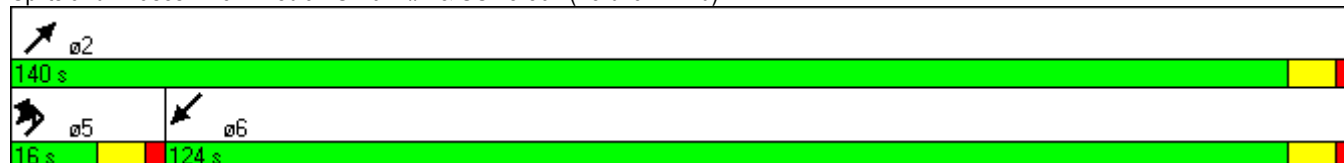
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 92: Median U-Turn #2 & US 15-501 (Fordham Blvd)



Appendix F – Highway Capacity Software Analysis **Output**

2013 Existing

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & Cleland (#5)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	1458	17	55	1455	11	
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.86	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	1567	18	63	1691	12	
Percent Heavy Vehicles	3	--	--	3	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	1	2	0	
Configuration	L	T	TR	L	T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	7	0	1	4	0	96	
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.71	0.71	0.71	
Hourly Flow Rate, HFR (veh/h)	10	0	1	5	0	135	
Percent Heavy Vehicles	2	2	2	4	4	4	
Percent Grade (%)	0			0			
Flared Approach		Y			Y		
Storage		1			1		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L	L	LTR			LTR	
v (veh/h)	0	63	140			11	
C (m) (veh/h)	365	406	364			52	
v/c	0.00	0.16	0.38			0.21	
95% queue length	0.00	0.54	1.76			0.71	
Control Delay (s/veh)	14.9	15.5	20.9			93.4	
LOS	B	C	C			F	
Approach Delay (s/veh)	--	--	20.9			93.4	
Approach LOS	--	--	C			F	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Cleland (#5)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	4	1444	8	65	1328	16		
Peak-Hour Factor, PHF	0.98	0.98	0.98	0.86	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	4	1473	8	75	1544	18		
Percent Heavy Vehicles	3	--	--	3	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5	0	4	2	0	66		
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.77	0.77	0.77		
Hourly Flow Rate, HFR (veh/h)	7	0	5	2	0	85		
Percent Heavy Vehicles	2	2	2	3	2	3		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	4	75	87			12		
C (m) (veh/h)	414	445	422			98		
v/c	0.01	0.17	0.21			0.12		
95% queue length	0.03	0.60	0.77			0.40		
Control Delay (s/veh)	13.8	14.7	16.8			50.8		
LOS	B	B	C			F		
Approach Delay (s/veh)	--	--	16.8			50.8		
Approach LOS	--	--	C			F		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Cleland (#5)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	2	1800	90	172	1576	19		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.96	0.96	0.96		
Hourly Flow Rate, HFR (veh/h)	2	1935	96	179	1641	19		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	3	0	1	3	0	135		
Peak-Hour Factor, PHF	0.50	0.50	0.50	0.70	0.70	0.70		
Hourly Flow Rate, HFR (veh/h)	6	0	2	4	0	192		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	2	179	196			8		
C (m) (veh/h)	384	275						
v/c	0.01	0.65						
95% queue length	0.02	4.16						
Control Delay (s/veh)	14.4	39.6						
LOS	B	E						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Brandon (#6)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	12	1476	22	36	1355	5		
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.86	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	13	1621	24	41	1575	5		
Percent Heavy Vehicles	3	--	--	3	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10	1	11	8	1	38		
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.80	0.80	0.80		
Hourly Flow Rate, HFR (veh/h)	14	1	15	9	1	47		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	13	41	57			30		
C (m) (veh/h)	408	385	393			126		
v/c	0.03	0.11	0.15			0.24		
95% queue length	0.10	0.35	0.50			0.87		
Control Delay (s/veh)	14.1	15.5	24.8			46.8		
LOS	B	C	C			E		
Approach Delay (s/veh)	--	--	24.8			46.8		
Approach LOS	--	--	C			E		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Brandon (#6)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	9	1400	15	38	1291	4		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	9	1473	15	41	1403	4		
Percent Heavy Vehicles	3	--	--	3	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	12	1	4	7	0	51		
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.61	0.61	0.61		
Hourly Flow Rate, HFR (veh/h)	22	1	7	11	0	83		
Percent Heavy Vehicles	2	2	2	3	3	3		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	9	41	94			30		
C (m) (veh/h)	476	443	464			103		
v/c	0.02	0.09	0.20			0.29		
95% queue length	0.06	0.30	0.75			1.10		
Control Delay (s/veh)	12.7	14.0	20.2			55.5		
LOS	B	B	C			F		
Approach Delay (s/veh)	--	--	20.2			55.5		
Approach LOS	--	--	C			F		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Brandon (#6)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	10	1828	28	79	1489	16		
Peak-Hour Factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96		
Hourly Flow Rate, HFR (veh/h)	10	1904	29	82	1551	16		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	4	0	10	5	0	43		
Peak-Hour Factor, PHF	0.68	0.68	0.68	0.80	0.80	0.80		
Hourly Flow Rate, HFR (veh/h)	5	0	14	6	0	53		
Percent Heavy Vehicles	7	7	7	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	10	82	59			19		
C (m) (veh/h)	417	301	342			160		
v/c	0.02	0.27	0.17			0.12		
95% queue length	0.07	1.08	0.61			0.40		
Control Delay (s/veh)	13.8	21.4	26.8			37.8		
LOS	B	C	D			E		
Approach Delay (s/veh)	--	--	26.8			37.8		
Approach LOS	--	--	D			E		

TWO-WAY STOP CONTROL SUMMARY							
General Information			Site Information				
Analyst	CRS		Intersection	US 15-501 & NC 54WB OnRmp (#7)			
Agency/Co.	HNTB North Carolina, PC		Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013		Analysis Year	2013			
Analysis Time Period	2013 Existing AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 WB On-Ramp			North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South			Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1256	25				
Peak-Hour Factor, PHF	1.00	0.90	0.57	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	1395	43	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	1	0	0	0	
Configuration		T	R				
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						254	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.84	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	302	
Percent Heavy Vehicles	0	0	0	0	0	4	
Percent Grade (%)	0			2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		
v (veh/h)					302		
C (m) (veh/h)					420		
v/c					0.72		
95% queue length					5.57		
Control Delay (s/veh)					32.6		
LOS					D		
Approach Delay (s/veh)	--	--	32.6				
Approach LOS	--	--	D				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & NC 54WB OnRmp (#7)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 WB On-Ramp				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1037	22				
Peak-Hour Factor, PHF	1.00	0.90	0.86	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	1152	25	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	1	0	0	0	
Configuration		T	R				
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						348	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.94	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	370	
Percent Heavy Vehicles	0	0	0	0	0	4	
Percent Grade (%)	0			2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		
v (veh/h)					370		
C (m) (veh/h)					497		
v/c					0.74		
95% queue length					6.27		
Control Delay (s/veh)					30.5		
LOS					D		
Approach Delay (s/veh)	--	--	30.5				
Approach LOS	--	--	D				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & NC 54WB OnRmp (#7)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 WB On-Ramp				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1479	18				
Peak-Hour Factor, PHF	1.00	0.90	0.50	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	1643	36	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	1	0	0	0	
Configuration		T	R				
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						387	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.93	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	416	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		
v (veh/h)					416		
C (m) (veh/h)					357		
v/c					1.17		
95% queue length					16.71		
Control Delay (s/veh)					133.9		
LOS					F		
Approach Delay (s/veh)	--	--	133.9				
Approach LOS	--	--	F				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1227			1805	266	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1363	0	0	2005	359	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			11			54	
Peak-Hour Factor, PHF	1.00	1.00	0.83	1.00	1.00	0.80	
Hourly Flow Rate, HFR (veh/h)	0	0	13	0	0	67	
Percent Heavy Vehicles	0	0	6	0	0	5	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					67		13
C (m) (veh/h)					416		284
v/c					0.16		0.05
95% queue length					0.57		0.14
Control Delay (s/veh)					15.3		18.3
LOS					C		C
Approach Delay (s/veh)	--	--	15.3			18.3	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		968			1506	259	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1075	0	0	1673	349	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			27			91	
Peak-Hour Factor, PHF	1.00	1.00	0.90	1.00	1.00	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	30	0	0	98	
Percent Heavy Vehicles	0	0	3	0	0	4	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					98		30
C (m) (veh/h)					512		363
v/c					0.19		0.08
95% queue length					0.70		0.27
Control Delay (s/veh)					13.7		15.8
LOS					B		C
Approach Delay (s/veh)	--	--	13.7			15.8	
Approach LOS	--	--	B			C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		1288			2090	232		
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.84		
Hourly Flow Rate, HFR (veh/h)	0	1431	0	0	2322	276		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	0	0	2	1		
Configuration		T			T	R		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			58			209		
Peak-Hour Factor, PHF	1.00	1.00	0.86	1.00	1.00	0.89		
Hourly Flow Rate, HFR (veh/h)	0	0	67	0	0	234		
Percent Heavy Vehicles	0	0	2	0	0	2		
Percent Grade (%)	0			3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					234			67
C (m) (veh/h)					403			236
v/c					0.58			0.28
95% queue length					3.56			1.13
Control Delay (s/veh)					25.6			26.2
LOS					D			D
Approach Delay (s/veh)	--	--	25.6			26.2		
Approach LOS	--	--	D			D		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		624	11		1168	855	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.85	0.85	
Hourly Flow Rate, HFR (veh/h)	0	751	13	0	1374	1005	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	1	0	2	1	
Configuration		T	R		T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			266			163	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.96	
Hourly Flow Rate, HFR (veh/h)	0	0	359	0	0	169	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					359		169
C (m) (veh/h)					683		462
v/c					0.53		0.37
95% queue length					3.09		1.66
Control Delay (s/veh)					16.0		17.2
LOS					C		C
Approach Delay (s/veh)	--	--	16.0			17.2	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		641	27		633	596		
Peak-Hour Factor, PHF	1.00	0.90	0.90	1.00	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	0	712	30	0	673	634		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	1	0	2	1		
Configuration		T	R		T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			259			138		
Peak-Hour Factor, PHF	1.00	1.00	0.81	1.00	1.00	0.74		
Hourly Flow Rate, HFR (veh/h)	0	0	319	0	0	186		
Percent Heavy Vehicles	0	0	4	0	0	4		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					319			186
C (m) (veh/h)					694			711
v/c					0.46			0.26
95% queue length					2.43			1.05
Control Delay (s/veh)					14.5			11.8
LOS					B			B
Approach Delay (s/veh)	--	--	14.5			11.8		
Approach LOS	--	--	B			B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1314	58		871	897	
Peak-Hour Factor, PHF	1.00	0.86	0.86	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	1527	67	0	946	974	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	1	0	2	1	
Configuration		T	R		T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			232			83	
Peak-Hour Factor, PHF	1.00	1.00	0.84	1.00	1.00	0.88	
Hourly Flow Rate, HFR (veh/h)	0	0	276	0	0	94	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					276		94
C (m) (veh/h)					419		605
v/c					0.66		0.16
95% queue length					4.60		0.55
Control Delay (s/veh)					28.7		12.0
LOS					D		B
Approach Delay (s/veh)	--	--	28.7			12.0	
Approach LOS	--	--	D			B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1317	254	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1531	295	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						25	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	29	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							29
C (m) (veh/h)							349
v/c							0.08
95% queue length							0.27
Control Delay (s/veh)							16.2
LOS							C
Approach Delay (s/veh)	--	--				16.2	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1212	254	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1409	295	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Two Way Left Turn Lane						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						22	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	25	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							25
C (m) (veh/h)							377
v/c							0.07
95% queue length							0.21
Control Delay (s/veh)							15.2
LOS							C
Approach Delay (s/veh)	--	--				15.2	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1749	387	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	2033	449	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						18	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	21	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							21
C (m) (veh/h)							229
v/c							0.09
95% queue length							0.30
Control Delay (s/veh)							22.3
LOS							C
Approach Delay (s/veh)	--	--				22.3	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#1 (#14)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr Dr #1			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	10	1935			1492	28	
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.87	0.87	
Hourly Flow Rate, HFR (veh/h)	11	2150	0	0	1714	32	
Percent Heavy Vehicles	3	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	0	2	0	
Configuration	L	T			T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						36	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.78	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	46	
Percent Heavy Vehicles	0	0	0	0	0	3	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L						R
v (veh/h)	11						46
C (m) (veh/h)	351						371
v/c	0.03						0.12
95% queue length	0.10						0.42
Control Delay (s/veh)	15.6						16.1
LOS	C						C
Approach Delay (s/veh)	--	--				16.1	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#1 (#14)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr Dr #1				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	31	1445			940	22		
Peak-Hour Factor, PHF	0.97	0.97	1.00	1.00	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	31	1489	0	0	1000	23		
Percent Heavy Vehicles	4	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	0	2	0		
Configuration	L	T			T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						42		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.55		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	76		
Percent Heavy Vehicles	0	0	0	0	0	5		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	31							76
C (m) (veh/h)	662							575
v/c	0.05							0.13
95% queue length	0.15							0.45
Control Delay (s/veh)	10.7							12.2
LOS	B							B
Approach Delay (s/veh)	--	--				12.2		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#1 (#14)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr Dr #1				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	29	2164			1454	39		
Peak-Hour Factor, PHF	0.97	0.97	1.00	1.00	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	29	2230	0	0	1580	42		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	0	2	0		
Configuration	L	T			T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						69		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	81		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	29							81
C (m) (veh/h)	397							404
v/c	0.07							0.20
95% queue length	0.24							0.74
Control Delay (s/veh)	14.8							16.1
LOS	B							C
Approach Delay (s/veh)	--	--				16.1		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1504	9	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1634	9	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						8	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.40	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	19	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							19
C (m) (veh/h)							400
v/c							0.05
95% queue length							0.15
Control Delay (s/veh)							14.4
LOS							B
Approach Delay (s/veh)	--	--				14.4	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					985	20	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.95	0.95	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1036	21	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						4	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.44	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	9	
Percent Heavy Vehicles	0	0	0	0	0	25	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							9
C (m) (veh/h)							531
v/c							0.02
95% queue length							0.05
Control Delay (s/veh)							11.9
LOS							B
Approach Delay (s/veh)	--	--				11.9	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1463	22		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1607	24		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						6		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	8		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								8
C (m) (veh/h)								403
v/c								0.02
95% queue length								0.06
Control Delay (s/veh)								14.1
LOS								B
Approach Delay (s/veh)	--	--				14.1		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Audley (#17)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing AM Peak						
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>							
East/West Street: <i>NC 54 (Raleigh Road)</i>				North/South Street: <i>Audley Lane</i>			
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1455	1	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.93	0.93	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1564	1	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						1	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.25	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	4	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							4
C (m) (veh/h)							412
v/c							0.01
95% queue length							0.03
Control Delay (s/veh)							13.8
LOS							B
Approach Delay (s/veh)	--	--				13.8	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Audley (#17)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing Noon Peak						
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>							
East/West Street: <i>NC 54 (Raleigh Road)</i>				North/South Street: <i>Audley Lane</i>			
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					943	1	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.93	0.93	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1013	1	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						2	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.50	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	4	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							4
C (m) (veh/h)							582
v/c							0.01
95% queue length							0.02
Control Delay (s/veh)							11.2
LOS							B
Approach Delay (s/veh)	--	--				11.2	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Audley (#17)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing PM Peak							
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>								
East/West Street: <i>NC 54 (Raleigh Road)</i>				North/South Street: <i>Audley Lane</i>				
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1432	6		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1573	6		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						3		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.38		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	7		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								7
C (m) (veh/h)								408
v/c								0.02
95% queue length								0.05
Control Delay (s/veh)								14.0
LOS								B
Approach Delay (s/veh)	--	--				14.0		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		65	4	2	93		
Peak-Hour Factor, PHF	1.00	0.82	0.82	0.77	0.77	1.00	
Hourly Flow Rate, HFR (veh/h)	0	79	4	2	120	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	8		0				
Peak-Hour Factor, PHF	0.45	1.00	0.45	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	17	0	0	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		17			
C (m) (veh/h)		1501		782			
v/c		0.00		0.02			
95% queue length		0.00		0.07			
Control Delay (s/veh)		7.4		9.7			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.7				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Cleland (#24)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		66	7	2	49			
Peak-Hour Factor, PHF	1.00	0.79	0.79	0.71	0.71	1.00		
Hourly Flow Rate, HFR (veh/h)	0	83	8	2	69	0		
Percent Heavy Vehicles	0	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	12		1					
Peak-Hour Factor, PHF	0.46	1.00	0.46	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	26	0	2	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		2		28				
C (m) (veh/h)		1491		839				
v/c		0.00		0.03				
95% queue length		0.00		0.10				
Control Delay (s/veh)		7.4		9.4				
LOS		A		A				
Approach Delay (s/veh)	--	--	9.4					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		224	16	1	125		
Peak-Hour Factor, PHF	1.00	0.62	0.62	0.62	0.62	1.00	
Hourly Flow Rate, HFR (veh/h)	0	361	25	1	201	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	10		6				
Peak-Hour Factor, PHF	0.85	1.00	0.85	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	11	0	7	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound		Southbound		
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		1		18			
C (m) (veh/h)		1172		538			
v/c		0.00		0.03			
95% queue length		0.00		0.10			
Control Delay (s/veh)		8.1		11.9			
LOS		A		B			
Approach Delay (s/veh)	--	--	11.9				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hamilton & Cleland (#25)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	64	0	2	93	0	
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.82	0.82	0.82	
Hourly Flow Rate, HFR (veh/h)	0	84	0	2	113	0	
Percent Heavy Vehicles	9	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	0	0	0	0	
Peak-Hour Factor, PHF	0.75	0.75	0.75	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	2	0	0	0	0	0	
Percent Heavy Vehicles	2	2	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	0	2		2			0
C (m) (veh/h)	1434	1526		756			
v/c	0.00	0.00		0.00			
95% queue length	0.00	0.00		0.01			
Control Delay (s/veh)	7.5	7.4		9.8			
LOS	A	A		A			
Approach Delay (s/veh)	--	--	9.8				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hamilton & Cleland (#25)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2013		
Analysis Time Period	2013 Existing Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	64	3	0	49	0	
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.64	0.64	0.64	
Hourly Flow Rate, HFR (veh/h)	0	84	3	0	76	0	
Percent Heavy Vehicles	3	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	0	0	0	0	
Peak-Hour Factor, PHF	0.25	0.25	0.25	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	8	0	0	0	0	0	
Percent Heavy Vehicles	2	2	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	0	0		8			0
C (m) (veh/h)	1517	1496		803			
v/c	0.00	0.00		0.01			
95% queue length	0.00	0.00		0.03			
Control Delay (s/veh)	7.4	7.4		9.5			
LOS	A	A		A			
Approach Delay (s/veh)	--	--	9.5				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	127	84	34	10	56	37		
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.68	0.68	0.68		
Hourly Flow Rate, HFR (veh/h)	222	147	59	14	82	54		
Percent Heavy Vehicles	2	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9	17	12	22	25	58		
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.51	0.51	0.51		
Hourly Flow Rate, HFR (veh/h)	16	32	22	43	49	113		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	222	14		70			205	
C (m) (veh/h)	1448	1353		302			421	
v/c	0.15	0.01		0.23			0.49	
95% queue length	0.54	0.03		0.88			2.60	
Control Delay (s/veh)	7.9	7.7		20.5			21.4	
LOS	A	A		C			C	
Approach Delay (s/veh)	--	--	20.5			21.4		
Approach LOS	--	--	C			C		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2013
Analysis Time Period	2013 Existing AM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Burning Tree Drive

North/South Street: Cleland Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	21	27	0	0	35	61
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	50	0	11
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.66		0.75				0.70	
Flow Rate (veh/h)	71		127				86	
% Heavy Vehicles	10		4				10	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0				0.8	
Prop. Right-Turns	0.0		0.6				0.2	
Prop. Heavy Vehicle	0.1		0.0				0.1	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.3		-0.3				0.2	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.06		0.11				0.08	
hd, final value (s)	4.49		3.88				4.56	
x, final value	0.09		0.14				0.11	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.5		1.9				2.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	321		377				336	
Delay (s/veh)	7.93		7.49				8.11	
LOS	A		A				A	
Approach: Delay (s/veh)	7.93		7.49				8.11	
LOS	A		A				A	
Intersection Delay (s/veh)	7.79							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2013
Analysis Time Period	2013 Existing Noon Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Burning Tree Drive

North/South Street: Cleland Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	9	32	0	0	36	29
%Thrus Left Lane						
Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	0	0	0	44	0	10
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.71		0.71				0.90	
Flow Rate (veh/h)	57		90				59	
% Heavy Vehicles	5		5				4	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				0.8	
Prop. Right-Turns	0.0		0.4				0.2	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.2				0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.05		0.08				0.05	
hd, final value (s)	4.25		3.91				4.33	
x, final value	0.07		0.10				0.07	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.3		1.9				2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	307		340				309	
Delay (s/veh)	7.56		7.34				7.66	
LOS	A		A				A	
Approach: Delay (s/veh)	7.56		7.34				7.66	
LOS	A		A				A	
Intersection Delay (s/veh)	7.49							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2013
Analysis Time Period	2013 Existing PM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	24	50	0	0	37	63
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	57	0	32
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.76		0.76				0.73	
Flow Rate (veh/h)	96		130				121	
% Heavy Vehicles	3		3				2	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.0				0.6	
Prop. Right-Turns	0.0		0.6				0.4	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.3				-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.09		0.12				0.11	
hd, final value (s)	4.43		3.96				4.34	
x, final value	0.12		0.14				0.15	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.4		2.0				2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	346		380				371	
Delay (s/veh)	8.02		7.62				8.08	
LOS	A		A				A	
Approach: Delay (s/veh)	8.02		7.62				8.08	
LOS	A		A				A	
Intersection Delay (s/veh)	7.89							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	46	60			49	50		
Peak-Hour Factor, PHF	0.88	0.88	1.00	1.00	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	52	68	0	0	55	56		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	41		38					
Peak-Hour Factor, PHF	0.72	1.00	0.72	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	56	0	52	0	0	0		
Percent Heavy Vehicles	9	0	9	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	52						108	
C (m) (veh/h)	1460						785	
v/c	0.04						0.14	
95% queue length	0.11						0.48	
Control Delay (s/veh)	7.6						10.3	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.3		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	18	38			43	47		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.90	0.90		
Hourly Flow Rate, HFR (veh/h)	23	48	0	0	47	52		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	47		29					
Peak-Hour Factor, PHF	0.73	1.00	0.73	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	64	0	39	0	0	0		
Percent Heavy Vehicles	4	0	4	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	23						103	
C (m) (veh/h)	1475						853	
v/c	0.02						0.12	
95% queue length	0.05						0.41	
Control Delay (s/veh)	7.5						9.8	
LOS	A						A	
Approach Delay (s/veh)	--	--				9.8		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	38	80			72	55		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	48	102	0	0	79	60		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	85		33					
Peak-Hour Factor, PHF	0.80	1.00	0.80	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	106	0	41	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	48						147	
C (m) (veh/h)	1445						702	
v/c	0.03						0.21	
95% queue length	0.10						0.79	
Control Delay (s/veh)	7.6						11.5	
LOS	A						B	
Approach Delay (s/veh)	--	--				11.5		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	57	5	1	39	1		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.79	0.79	0.79		
Hourly Flow Rate, HFR (veh/h)	1	68	6	1	49	1		
Percent Heavy Vehicles	6	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	12	1	0	0	2	0		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	18	1	0	0	4	0		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	1	1		19			4	
C (m) (veh/h)	1531	1526		837			762	
v/c	0.00	0.00		0.02			0.01	
95% queue length	0.00	0.00		0.07			0.02	
Control Delay (s/veh)	7.4	7.4		9.4			9.7	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.4			9.7		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	4	44	8	1	35	2		
Peak-Hour Factor, PHF	0.70	0.70	0.70	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	5	62	11	1	46	2		
Percent Heavy Vehicles	9	--	--	3	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	8	0	2	3	2	3		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.67	0.67	0.67		
Hourly Flow Rate, HFR (veh/h)	9	0	2	4	2	4		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	5	1		11			10	
C (m) (veh/h)	1515	1520		860			884	
v/c	0.00	0.00		0.01			0.01	
95% queue length	0.01	0.00		0.04			0.03	
Control Delay (s/veh)	7.4	7.4		9.2			9.1	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.2			9.1		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2013			
Analysis Time Period	2013 Existing PM Peak							
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>								
East/West Street: <i>Brandon Road</i>				North/South Street: <i>Hayes Road</i>				
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	52	9	0	38	3		
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	5	55	9	0	40	3		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10	2	0	4	2	8		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	15	3	0	5	2	10		
Percent Heavy Vehicles	2	2	2	7	7	7		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	5	0		18			17	
C (m) (veh/h)	1566	1538		833			925	
v/c	0.00	0.00		0.02			0.02	
95% queue length	0.01	0.00		0.07			0.06	
Control Delay (s/veh)	7.3	7.3		9.4			9.0	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.4			9.0		
Approach LOS	--	--	A			A		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2013
Analysis Time Period	2013 Existing AM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	8	4	4	0	4	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	3	1	1	0	3	18
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.64		0.31		0.35		0.88	
Flow Rate (veh/h)	24		12		12		23	
% Heavy Vehicles	6		2		14		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5		0.0		0.7		0.0	
Prop. Right-Turns	0.3		0.0		0.2		0.9	
Prop. Heavy Vehicle	0.1		0.0		0.1		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1		0.0		0.3		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.01		0.01		0.02	
hd, final value (s)	4.03		4.03		4.27		3.50	
x, final value	0.03		0.01		0.01		0.02	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.0		2.3		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	274		262		262		273	
Delay (s/veh)	7.15		7.08		7.33		6.58	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.15		7.08		7.33		6.58	
LOS	A		A		A		A	
Intersection Delay (s/veh)	6.98							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2013
Analysis Time Period	2013 Existing Noon Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	5	9	0	2	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	4	2	0	3	1
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.88</i>		<i>0.75</i>		<i>0.65</i>		<i>1.00</i>	
Flow Rate (veh/h)	<i>15</i>		<i>2</i>		<i>18</i>		<i>4</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.0		0.5		0.0	
Prop. Right-Turns	0.7		0.0		0.2		0.3	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.4		0.0		0.0		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.01		0.00		0.02		0.00	
hd, final value (s)	3.58		3.99		3.97		3.83	
x, final value	0.01		0.00		0.02		0.00	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.6		2.0		2.0		1.8	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	265		252		268		254	
Delay (s/veh)	6.64		7.00		7.05		6.85	
LOS	A		A		A		A	
Approach: Delay (s/veh)	6.64		7.00		7.05		6.85	
LOS	A		A		A		A	
Intersection Delay (s/veh)	6.87							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2013
Analysis Time Period	2013 Existing PM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	18	4	3	1	4	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	4	3	0	0	1	8
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	27		5		7		9	
% Heavy Vehicles	2		2		2		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.7		0.2		0.6		0.0	
Prop. Right-Turns	0.1		0.0		0.0		0.9	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1		0.1		0.1		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.00		0.01		0.01	
hd, final value (s)	4.05		4.03		4.13		3.48	
x, final value	0.03		0.01		0.01		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.1		2.0		2.1		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	277		255		257		259	
Delay (s/veh)	7.18		7.05		7.16		6.51	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.18		7.05		7.16		6.51	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.04							
Intersection LOS	A							

2018 Without Site Phase 1

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Cleland (#5)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	1560	18	59	1557	12		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.86	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	0	1677	19	68	1810	13		
Percent Heavy Vehicles	3	--	--	3	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	7	0	1	4	0	103		
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.71	0.71	0.71		
Hourly Flow Rate, HFR (veh/h)	10	0	1	5	0	145		
Percent Heavy Vehicles	2	2	2	4	4	4		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (veh/h)	0	68		150			11	
C (m) (veh/h)	328	367		337			40	
v/c	0.00	0.19		0.45			0.28	
95% queue length	0.00	0.67		2.20			0.91	
Control Delay (s/veh)	16.0	17.0		24.0			128.5	
LOS	C	C		C			F	
Approach Delay (s/veh)	--	--	24.0			128.5		
Approach LOS	--	--	C			F		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & Cleland (#5)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	4	1545	9	70	1421	17	
Peak-Hour Factor, PHF	0.98	0.98	0.98	0.86	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	4	1576	9	81	1652	19	
Percent Heavy Vehicles	3	--	--	3	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	1	2	0	
Configuration	L	T	TR	L	T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5	0	4	2	0	71	
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.77	0.77	0.77	
Hourly Flow Rate, HFR (veh/h)	7	0	5	2	0	92	
Percent Heavy Vehicles	2	2	2	3	2	3	
Percent Grade (%)	0			0			
Flared Approach		Y			Y		
Storage		1			1		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L	L		LTR			LTR
v (veh/h)	4	81		94			12
C (m) (veh/h)	376	406		393			79
v/c	0.01	0.20		0.24			0.15
95% queue length	0.03	0.73		0.92			0.51
Control Delay (s/veh)	14.7	16.1		18.1			62.7
LOS	B	C		C			F
Approach Delay (s/veh)	--	--	18.1			62.7	
Approach LOS	--	--	C			F	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Cleland (#5)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	2	1926	96	184	1686	20		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.96	0.96	0.96		
Hourly Flow Rate, HFR (veh/h)	2	2070	103	191	1756	20		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	3	0	1	3	0	144		
Peak-Hour Factor, PHF	0.50	0.50	0.50	0.70	0.70	0.70		
Hourly Flow Rate, HFR (veh/h)	6	0	2	4	0	205		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	2	191	209			8		
C (m) (veh/h)	346	242						
v/c	0.01	0.79						
95% queue length	0.02	5.86						
Control Delay (s/veh)	15.5	59.2						
LOS	C	F						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Brandon (#6)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	13	1579	24	39	1450	5		
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.86	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	14	1735	26	45	1686	5		
Percent Heavy Vehicles	3	--	--	3	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	11	1	12	9	1	41		
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.80	0.80	0.80		
Hourly Flow Rate, HFR (veh/h)	15	1	17	11	1	51		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	14	45	63			33		
C (m) (veh/h)	369	347	304			107		
v/c	0.04	0.13	0.21			0.31		
95% queue length	0.12	0.44	0.76			1.19		
Control Delay (s/veh)	15.1	16.9	29.7			57.8		
LOS	C	C	D			F		
Approach Delay (s/veh)	--	--	29.7			57.8		
Approach LOS	--	--	D			F		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & Brandon (#6)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Brandon Road				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	10	1496	16	41	1381	4	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	10	1574	16	44	1501	4	
Percent Heavy Vehicles	3	--	--	3	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	1	2	0	
Configuration	L	T	TR	L	T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	13	1	4	7	0	55	
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.61	0.61	0.61	
Hourly Flow Rate, HFR (veh/h)	24	1	7	11	0	90	
Percent Heavy Vehicles	2	2	2	3	3	3	
Percent Grade (%)	0			0			
Flared Approach		Y			Y		
Storage		1			1		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L	L		LTR			LTR
v (veh/h)	10	44		101			32
C (m) (veh/h)	436	404		430			84
v/c	0.02	0.11		0.23			0.38
95% queue length	0.07	0.36		0.90			1.50
Control Delay (s/veh)	13.5	15.0		22.0			72.1
LOS	B	B		C			F
Approach Delay (s/veh)	--	--	22.0			72.1	
Approach LOS	--	--	C			F	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Brandon (#6)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	11	1956	30	85	1593	17		
Peak-Hour Factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96		
Hourly Flow Rate, HFR (veh/h)	11	2037	31	88	1659	17		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	4	0	11	5	0	46		
Peak-Hour Factor, PHF	0.68	0.68	0.68	0.80	0.80	0.80		
Hourly Flow Rate, HFR (veh/h)	5	0	16	6	0	57		
Percent Heavy Vehicles	7	7	7	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	11	88	63			21		
C (m) (veh/h)	379	266						
v/c	0.03	0.33						
95% queue length	0.09	1.40						
Control Delay (s/veh)	14.8	25.1						
LOS	B	D						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY						
General Information			Site Information			
Analyst	CRS		Intersection	US 15-501 & NC 54WB OnRmp (#7)		
Agency/Co.	HNTB North Carolina, PC		Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013		Analysis Year	2018		
Analysis Time Period	2018 Without Site AM Peak					
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS						
East/West Street: NC 54 WB On-Ramp			North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South			Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		1344	27			
Peak-Hour Factor, PHF	1.00	0.90	0.57	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	1493	47	0	0	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	1	0	0	0
Configuration		T	R			
Upstream Signal		0			0	
Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						272
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.84
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	323
Percent Heavy Vehicles	0	0	0	0	0	4
Percent Grade (%)	0			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R
Delay, Queue Length, and Level of Service						
Approach	Northbound	Southbound	Westbound		Eastbound	
Movement	1	4	7	8	9	10
Lane Configuration					R	
v (veh/h)					323	
C (m) (veh/h)					394	
v/c					0.82	
95% queue length					7.43	
Control Delay (s/veh)					44.4	
LOS					E	
Approach Delay (s/veh)	--	--	44.4			
Approach LOS	--	--	E			

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & NC 54WB OnRmp (#7)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 WB On-Ramp				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1110	24				
Peak-Hour Factor, PHF	1.00	0.90	0.86	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	1233	27	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	1	0	0	0	
Configuration		T	R				
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						372	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.94	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	395	
Percent Heavy Vehicles	0	0	0	0	0	4	
Percent Grade (%)	0			2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration					R		
v (veh/h)					395		
C (m) (veh/h)					471		
v/c					0.84		
95% queue length					8.31		
Control Delay (s/veh)					41.2		
LOS					E		
Approach Delay (s/veh)	--	--	41.2				
Approach LOS	--	--	E				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & NC 54WB OnRmp (#7)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 WB On-Ramp				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1583	19				
Peak-Hour Factor, PHF	1.00	0.90	0.50	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	1758	38	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	1	0	0	0	
Configuration		T	R				
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						414	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.93	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	445	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		
v (veh/h)					445		
C (m) (veh/h)					330		
v/c					1.35		
95% queue length					21.97		
Control Delay (s/veh)					207.3		
LOS					F		
Approach Delay (s/veh)	--	--	207.3				
Approach LOS	--	--	F				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1313			1931	285	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1458	0	0	2145	385	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			12			58	
Peak-Hour Factor, PHF	1.00	1.00	0.83	1.00	1.00	0.80	
Hourly Flow Rate, HFR (veh/h)	0	0	14	0	0	72	
Percent Heavy Vehicles	0	0	6	0	0	5	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					72		14
C (m) (veh/h)					389		258
v/c					0.19		0.05
95% queue length					0.67		0.17
Control Delay (s/veh)					16.3		19.8
LOS					C		C
Approach Delay (s/veh)	--	--	16.3			19.8	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1036			1611	277	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1151	0	0	1790	374	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			29			97	
Peak-Hour Factor, PHF	1.00	1.00	0.90	1.00	1.00	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	32	0	0	105	
Percent Heavy Vehicles	0	0	3	0	0	4	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					105		32
C (m) (veh/h)					486		335
v/c					0.22		0.10
95% queue length					0.81		0.31
Control Delay (s/veh)					14.4		16.9
LOS					B		C
Approach Delay (s/veh)	--	--	14.4			16.9	
Approach LOS	--	--	B			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1378			2236	248	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.84	
Hourly Flow Rate, HFR (veh/h)	0	1531	0	0	2484	295	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			62			224	
Peak-Hour Factor, PHF	1.00	1.00	0.86	1.00	1.00	0.89	
Hourly Flow Rate, HFR (veh/h)	0	0	72	0	0	251	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					251		72
C (m) (veh/h)					376		212
v/c					0.67		0.34
95% queue length					4.64		1.43
Control Delay (s/veh)					31.8		30.5
LOS					D		D
Approach Delay (s/veh)	--	--	31.8			30.5	
Approach LOS	--	--	D			D	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		668	12		1250	915	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.85	0.85	
Hourly Flow Rate, HFR (veh/h)	0	804	14	0	1470	1076	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	1	0	2	1	
Configuration		T	R		T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			285			174	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.96	
Hourly Flow Rate, HFR (veh/h)	0	0	385	0	0	181	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					385		181
C (m) (veh/h)					661		435
v/c					0.58		0.42
95% queue length					3.77		2.01
Control Delay (s/veh)					17.8		19.0
LOS					C		C
Approach Delay (s/veh)	--	--	17.8			19.0	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		686	29		677	638		
Peak-Hour Factor, PHF	1.00	0.90	0.90	1.00	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	0	762	32	0	720	678		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	1	0	2	1		
Configuration		T	R		T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			277			148		
Peak-Hour Factor, PHF	1.00	1.00	0.81	1.00	1.00	0.74		
Hourly Flow Rate, HFR (veh/h)	0	0	341	0	0	199		
Percent Heavy Vehicles	0	0	4	0	0	4		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					341			199
C (m) (veh/h)					672			690
v/c					0.51			0.29
95% queue length					2.89			1.19
Control Delay (s/veh)					15.7			12.3
LOS					C			B
Approach Delay (s/veh)	--	--	15.7			12.3		
Approach LOS	--	--	C			B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1406	62		932	960	
Peak-Hour Factor, PHF	1.00	0.86	0.86	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	1634	72	0	1013	1043	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	1	0	2	1	
Configuration		T	R		T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			248			89	
Peak-Hour Factor, PHF	1.00	1.00	0.84	1.00	1.00	0.88	
Hourly Flow Rate, HFR (veh/h)	0	0	295	0	0	101	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					295		101
C (m) (veh/h)					392		581
v/c					0.75		0.17
95% queue length					6.08		0.62
Control Delay (s/veh)					37.3		12.5
LOS					E		B
Approach Delay (s/veh)	--	--	37.3			12.5	
Approach LOS	--	--	E			B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1409	272	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1638	316	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						27	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	31	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							31
C (m) (veh/h)							321
v/c							0.10
95% queue length							0.32
Control Delay (s/veh)							17.4
LOS							C
Approach Delay (s/veh)	--	--				17.4	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1297	372		
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1508	432		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Two Way Left Turn Lane							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						24		
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	28		
Percent Heavy Vehicles	0	0	2	0	0	2		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								28
C (m) (veh/h)								324
v/c								0.09
95% queue length								0.28
Control Delay (s/veh)								17.2
LOS								C
Approach Delay (s/veh)	--	--				17.2		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1871	414	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	2175	481	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						19	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	22	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							22
C (m) (veh/h)							204
v/c							0.11
95% queue length							0.36
Control Delay (s/veh)							24.8
LOS							C
Approach Delay (s/veh)	--	--				24.8	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#1 (#14)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr Dr #1			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	11	2070			1596	28	
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.87	0.87	
Hourly Flow Rate, HFR (veh/h)	12	2300	0	0	1834	32	
Percent Heavy Vehicles	3	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	0	2	0	
Configuration	L	T			T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						36	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.78	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	46	
Percent Heavy Vehicles	0	0	0	0	0	3	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L						R
v (veh/h)	12						46
C (m) (veh/h)	315						344
v/c	0.04						0.13
95% queue length	0.12						0.46
Control Delay (s/veh)	16.9						17.1
LOS	C						C
Approach Delay (s/veh)	--	--				17.1	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#1 (#14)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr Dr #1			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	31	1546			1006	22	
Peak-Hour Factor, PHF	0.97	0.97	1.00	1.00	0.94	0.94	
Hourly Flow Rate, HFR (veh/h)	31	1593	0	0	1070	23	
Percent Heavy Vehicles	4	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	0	2	0	
Configuration	L	T			T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						42	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.55	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	76	
Percent Heavy Vehicles	0	0	0	0	0	5	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L						R
v (veh/h)	31						76
C (m) (veh/h)	623						552
v/c	0.05						0.14
95% queue length	0.16						0.48
Control Delay (s/veh)	11.1						12.6
LOS	B						B
Approach Delay (s/veh)	--	--				12.6	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#1 (#14)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr Dr #1			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	29	2315			1556	39	
Peak-Hour Factor, PHF	0.97	0.97	1.00	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	29	2386	0	0	1691	42	
Percent Heavy Vehicles	2	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	0	2	0	
Configuration	L	T			T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						69	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	81	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L						R
v (veh/h)	29						81
C (m) (veh/h)	360						377
v/c	0.08						0.21
95% queue length	0.26						0.80
Control Delay (s/veh)	15.9						17.1
LOS	C						C
Approach Delay (s/veh)	--	--				17.1	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1609	9		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1748	9		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						8		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.40		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	19		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								19
C (m) (veh/h)								374
v/c								0.05
95% queue length								0.16
Control Delay (s/veh)								15.1
LOS								C
Approach Delay (s/veh)	--	--				15.1		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1053	20	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.95	0.95	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1108	21	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						4	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.44	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	9	
Percent Heavy Vehicles	0	0	0	0	0	25	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							9
C (m) (veh/h)							507
v/c							0.02
95% queue length							0.05
Control Delay (s/veh)							12.2
LOS							B
Approach Delay (s/veh)	--	--				12.2	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1566	22		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1720	24		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						6		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	8		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								8
C (m) (veh/h)								376
v/c								0.02
95% queue length								0.07
Control Delay (s/veh)								14.8
LOS								B
Approach Delay (s/veh)	--	--				14.8		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Audley (#17)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Audley Lane				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1557	1		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1674	1		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						1		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.25		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	4		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								4
C (m) (veh/h)								384
v/c								0.01
95% queue length								0.03
Control Delay (s/veh)								14.5
LOS								B
Approach Delay (s/veh)	--	--				14.5		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Audley (#17)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Audley Lane			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1009	1	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.93	0.93	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1084	1	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						2	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.50	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	4	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							4
C (m) (veh/h)							557
v/c							0.01
95% queue length							0.02
Control Delay (s/veh)							11.5
LOS							B
Approach Delay (s/veh)	--	--				11.5	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Audley (#17)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Audley Lane				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1532	6		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1683	6		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						3		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.38		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	7		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								7
C (m) (veh/h)								381
v/c								0.02
95% queue length								0.06
Control Delay (s/veh)								14.6
LOS								B
Approach Delay (s/veh)	--	--				14.6		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Cleland (#24)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		70	4	2	100			
Peak-Hour Factor, PHF	1.00	0.82	0.82	0.77	0.77	1.00		
Hourly Flow Rate, HFR (veh/h)	0	85	4	2	129	0		
Percent Heavy Vehicles	0	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9		0					
Peak-Hour Factor, PHF	0.45	1.00	0.45	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	20	0	0	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		2		20				
C (m) (veh/h)		1494		767				
v/c		0.00		0.03				
95% queue length		0.00		0.08				
Control Delay (s/veh)		7.4		9.8				
LOS		A		A				
Approach Delay (s/veh)	--	--	9.8					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		71	7	2	52		
Peak-Hour Factor, PHF	1.00	0.79	0.79	0.71	0.71	1.00	
Hourly Flow Rate, HFR (veh/h)	0	89	8	2	73	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	13		1				
Peak-Hour Factor, PHF	0.46	1.00	0.46	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	28	0	2	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		30			
C (m) (veh/h)		1484		827			
v/c		0.00		0.04			
95% queue length		0.00		0.11			
Control Delay (s/veh)		7.4		9.5			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.5				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Cleland (#24)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		261	17	1	134			
Peak-Hour Factor, PHF	1.00	0.62	0.62	0.62	0.62	1.00		
Hourly Flow Rate, HFR (veh/h)	0	420	27	1	216	0		
Percent Heavy Vehicles	0	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	11		6					
Peak-Hour Factor, PHF	0.85	1.00	0.85	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	12	0	7	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		1		19				
C (m) (veh/h)		1113		488				
v/c		0.00		0.04				
95% queue length		0.00		0.12				
Control Delay (s/veh)		8.2		12.7				
LOS		A		B				
Approach Delay (s/veh)	--	--	12.7					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	68	0	2	100	0		
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.82	0.82	0.82		
Hourly Flow Rate, HFR (veh/h)	0	89	0	2	121	0		
Percent Heavy Vehicles	9	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	2	0	0	0	0	0		
Peak-Hour Factor, PHF	0.75	0.75	0.75	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	2	0	0	0	0	0		
Percent Heavy Vehicles	2	2	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	0	2		2			0	
C (m) (veh/h)	1424	1519		742				
v/c	0.00	0.00		0.00				
95% queue length	0.00	0.00		0.01				
Control Delay (s/veh)	7.5	7.4		9.9				
LOS	A	A		A				
Approach Delay (s/veh)	--	--	9.9					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hamilton & Cleland (#25)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	68	3	0	52	0	
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.64	0.64	0.64	
Hourly Flow Rate, HFR (veh/h)	0	89	3	0	81	0	
Percent Heavy Vehicles	3	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	0	0	0	0	
Peak-Hour Factor, PHF	0.25	0.25	0.25	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	8	0	0	0	0	0	
Percent Heavy Vehicles	2	2	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	0	0		8			0
C (m) (veh/h)	1510	1490		792			
v/c	0.00	0.00		0.01			
95% queue length	0.00	0.00		0.03			
Control Delay (s/veh)	7.4	7.4		9.6			
LOS	A	A		A			
Approach Delay (s/veh)	--	--	9.6				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	136	90	36	11	60	40		
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.68	0.68	0.68		
Hourly Flow Rate, HFR (veh/h)	238	157	63	16	88	58		
Percent Heavy Vehicles	2	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10	19	13	24	26	62		
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.51	0.51	0.51		
Hourly Flow Rate, HFR (veh/h)	18	35	24	47	50	121		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	238	16		77			218	
C (m) (veh/h)	1436	1337		271			387	
v/c	0.17	0.01		0.28			0.56	
95% queue length	0.59	0.04		1.14			3.34	
Control Delay (s/veh)	8.0	7.7		23.5			25.6	
LOS	A	A		C			D	
Approach Delay (s/veh)	--	--	23.5			25.6		
Approach LOS	--	--	C			D		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 Without Site AM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Burning Tree Drive

North/South Street: Cleland Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	22	29	0	0	37	65
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	54	0	12
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.66		0.75				0.70	
Flow Rate (veh/h)	76		135				94	
% Heavy Vehicles	10		4				10	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0				0.8	
Prop. Right-Turns	0.0		0.6				0.2	
Prop. Heavy Vehicle	0.1		0.0				0.1	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.3		-0.3				0.2	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.07		0.12				0.08	
hd, final value (s)	4.52		3.90				4.58	
x, final value	0.10		0.15				0.12	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.5		1.9				2.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	326		385				344	
Delay (s/veh)	8.00		7.57				8.20	
LOS	A		A				A	
Approach: Delay (s/veh)	8.00		7.57				8.20	
LOS	A		A				A	
Intersection Delay (s/veh)	7.87							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 Without Site Noon Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	10	34	0	0	39	31
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	47	0	11
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.71		0.71				0.90	
Flow Rate (veh/h)	61		97				64	
% Heavy Vehicles	5		5				4	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				0.8	
Prop. Right-Turns	0.0		0.4				0.2	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.2				0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.05		0.09				0.06	
hd, final value (s)	4.27		3.93				4.36	
x, final value	0.07		0.11				0.08	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.3		1.9				2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	311		347				314	
Delay (s/veh)	7.61		7.40				7.72	
LOS	A		A				A	
Approach: Delay (s/veh)	7.61		7.40				7.72	
LOS	A		A				A	
Intersection Delay (s/veh)	7.55							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 Without Site PM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Burning Tree Drive

North/South Street: Cleland Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	26	54	0	0	40	67
%Thrus Left Lane						
Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	0	0	0	61	0	34
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.76		0.76				0.73	
Flow Rate (veh/h)	105		140				129	
% Heavy Vehicles	3		3				2	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.0				0.6	
Prop. Right-Turns	0.0		0.6				0.4	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.3				-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.09		0.12				0.11	
hd, final value (s)	4.46		4.00				4.38	
x, final value	0.13		0.16				0.16	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.5		2.0				2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	355		390				379	
Delay (s/veh)	8.13		7.73				8.20	
LOS	A		A				A	
Approach: Delay (s/veh)	8.13		7.73				8.20	
LOS	A		A				A	
Intersection Delay (s/veh)	8.01							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	49	64			52	54		
Peak-Hour Factor, PHF	0.88	0.88	1.00	1.00	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	55	72	0	0	59	61		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	44		41					
Peak-Hour Factor, PHF	0.72	1.00	0.72	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	61	0	56	0	0	0		
Percent Heavy Vehicles	9	0	9	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	55						117	
C (m) (veh/h)	1449						768	
v/c	0.04						0.15	
95% queue length	0.12						0.54	
Control Delay (s/veh)	7.6						10.5	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.5		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	19	41			46	50		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.90	0.90		
Hourly Flow Rate, HFR (veh/h)	24	52	0	0	51	55		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	50		31					
Peak-Hour Factor, PHF	0.73	1.00	0.73	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	68	0	42	0	0	0		
Percent Heavy Vehicles	4	0	4	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	24						110	
C (m) (veh/h)	1467						842	
v/c	0.02						0.13	
95% queue length	0.05						0.45	
Control Delay (s/veh)	7.5						9.9	
LOS	A						A	
Approach Delay (s/veh)	--	--				9.9		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	41	86			77	59		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	52	110	0	0	84	64		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	91		35					
Peak-Hour Factor, PHF	0.80	1.00	0.80	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	113	0	43	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	52						156	
C (m) (veh/h)	1434						681	
v/c	0.04						0.23	
95% queue length	0.11						0.88	
Control Delay (s/veh)	7.6						11.9	
LOS	A						B	
Approach Delay (s/veh)	--	--				11.9		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	61	5	1	42	1		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.79	0.79	0.79		
Hourly Flow Rate, HFR (veh/h)	1	73	6	1	53	1		
Percent Heavy Vehicles	6	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	13	1	0	0	2	0		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	20	1	0	0	4	0		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	1	1		21			4	
C (m) (veh/h)	1526	1519		827			753	
v/c	0.00	0.00		0.03			0.01	
95% queue length	0.00	0.00		0.08			0.02	
Control Delay (s/veh)	7.4	7.4		9.5			9.8	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.5			9.8		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	4	47	9	1	37	2		
Peak-Hour Factor, PHF	0.70	0.70	0.70	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	5	67	12	1	49	2		
Percent Heavy Vehicles	9	--	--	3	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9	0	2	3	2	3		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.67	0.67	0.67		
Hourly Flow Rate, HFR (veh/h)	10	0	2	4	2	4		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	5	1		12			10	
C (m) (veh/h)	1511	1513		848			876	
v/c	0.00	0.00		0.01			0.01	
95% queue length	0.01	0.00		0.04			0.03	
Control Delay (s/veh)	7.4	7.4		9.3			9.2	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.3			9.2		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	56	10	0	41	3		
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	5	59	10	0	44	3		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	11	2	0	4	2	9		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	16	3	0	5	2	12		
Percent Heavy Vehicles	2	2	2	7	7	7		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	5	0		19			19	
C (m) (veh/h)	1560	1532		822			925	
v/c	0.00	0.00		0.02			0.02	
95% queue length	0.01	0.00		0.07			0.06	
Control Delay (s/veh)	7.3	7.3		9.5			9.0	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.5			9.0		
Approach LOS	--	--	A			A		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 Without Site AM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	8	4	4	0	4	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	3	1	1	0	3	18
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.64</i>		<i>0.31</i>		<i>0.35</i>		<i>0.88</i>	
Flow Rate (veh/h)	<i>24</i>		<i>12</i>		<i>12</i>		<i>23</i>	
% Heavy Vehicles	<i>6</i>		<i>2</i>		<i>14</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5		0.0		0.7		0.0	
Prop. Right-Turns	0.3		0.0		0.2		0.9	
Prop. Heavy Vehicle	0.1		0.0		0.1		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1		0.0		0.3		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.01		0.01		0.02	
hd, final value (s)	4.03		4.03		4.27		3.50	
x, final value	0.03		0.01		0.01		0.02	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.0		2.3		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	274		262		262		273	
Delay (s/veh)	7.15		7.08		7.33		6.58	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.15		7.08		7.33		6.58	
LOS	A		A		A		A	
Intersection Delay (s/veh)	6.98							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 Without Site Noon Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	5	10	0	2	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	4	2	0	3	1
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.88</i>		<i>0.75</i>		<i>0.65</i>		<i>1.00</i>	
Flow Rate (veh/h)	<i>16</i>		<i>2</i>		<i>18</i>		<i>4</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.0		0.5		0.0	
Prop. Right-Turns	0.7		0.0		0.2		0.3	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.4		0.0		0.0		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.01		0.00		0.02		0.00	
hd, final value (s)	3.57		3.99		3.97		3.84	
x, final value	0.02		0.00		0.02		0.00	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.6		2.0		2.0		1.8	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	266		252		268		254	
Delay (s/veh)	6.63		7.00		7.05		6.85	
LOS	A		A		A		A	
Approach: Delay (s/veh)	6.63		7.00		7.05		6.85	
LOS	A		A		A		A	
Intersection Delay (s/veh)	6.86							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 Without Site PM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	18	4	3	1	4	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	4	3	0	0	1	8
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.90</i>		<i>0.90</i>		<i>0.90</i>		<i>0.90</i>	
Flow Rate (veh/h)	<i>27</i>		<i>5</i>		<i>7</i>		<i>9</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.7		0.2		0.6		0.0	
Prop. Right-Turns	0.1		0.0		0.0		0.9	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1		0.1		0.1		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.00		0.01		0.01	
hd, final value (s)	4.05		4.03		4.13		3.48	
x, final value	0.03		0.01		0.01		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.1		2.0		2.1		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	277		255		257		259	
Delay (s/veh)	7.18		7.05		7.16		6.51	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.18		7.05		7.16		6.51	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.04							
Intersection LOS	A							

2018 With Site Phase 1

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Cleland (#5)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site AM Peak							
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>								
East/West Street: <i>Cleland Road</i>				North/South Street: <i>US 15-501 (Fordham Blvd)</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	1610	18	59	1632	12		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.86	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	0	1731	19	68	1897	13		
Percent Heavy Vehicles	3	--	--	3	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	7	0	1	4	0	103		
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.71	0.71	0.71		
Hourly Flow Rate, HFR (veh/h)	10	0	1	5	0	145		
Percent Heavy Vehicles	2	2	2	4	4	4		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	0	68	150			11		
C (m) (veh/h)	303	350	324			34		
v/c	0.00	0.19	0.46			0.32		
95% queue length	0.00	0.71	2.34			1.05		
Control Delay (s/veh)	16.9	17.7	25.3			155.1		
LOS	C	C	D			F		
Approach Delay (s/veh)	--	--	25.3			155.1		
Approach LOS	--	--	D			F		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & Cleland (#5)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site Noon Peak						
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>							
East/West Street: <i>Cleland Road</i>				North/South Street: <i>US 15-501 (Fordham Blvd)</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	4	1603	9	70	1483	17	
Peak-Hour Factor, PHF	0.98	0.98	0.98	0.86	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	4	1635	9	81	1724	19	
Percent Heavy Vehicles	3	--	--	3	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	1	2	0	
Configuration	L	T	TR	L	T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5	0	4	2	0	71	
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.77	0.77	0.77	
Hourly Flow Rate, HFR (veh/h)	7	0	5	2	0	92	
Percent Heavy Vehicles	2	2	2	3	2	3	
Percent Grade (%)	0			0			
Flared Approach		Y			Y		
Storage		1			1		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L	L	LTR			LTR	
v (veh/h)	4	81	94			12	
C (m) (veh/h)	352	385	378			70	
v/c	0.01	0.21	0.25			0.17	
95% queue length	0.03	0.78	0.97			0.58	
Control Delay (s/veh)	15.3	16.8	18.9			70.7	
LOS	C	C	C			F	
Approach Delay (s/veh)	--	--	18.9			70.7	
Approach LOS	--	--	C			F	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & Cleland (#5)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	2	2004	96	184	1753	20	
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.96	0.96	0.96	
Hourly Flow Rate, HFR (veh/h)	2	2154	103	191	1826	20	
Percent Heavy Vehicles	2	--	--	2	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	1	2	0	
Configuration	L	T	TR	L	T	TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	3	0	1	3	0	144	
Peak-Hour Factor, PHF	0.50	0.50	0.50	0.70	0.70	0.70	
Hourly Flow Rate, HFR (veh/h)	6	0	2	4	0	205	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		Y			Y		
Storage		1			1		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L	L	LTR			LTR	
v (veh/h)	2	191	209			8	
C (m) (veh/h)	325	224					
v/c	0.01	0.85					
95% queue length	0.02	6.65					
Control Delay (s/veh)	16.1	73.2					
LOS	C	F					
Approach Delay (s/veh)	--	--					
Approach LOS	--	--					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Brandon (#6)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	13	1579	24	39	1450	5		
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.86	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	14	1735	26	45	1686	5		
Percent Heavy Vehicles	3	--	--	3	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	11	1	12	9	1	41		
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.80	0.80	0.80		
Hourly Flow Rate, HFR (veh/h)	15	1	17	11	1	51		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	14	45	63			33		
C (m) (veh/h)	369	347	304			107		
v/c	0.04	0.13	0.21			0.31		
95% queue length	0.12	0.44	0.76			1.19		
Control Delay (s/veh)	15.1	16.9	29.7			57.8		
LOS	C	C	D			F		
Approach Delay (s/veh)	--	--	29.7			57.8		
Approach LOS	--	--	D			F		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Brandon (#6)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	10	1496	16	41	1381	4		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	10	1574	16	44	1501	4		
Percent Heavy Vehicles	3	--	--	3	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	13	1	4	7	0	55		
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.61	0.61	0.61		
Hourly Flow Rate, HFR (veh/h)	24	1	7	11	0	90		
Percent Heavy Vehicles	2	2	2	3	3	3		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (veh/h)	10	44		101			32	
C (m) (veh/h)	436	404		430			84	
v/c	0.02	0.11		0.23			0.38	
95% queue length	0.07	0.36		0.90			1.50	
Control Delay (s/veh)	13.5	15.0		22.0			72.1	
LOS	B	B		C			F	
Approach Delay (s/veh)	--	--	22.0			72.1		
Approach LOS	--	--	C			F		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	US 15-501 & Brandon (#6)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	11	1956	30	85	1593	17		
Peak-Hour Factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96		
Hourly Flow Rate, HFR (veh/h)	11	2037	31	88	1659	17		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	4	0	11	5	0	46		
Peak-Hour Factor, PHF	0.68	0.68	0.68	0.80	0.80	0.80		
Hourly Flow Rate, HFR (veh/h)	5	0	16	6	0	57		
Percent Heavy Vehicles	7	7	7	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		Y			Y			
Storage		1			1			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	11	88	63			21		
C (m) (veh/h)	379	266						
v/c	0.03	0.33						
95% queue length	0.09	1.40						
Control Delay (s/veh)	14.8	25.1						
LOS	B	D						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY							
General Information			Site Information				
Analyst	CRS		Intersection	US 15-501 & NC 54WB OnRmp (#7)			
Agency/Co.	HNTB North Carolina, PC		Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013		Analysis Year	2018			
Analysis Time Period	2018 With Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 WB On-Ramp			North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South			Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1395	27				
Peak-Hour Factor, PHF	1.00	0.90	0.57	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	1550	47	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	1	0	0	0	
Configuration		T	R				
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						342	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.84	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	407	
Percent Heavy Vehicles	0	0	0	0	0	4	
Percent Grade (%)	0			2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		
v (veh/h)					407		
C (m) (veh/h)					378		
v/c					1.08		
95% queue length					14.30		
Control Delay (s/veh)					101.9		
LOS					F		
Approach Delay (s/veh)	--	--	101.9				
Approach LOS	--	--	F				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & NC 54WB OnRmp (#7)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 WB On-Ramp				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1142	24				
Peak-Hour Factor, PHF	1.00	0.90	0.86	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	1268	27	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	1	0	0	0	
Configuration		T	R				
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						410	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.94	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	436	
Percent Heavy Vehicles	0	0	0	0	0	4	
Percent Grade (%)	0			2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration					R		
v (veh/h)					436		
C (m) (veh/h)					459		
v/c					0.95		
95% queue length					11.43		
Control Delay (s/veh)					60.6		
LOS					F		
Approach Delay (s/veh)	--	--	60.6				
Approach LOS	--	--	F				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	US 15-501 & NC 54WB OnRmp (#7)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 WB On-Ramp				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1615	19				
Peak-Hour Factor, PHF	1.00	0.90	0.50	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	1794	38	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	2	1	0	0		0
Configuration		T	R				
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)							448
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00		0.93
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0		481
Percent Heavy Vehicles	0	0	0	0	0		2
Percent Grade (%)	0			2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	0	0	0		1
Configuration							R
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		
v (veh/h)					481		
C (m) (veh/h)					322		
v/c					1.49		
95% queue length					26.64		
Control Delay (s/veh)					268.2		
LOS					F		
Approach Delay (s/veh)	--	--	268.2				
Approach LOS	--	--	F				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1351			1963	319	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1501	0	0	2181	431	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			12			72	
Peak-Hour Factor, PHF	1.00	1.00	0.83	1.00	1.00	0.80	
Hourly Flow Rate, HFR (veh/h)	0	0	14	0	0	89	
Percent Heavy Vehicles	0	0	6	0	0	5	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					89		14
C (m) (veh/h)					377		252
v/c					0.24		0.06
95% queue length					0.90		0.18
Control Delay (s/veh)					17.5		20.1
LOS					C		C
Approach Delay (s/veh)	--	--	17.5			20.1	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1062			1648	318	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1180	0	0	1831	429	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			29			103	
Peak-Hour Factor, PHF	1.00	1.00	0.90	1.00	1.00	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	32	0	0	111	
Percent Heavy Vehicles	0	0	3	0	0	4	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					111		32
C (m) (veh/h)					476		326
v/c					0.23		0.10
95% queue length					0.89		0.32
Control Delay (s/veh)					14.8		17.2
LOS					B		C
Approach Delay (s/veh)	--	--	14.8			17.2	
Approach LOS	--	--	B			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1405			2286	321	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.84	
Hourly Flow Rate, HFR (veh/h)	0	1561	0	0	2540	382	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			62			229	
Peak-Hour Factor, PHF	1.00	1.00	0.86	1.00	1.00	0.89	
Hourly Flow Rate, HFR (veh/h)	0	0	72	0	0	257	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					257		72
C (m) (veh/h)					369		204
v/c					0.70		0.35
95% queue length					5.06		1.50
Control Delay (s/veh)					34.3		32.0
LOS					D		D
Approach Delay (s/veh)	--	--	34.3			32.0	
Approach LOS	--	--	D			D	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		692	12		1261	936	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.85	0.85	
Hourly Flow Rate, HFR (veh/h)	0	833	14	0	1483	1101	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	1	0	2	1	
Configuration		T	R		T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			319			180	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.96	
Hourly Flow Rate, HFR (veh/h)	0	0	431	0	0	187	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					431		187
C (m) (veh/h)					650		431
v/c					0.66		0.43
95% queue length					4.99		2.15
Control Delay (s/veh)					20.8		19.6
LOS					C		C
Approach Delay (s/veh)	--	--	20.8			19.6	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		706	29		689	662		
Peak-Hour Factor, PHF	1.00	0.90	0.90	1.00	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	0	784	32	0	732	704		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	1	0	2	1		
Configuration		T	R		T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			318			154		
Peak-Hour Factor, PHF	1.00	1.00	0.81	1.00	1.00	0.74		
Hourly Flow Rate, HFR (veh/h)	0	0	392	0	0	208		
Percent Heavy Vehicles	0	0	4	0	0	4		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					392			208
C (m) (veh/h)					663			685
v/c					0.59			0.30
95% queue length					3.89			1.28
Control Delay (s/veh)					18.0			12.5
LOS					C			B
Approach Delay (s/veh)	--	--	18.0			12.5		
Approach LOS	--	--	C			B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1428	62		944	984	
Peak-Hour Factor, PHF	1.00	0.86	0.86	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	1660	72	0	1026	1069	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	1	0	2	1	
Configuration		T	R		T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			321			102	
Peak-Hour Factor, PHF	1.00	1.00	0.84	1.00	1.00	0.88	
Hourly Flow Rate, HFR (veh/h)	0	0	382	0	0	115	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					382		115
C (m) (veh/h)					386		576
v/c					0.99		0.20
95% queue length					11.72		0.74
Control Delay (s/veh)					76.5		12.8
LOS					F		B
Approach Delay (s/veh)	--	--	76.5			12.8	
Approach LOS	--	--	F			B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1430	342	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1662	397	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						27	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	31	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							31
C (m) (veh/h)							300
v/c							0.10
95% queue length							0.34
Control Delay (s/veh)							18.4
LOS							C
Approach Delay (s/veh)	--	--				18.4	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					889	410	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1033	476	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						24	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	28	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							28
C (m) (veh/h)							427
v/c							0.07
95% queue length							0.21
Control Delay (s/veh)							14.0
LOS							B
Approach Delay (s/veh)	--	--				14.0	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1271	448	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1477	520	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						19	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	22	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							22
C (m) (veh/h)							313
v/c							0.07
95% queue length							0.23
Control Delay (s/veh)							17.4
LOS							C
Approach Delay (s/veh)	--	--				17.4	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#1 (#14)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr Dr #1			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	11	2125			1664	30	
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.87	0.87	
Hourly Flow Rate, HFR (veh/h)	12	2361	0	0	1912	34	
Percent Heavy Vehicles	3	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	0	2	0	
Configuration	L	T			T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						39	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.78	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	50	
Percent Heavy Vehicles	0	0	0	0	0	3	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L						R
v (veh/h)	12						50
C (m) (veh/h)	293						327
v/c	0.04						0.15
95% queue length	0.13						0.53
Control Delay (s/veh)	17.8						18.0
LOS	C						C
Approach Delay (s/veh)	--	--				18.0	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#1 (#14)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr Dr #1			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	36	1611			1055	25	
Peak-Hour Factor, PHF	0.97	0.97	1.00	1.00	0.94	0.94	
Hourly Flow Rate, HFR (veh/h)	37	1660	0	0	1122	26	
Percent Heavy Vehicles	4	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	1	2	0	0	2	0	
Configuration	L	T			T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						46	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.55	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	83	
Percent Heavy Vehicles	0	0	0	0	0	5	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L						R
v (veh/h)	37						83
C (m) (veh/h)	593						533
v/c	0.06						0.16
95% queue length	0.20						0.55
Control Delay (s/veh)	11.5						13.0
LOS	B						B
Approach Delay (s/veh)	--	--				13.0	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#1 (#14)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr Dr #1				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	33	2419			1602	43		
Peak-Hour Factor, PHF	0.97	0.97	1.00	1.00	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	34	2493	0	0	1741	46		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	1	2	0	0	2	0		
Configuration	L	T			T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						75		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	88		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	34							88
C (m) (veh/h)	343							364
v/c	0.10							0.24
95% queue length	0.33							0.93
Control Delay (s/veh)	16.6							18.0
LOS	C							C
Approach Delay (s/veh)	--	--				18.0		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1677	9	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1822	9	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						8	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.40	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	19	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							19
C (m) (veh/h)							356
v/c							0.05
95% queue length							0.17
Control Delay (s/veh)							15.7
LOS							C
Approach Delay (s/veh)	--	--				15.7	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1103	23		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1161	24		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						6		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.44		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	13		
Percent Heavy Vehicles	0	0	0	0	0	25		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								13
C (m) (veh/h)								489
v/c								0.03
95% queue length								0.08
Control Delay (s/veh)								12.6
LOS								B
Approach Delay (s/veh)	--	--				12.6		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1612	23	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1771	25	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						7	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.67	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	10	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							10
C (m) (veh/h)							364
v/c							0.03
95% queue length							0.08
Control Delay (s/veh)							15.2
LOS							C
Approach Delay (s/veh)	--	--				15.2	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Audley (#17)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site AM Peak							
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>								
East/West Street: <i>NC 54 (Raleigh Road)</i>				North/South Street: <i>Audley Lane</i>				
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1627	1		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1749	1		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						1		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.25		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	4		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								4
C (m) (veh/h)								366
v/c								0.01
95% queue length								0.03
Control Delay (s/veh)								14.9
LOS								B
Approach Delay (s/veh)	--	--				14.9		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Audley (#17)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site Noon Peak						
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>							
East/West Street: <i>NC 54 (Raleigh Road)</i>				North/South Street: <i>Audley Lane</i>			
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1065	4	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.93	0.93	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1145	4	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						5	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.50	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	10	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							10
C (m) (veh/h)							535
v/c							0.02
95% queue length							0.06
Control Delay (s/veh)							11.9
LOS							B
Approach Delay (s/veh)	--	--				11.9	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Audley (#17)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site PM Peak						
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>							
East/West Street: <i>NC 54 (Raleigh Road)</i>				North/South Street: <i>Audley Lane</i>			
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1592	10	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1749	10	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						7	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.38	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	18	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							18
C (m) (veh/h)							364
v/c							0.05
95% queue length							0.16
Control Delay (s/veh)							15.4
LOS							C
Approach Delay (s/veh)	--	--				15.4	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		70	4	2	100		
Peak-Hour Factor, PHF	1.00	0.82	0.82	0.77	0.77	1.00	
Hourly Flow Rate, HFR (veh/h)	0	85	4	2	129	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	9		0				
Peak-Hour Factor, PHF	0.45	1.00	0.45	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	20	0	0	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		20			
C (m) (veh/h)		1494		767			
v/c		0.00		0.03			
95% queue length		0.00		0.08			
Control Delay (s/veh)		7.4		9.8			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.8				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site Noon Peak						
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>							
East/West Street: <i>Cleland Road</i>				North/South Street: <i>Hayes Road</i>			
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		71	7	2	52		
Peak-Hour Factor, PHF	1.00	0.79	0.79	0.71	0.71	1.00	
Hourly Flow Rate, HFR (veh/h)	0	89	8	2	73	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	13		1				
Peak-Hour Factor, PHF	0.46	1.00	0.46	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	28	0	2	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		30			
C (m) (veh/h)		1484		827			
v/c		0.00		0.04			
95% queue length		0.00		0.11			
Control Delay (s/veh)		7.4		9.5			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.5				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site PM Peak						
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>							
East/West Street: <i>Cleland Road</i>				North/South Street: <i>Hayes Road</i>			
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		261	17	1	134		
Peak-Hour Factor, PHF	1.00	0.62	0.62	0.62	0.62	1.00	
Hourly Flow Rate, HFR (veh/h)	0	420	27	1	216	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	11		6				
Peak-Hour Factor, PHF	0.85	1.00	0.85	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	12	0	7	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		1		19			
C (m) (veh/h)		1113		488			
v/c		0.00		0.04			
95% queue length		0.00		0.12			
Control Delay (s/veh)		8.2		12.7			
LOS		A		B			
Approach Delay (s/veh)	--	--	12.7				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information			Site Information				
Analyst	CRS		Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC		Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013		Analysis Year	2018			
Analysis Time Period	2018 With Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road			North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West			Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	68	0	7	100	0	
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.82	0.82	0.82	
Hourly Flow Rate, HFR (veh/h)	0	89	0	8	121	0	
Percent Heavy Vehicles	9	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	4	0	0	0	
Peak-Hour Factor, PHF	0.75	0.75	0.75	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	2	0	5	0	0	0	
Percent Heavy Vehicles	2	2	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	0	8		7			0
C (m) (veh/h)	1424	1519		884			
v/c	0.00	0.01		0.01			
95% queue length	0.00	0.02		0.02			
Control Delay (s/veh)	7.5	7.4		9.1			
LOS	A	A		A			
Approach Delay (s/veh)	--	--	9.1				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hamilton & Cleland (#25)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	68	3	4	51	1	
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.64	0.64	0.64	
Hourly Flow Rate, HFR (veh/h)	0	89	3	6	79	1	
Percent Heavy Vehicles	3	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	4	0	0	0	
Peak-Hour Factor, PHF	0.25	0.25	0.25	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	8	0	16	0	0	0	
Percent Heavy Vehicles	2	2	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	0	6		24			0
C (m) (veh/h)	1512	1490		894			
v/c	0.00	0.00		0.03			
95% queue length	0.00	0.01		0.08			
Control Delay (s/veh)	7.4	7.4		9.1			
LOS	A	A		A			
Approach Delay (s/veh)	--	--	9.1				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	136	90	36	15	60	40		
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.68	0.68	0.68		
Hourly Flow Rate, HFR (veh/h)	238	157	63	22	88	58		
Percent Heavy Vehicles	2	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9	17	18	24	25	62		
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.51	0.51	0.51		
Hourly Flow Rate, HFR (veh/h)	16	32	33	47	49	121		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	238	22		81			217	
C (m) (veh/h)	1436	1337		293			380	
v/c	0.17	0.02		0.28			0.57	
95% queue length	0.59	0.05		1.10			3.42	
Control Delay (s/veh)	8.0	7.7		21.9			26.4	
LOS	A	A		C			D	
Approach Delay (s/veh)	--	--	21.9			26.4		
Approach LOS	--	--	C			D		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 With Site AM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Burning Tree Drive

North/South Street: Cleland Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	22	29	0	0	37	70
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	58	0	12
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.66		0.75				0.70	
Flow Rate (veh/h)	76		142				99	
% Heavy Vehicles	10		4				10	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0				0.8	
Prop. Right-Turns	0.0		0.7				0.2	
Prop. Heavy Vehicle	0.1		0.0				0.1	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.3		-0.3				0.2	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.07		0.13				0.09	
hd, final value (s)	4.54		3.91				4.60	
x, final value	0.10		0.15				0.13	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.5		1.9				2.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	326		392				349	
Delay (s/veh)	8.02		7.62				8.27	
LOS	A		A				A	
Approach: Delay (s/veh)	8.02		7.62				8.27	
LOS	A		A				A	
Intersection Delay (s/veh)	7.92							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 With Site Noon Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	10	34	0	0	39	35
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	51	0	11
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.71		0.71				0.90	
Flow Rate (veh/h)	61		103				68	
% Heavy Vehicles	5		5				4	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				0.8	
Prop. Right-Turns	0.0		0.5				0.2	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.2				0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.05		0.09				0.06	
hd, final value (s)	4.29		3.92				4.38	
x, final value	0.07		0.11				0.08	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.3		1.9				2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	311		353				318	
Delay (s/veh)	7.63		7.42				7.77	
LOS	A		A				A	
Approach: Delay (s/veh)	7.63		7.42				7.77	
LOS	A		A				A	
Intersection Delay (s/veh)	7.58							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	CRS				Intersection	Burning Tree & Cleland (#27)		
Agency/Co.	HNTB North Carolina, PC				Jurisdiction	Chapel Hill, NC		
Date Performed	4/29/2013				Analysis Year	2018		
Analysis Time Period	2018 With Site PM Peak							
Project ID <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>								
East/West Street: <i>Burning Tree Drive</i>					North/South Street: <i>Cleland Drive</i>			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	26	54	0		0	40	72	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	0	0	0		67	0	34	
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.76		0.76				0.73	
Flow Rate (veh/h)	105		146				137	
% Heavy Vehicles	3		3				2	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.3		0.0				0.7	
Prop. Right-Turns	0.0		0.6				0.3	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.3				-0.0	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.09		0.13				0.12	
hd, final value (s)	4.49		4.01				4.42	
x, final value	0.13		0.16				0.17	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.5		2.0				2.4	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	355		396				387	
Delay (s/veh)	8.17		7.79				8.31	
LOS	A		A				A	
Approach: Delay (s/veh)	8.17		7.79				8.31	
LOS	A		A				A	
Intersection Delay (s/veh)	8.07							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	49	64			52	59		
Peak-Hour Factor, PHF	0.88	0.88	1.00	1.00	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	55	72	0	0	59	67		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	48		41					
Peak-Hour Factor, PHF	0.72	1.00	0.72	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	66	0	56	0	0	0		
Percent Heavy Vehicles	9	0	9	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	55						122	
C (m) (veh/h)	1442						761	
v/c	0.04						0.16	
95% queue length	0.12						0.57	
Control Delay (s/veh)	7.6						10.6	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.6		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	19	41			46	54		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.90	0.90		
Hourly Flow Rate, HFR (veh/h)	24	52	0	0	51	60		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	54		31					
Peak-Hour Factor, PHF	0.73	1.00	0.73	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	73	0	42	0	0	0		
Percent Heavy Vehicles	4	0	4	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	24						115	
C (m) (veh/h)	1460						836	
v/c	0.02						0.14	
95% queue length	0.05						0.48	
Control Delay (s/veh)	7.5						10.0	
LOS	A						A	
Approach Delay (s/veh)	--	--				10.0		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	41	86			77	64		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	52	110	0	0	84	70		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	97		35					
Peak-Hour Factor, PHF	0.80	1.00	0.80	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	121	0	43	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	52						164	
C (m) (veh/h)	1426						675	
v/c	0.04						0.24	
95% queue length	0.11						0.95	
Control Delay (s/veh)	7.6						12.0	
LOS	A						B	
Approach Delay (s/veh)	--	--				12.0		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Brandon (#29)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 With Site AM Peak						
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>							
East/West Street: <i>Brandon Road</i>				North/South Street: <i>Hayes Road</i>			
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	1	61	5	1	42	1	
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.79	0.79	0.79	
Hourly Flow Rate, HFR (veh/h)	1	73	6	1	53	1	
Percent Heavy Vehicles	6	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	13	1	0	0	2	0	
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.50	0.50	0.50	
Hourly Flow Rate, HFR (veh/h)	20	1	0	0	4	0	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	1	1		21			4
C (m) (veh/h)	1526	1519		827			753
v/c	0.00	0.00		0.03			0.01
95% queue length	0.00	0.00		0.08			0.02
Control Delay (s/veh)	7.4	7.4		9.5			9.8
LOS	A	A		A			A
Approach Delay (s/veh)	--	--	9.5			9.8	
Approach LOS	--	--	A			A	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site Noon Peak							
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>								
East/West Street: <i>Brandon Road</i>				North/South Street: <i>Hayes Road</i>				
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	4	47	9	1	37	2		
Peak-Hour Factor, PHF	0.70	0.70	0.70	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	5	67	12	1	49	2		
Percent Heavy Vehicles	9	--	--	3	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9	0	2	3	2	3		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.67	0.67	0.67		
Hourly Flow Rate, HFR (veh/h)	10	0	2	4	2	4		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	5	1		12			10	
C (m) (veh/h)	1511	1513		848			876	
v/c	0.00	0.00		0.01			0.01	
95% queue length	0.01	0.00		0.04			0.03	
Control Delay (s/veh)	7.4	7.4		9.3			9.2	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.3			9.2		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 With Site PM Peak							
Project Description <i>Town of Chapel Hill - Glen Lennox Redevelopment TIS</i>								
East/West Street: <i>Brandon Road</i>				North/South Street: <i>Hayes Road</i>				
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	56	10	0	41	3		
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	5	59	10	0	44	3		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	11	2	0	4	2	9		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	16	3	0	5	2	12		
Percent Heavy Vehicles	2	2	2	7	7	7		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	5	0		19			19	
C (m) (veh/h)	1560	1532		822			925	
v/c	0.00	0.00		0.02			0.02	
95% queue length	0.01	0.00		0.07			0.06	
Control Delay (s/veh)	7.3	7.3		9.5			9.0	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.5			9.0		
Approach LOS	--	--	A			A		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 With Site AM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	10	6	6	0	7	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	1	1	0	3	21
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.64</i>		<i>0.31</i>		<i>0.35</i>		<i>0.88</i>	
Flow Rate (veh/h)	<i>33</i>		<i>22</i>		<i>21</i>		<i>26</i>	
% Heavy Vehicles	<i>6</i>		<i>2</i>		<i>14</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5		0.0		0.8		0.0	
Prop. Right-Turns	0.3		0.0		0.1		0.9	
Prop. Heavy Vehicle	0.1		0.0		0.1		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.0		0.3		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.03		0.02		0.02		0.02	
hd, final value (s)	4.05		4.06		4.38		3.54	
x, final value	0.04		0.02		0.03		0.03	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.1		2.4		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	283		272		271		276	
Delay (s/veh)	7.20		7.17		7.50		6.64	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.20		7.17		7.50		6.64	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.11							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 With Site Noon Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	2	7	11	0	4	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	8	4	2	0	3	3
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.88</i>		<i>0.75</i>		<i>0.65</i>		<i>1.00</i>	
Flow Rate (veh/h)	<i>21</i>		<i>5</i>		<i>21</i>		<i>6</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.0		0.6		0.0	
Prop. Right-Turns	0.6		0.0		0.1		0.5	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.3		0.0		0.1		-0.3	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.00		0.02		0.01	
hd, final value (s)	3.67		4.01		4.02		3.71	
x, final value	0.02		0.01		0.02		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.7		2.0		2.0		1.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	271		255		271		256	
Delay (s/veh)	6.75		7.03		7.12		6.73	
LOS	A		A		A		A	
Approach: Delay (s/veh)	6.75		7.03		7.12		6.73	
LOS	A		A		A		A	
Intersection Delay (s/veh)	6.92							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2018
Analysis Time Period	2018 With Site PM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	21	7	6	1	6	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	3	0	0	1	10
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.90</i>		<i>0.90</i>		<i>0.90</i>		<i>0.90</i>	
Flow Rate (veh/h)	<i>36</i>		<i>7</i>		<i>9</i>		<i>12</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.6		0.1		0.7		0.0	
Prop. Right-Turns	0.2		0.0		0.0		0.9	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1		0.1		0.2		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.03		0.01		0.01		0.01	
hd, final value (s)	4.01		4.04		4.17		3.49	
x, final value	0.04		0.01		0.01		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.0		2.2		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	286		257		259		262	
Delay (s/veh)	7.18		7.07		7.21		6.53	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.18		7.07		7.21		6.53	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.05							
Intersection LOS	A							

2018 With Site Phase 1 Mitigated

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2018			
Analysis Time Period	2018 Mitigated AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1677	37		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1822	40		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	1		
Configuration					T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						44		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.40		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	109		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								109
C (m) (veh/h)								358
v/c								0.30
95% queue length								1.26
Control Delay (s/veh)								19.4
LOS								C
Approach Delay (s/veh)	--	--				19.4		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Mitigated Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1103	45	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.95	0.95	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1161	47	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	1	
Configuration					T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						49	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.44	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	111	
Percent Heavy Vehicles	0	0	0	0	0	25	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							111
C (m) (veh/h)							497
v/c							0.22
95% queue length							0.85
Control Delay (s/veh)							14.3
LOS							B
Approach Delay (s/veh)	--	--				14.3	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2018		
Analysis Time Period	2018 Mitigated PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1612	62	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1771	68	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	1	
Configuration					T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						76	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.67	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	113	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							113
C (m) (veh/h)							370
v/c							0.31
95% queue length							1.27
Control Delay (s/veh)							19.0
LOS							C
Approach Delay (s/veh)	--	--				19.0	
Approach LOS	--	--				C	

2023 Without Site Phase 2

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		1437			2090	337		
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74		
Hourly Flow Rate, HFR (veh/h)	0	1596	0	0	2322	455		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	0	0	2	1		
Configuration		T			T	R		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			13			76		
Peak-Hour Factor, PHF	1.00	1.00	0.83	1.00	1.00	0.80		
Hourly Flow Rate, HFR (veh/h)	0	0	15	0	0	94		
Percent Heavy Vehicles	0	0	6	0	0	5		
Percent Grade (%)	0			3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					94			15
C (m) (veh/h)					353			229
v/c					0.27			0.07
95% queue length					1.05			0.21
Control Delay (s/veh)					18.9			21.8
LOS					C			C
Approach Delay (s/veh)	--	--	18.9			21.8		
Approach LOS	--	--	C			C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		1130			1754	336		
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74		
Hourly Flow Rate, HFR (veh/h)	0	1255	0	0	1948	454		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	0	0	2	1		
Configuration		T			T	R		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			31			110		
Peak-Hour Factor, PHF	1.00	1.00	0.90	1.00	1.00	0.92		
Hourly Flow Rate, HFR (veh/h)	0	0	34	0	0	119		
Percent Heavy Vehicles	0	0	3	0	0	4		
Percent Grade (%)	0			3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					119			34
C (m) (veh/h)					451			302
v/c					0.26			0.11
95% queue length					1.05			0.38
Control Delay (s/veh)					15.8			18.4
LOS					C			C
Approach Delay (s/veh)	--	--	15.8			18.4		
Approach LOS	--	--	C			C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		1495			2433	337		
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.84		
Hourly Flow Rate, HFR (veh/h)	0	1661	0	0	2703	401		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	0	0	2	1		
Configuration		T			T	R		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			66			243		
Peak-Hour Factor, PHF	1.00	1.00	0.86	1.00	1.00	0.89		
Hourly Flow Rate, HFR (veh/h)	0	0	76	0	0	273		
Percent Heavy Vehicles	0	0	2	0	0	2		
Percent Grade (%)	0			3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					273			76
C (m) (veh/h)					344			182
v/c					0.79			0.42
95% queue length					6.61			1.88
Control Delay (s/veh)					45.8			38.3
LOS					E			E
Approach Delay (s/veh)	--	--	45.8			38.3		
Approach LOS	--	--	E			E		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 Without Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		735	13		1343	996	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.85	0.85	
Hourly Flow Rate, HFR (veh/h)	0	885	15	0	1579	1171	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	1	0	2	1	
Configuration		T	R		T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			337			192	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.96	
Hourly Flow Rate, HFR (veh/h)	0	0	455	0	0	200	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					455		200
C (m) (veh/h)					629		406
v/c					0.72		0.49
95% queue length					6.12		2.64
Control Delay (s/veh)					24.2		22.2
LOS					C		C
Approach Delay (s/veh)	--	--	24.2			22.2	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		751	31		734	703		
Peak-Hour Factor, PHF	1.00	0.90	0.90	1.00	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	0	834	34	0	780	747		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	1	0	2	1		
Configuration		T	R		T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			336			163		
Peak-Hour Factor, PHF	1.00	1.00	0.81	1.00	1.00	0.74		
Hourly Flow Rate, HFR (veh/h)	0	0	414	0	0	220		
Percent Heavy Vehicles	0	0	4	0	0	4		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					414			220
C (m) (veh/h)					643			665
v/c					0.64			0.33
95% queue length					4.66			1.45
Control Delay (s/veh)					20.2			13.1
LOS					C			B
Approach Delay (s/veh)	--	--	20.2			13.1		
Approach LOS	--	--	C			B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 Without Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1520	66		1005	1047	
Peak-Hour Factor, PHF	1.00	0.86	0.86	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	1767	76	0	1092	1138	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	1	0	2	1	
Configuration		T	R		T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			337			108	
Peak-Hour Factor, PHF	1.00	1.00	0.84	1.00	1.00	0.88	
Hourly Flow Rate, HFR (veh/h)	0	0	401	0	0	122	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					401		122
C (m) (veh/h)					360		552
v/c					1.11		0.22
95% queue length					15.09		0.84
Control Delay (s/veh)					115.9		13.4
LOS					F		B
Approach Delay (s/veh)	--	--	115.9			13.4	
Approach LOS	--	--	F			B	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1509	360		
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1754	418		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						29		
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	34		
Percent Heavy Vehicles	0	0	2	0	0	2		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								34
C (m) (veh/h)								279
v/c								0.12
95% queue length								0.41
Control Delay (s/veh)								19.7
LOS								C
Approach Delay (s/veh)	--	--				19.7		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					946	435	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1099	505	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						25	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	29	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							29
C (m) (veh/h)							401
v/c							0.07
95% queue length							0.23
Control Delay (s/veh)							14.7
LOS							B
Approach Delay (s/veh)	--	--				14.7	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1353	475		
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1573	552		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						21		
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	24		
Percent Heavy Vehicles	0	0	2	0	0	2		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								24
C (m) (veh/h)								288
v/c								0.08
95% queue length								0.27
Control Delay (s/veh)								18.6
LOS								C
Approach Delay (s/veh)	--	--				18.6		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 Without Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1782	37	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1936	40	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						44	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.40	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	109	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							109
C (m) (veh/h)							326
v/c							0.33
95% queue length							1.43
Control Delay (s/veh)							21.5
LOS							C
Approach Delay (s/veh)	--	--				21.5	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1172	45	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.95	0.95	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1233	47	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						49	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.44	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	111	
Percent Heavy Vehicles	0	0	0	0	0	25	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							111
C (m) (veh/h)							461
v/c							0.24
95% queue length							0.93
Control Delay (s/veh)							15.3
LOS							C
Approach Delay (s/veh)	--	--				15.3	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1714	62		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1883	68		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	1		
Configuration					T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						76		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	113		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								113
C (m) (veh/h)								345
v/c								0.33
95% queue length								1.39
Control Delay (s/veh)								20.4
LOS								C
Approach Delay (s/veh)	--	--				20.4		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Cleland (#24)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		74	5	2	106			
Peak-Hour Factor, PHF	1.00	0.82	0.82	0.77	0.77	1.00		
Hourly Flow Rate, HFR (veh/h)	0	90	6	2	137	0		
Percent Heavy Vehicles	0	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9		0					
Peak-Hour Factor, PHF	0.45	1.00	0.45	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	20	0	0	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		2		20				
C (m) (veh/h)		1485		753				
v/c		0.00		0.03				
95% queue length		0.00		0.08				
Control Delay (s/veh)		7.4		9.9				
LOS		A		A				
Approach Delay (s/veh)	--	--	9.9					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		75	8	2	56		
Peak-Hour Factor, PHF	1.00	0.79	0.79	0.71	0.71	1.00	
Hourly Flow Rate, HFR (veh/h)	0	94	10	2	78	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	14		1				
Peak-Hour Factor, PHF	0.46	1.00	0.46	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	30	0	2	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		32			
C (m) (veh/h)		1475		815			
v/c		0.00		0.04			
95% queue length		0.00		0.12			
Control Delay (s/veh)		7.4		9.6			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.6				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Cleland (#24)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		278	18	1	143			
Peak-Hour Factor, PHF	1.00	0.62	0.62	0.62	0.62	1.00		
Hourly Flow Rate, HFR (veh/h)	0	448	29	1	230	0		
Percent Heavy Vehicles	0	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	11		7					
Peak-Hour Factor, PHF	0.85	1.00	0.85	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	12	0	8	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		1		20				
C (m) (veh/h)		1085		469				
v/c		0.00		0.04				
95% queue length		0.00		0.13				
Control Delay (s/veh)		8.3		13.0				
LOS		A		B				
Approach Delay (s/veh)	--	--	13.0					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	73	0	7	106	0		
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.82	0.82	0.82		
Hourly Flow Rate, HFR (veh/h)	0	96	0	8	129	0		
Percent Heavy Vehicles	9	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	2	0	4	0	0	0		
Peak-Hour Factor, PHF	0.75	0.75	0.75	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	2	0	5	0	0	0		
Percent Heavy Vehicles	2	2	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	0	8		7			0	
C (m) (veh/h)	1414	1510		872				
v/c	0.00	0.01		0.01				
95% queue length	0.00	0.02		0.02				
Control Delay (s/veh)	7.5	7.4		9.2				
LOS	A	A		A				
Approach Delay (s/veh)	--	--	9.2					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	73	3	4	55	1		
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.64	0.64	0.64		
Hourly Flow Rate, HFR (veh/h)	0	96	3	6	85	1		
Percent Heavy Vehicles	3	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	2	0	4	0	0	0		
Peak-Hour Factor, PHF	0.25	0.25	0.25	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	8	0	16	0	0	0		
Percent Heavy Vehicles	2	2	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	0	6		24			0	
C (m) (veh/h)	1504	1481		882				
v/c	0.00	0.00		0.03				
95% queue length	0.00	0.01		0.08				
Control Delay (s/veh)	7.4	7.4		9.2				
LOS	A	A		A				
Approach Delay (s/veh)	--	--	9.2					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	145	96	34	15	64	42		
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.68	0.68	0.68		
Hourly Flow Rate, HFR (veh/h)	254	168	59	22	94	61		
Percent Heavy Vehicles	2	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9	17	18	25	25	66		
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.51	0.51	0.51		
Hourly Flow Rate, HFR (veh/h)	16	32	33	49	49	129		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	254	22		81			227	
C (m) (veh/h)	1425	1330		268			358	
v/c	0.18	0.02		0.30			0.63	
95% queue length	0.65	0.05		1.23			4.15	
Control Delay (s/veh)	8.1	7.8		24.1			30.9	
LOS	A	A		C			D	
Approach Delay (s/veh)	--	--	24.1			30.9		
Approach LOS	--	--	C			D		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 Without Site AM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	24	31	0	0	40	75
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	61	0	13
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.66		0.75				0.70	
Flow Rate (veh/h)	82		153				105	
% Heavy Vehicles	10		4				10	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0				0.8	
Prop. Right-Turns	0.0		0.7				0.2	
Prop. Heavy Vehicle	0.1		0.0				0.1	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.3		-0.3				0.2	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.07		0.14				0.09	
hd, final value (s)	4.57		3.93				4.64	
x, final value	0.10		0.17				0.14	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.6		1.9				2.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	332		403				355	
Delay (s/veh)	8.10		7.72				8.37	
LOS	A		A				A	
Approach: Delay (s/veh)	8.10		7.72				8.37	
LOS	A		A				A	
Intersection Delay (s/veh)	8.01							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 Without Site Noon Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	10	36	0	0	41	37
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	54	0	11
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.71		0.71				0.90	
Flow Rate (veh/h)	64		109				72	
% Heavy Vehicles	5		5				4	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				0.8	
Prop. Right-Turns	0.0		0.5				0.2	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.2				0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.06		0.10				0.06	
hd, final value (s)	4.30		3.94				4.40	
x, final value	0.08		0.12				0.09	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.3		1.9				2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	314		359				322	
Delay (s/veh)	7.66		7.47				7.83	
LOS	A		A				A	
Approach: Delay (s/veh)	7.66		7.47				7.83	
LOS	A		A				A	
Intersection Delay (s/veh)	7.63							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 Without Site PM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	27	57	0	0	42	77
%Thrus Left Lane						
Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	0	0	0	71	0	36
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.76		0.76				0.73	
Flow Rate (veh/h)	110		156				146	
% Heavy Vehicles	3		3				2	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.0				0.7	
Prop. Right-Turns	0.0		0.6				0.3	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.3				-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.10		0.14				0.13	
hd, final value (s)	4.53		4.04				4.45	
x, final value	0.14		0.18				0.18	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.5		2.0				2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	360		406				396	
Delay (s/veh)	8.25		7.90				8.43	
LOS	A		A				A	
Approach: Delay (s/veh)	8.25		7.90				8.43	
LOS	A		A				A	
Intersection Delay (s/veh)	8.18							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	52	68			56	62		
Peak-Hour Factor, PHF	0.88	0.88	1.00	1.00	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	59	77	0	0	63	70		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	51		43					
Peak-Hour Factor, PHF	0.72	1.00	0.72	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	70	0	59	0	0	0		
Percent Heavy Vehicles	9	0	9	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	59						129	
C (m) (veh/h)	1433						743	
v/c	0.04						0.17	
95% queue length	0.13						0.63	
Control Delay (s/veh)	7.6						10.9	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.9		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	21	43			49	58		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.90	0.90		
Hourly Flow Rate, HFR (veh/h)	26	55	0	0	54	64		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	58		33					
Peak-Hour Factor, PHF	0.73	1.00	0.73	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	79	0	45	0	0	0		
Percent Heavy Vehicles	4	0	4	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	26						124	
C (m) (veh/h)	1452						824	
v/c	0.02						0.15	
95% queue length	0.05						0.53	
Control Delay (s/veh)	7.5						10.1	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.1		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	43	91			82	68		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	55	116	0	0	90	74		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	103		38					
Peak-Hour Factor, PHF	0.80	1.00	0.80	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	128	0	47	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	55						175	
C (m) (veh/h)	1414						658	
v/c	0.04						0.27	
95% queue length	0.12						1.07	
Control Delay (s/veh)	7.6						12.4	
LOS	A						B	
Approach Delay (s/veh)	--	--				12.4		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	65	6	1	44	1		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.79	0.79	0.79		
Hourly Flow Rate, HFR (veh/h)	1	78	7	1	55	1		
Percent Heavy Vehicles	6	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	14	1	0	0	2	0		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	21	1	0	0	4	0		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	1	1		22			4	
C (m) (veh/h)	1523	1512		817			745	
v/c	0.00	0.00		0.03			0.01	
95% queue length	0.00	0.00		0.08			0.02	
Control Delay (s/veh)	7.4	7.4		9.5			9.9	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.5			9.9		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	50	9	1	40	2		
Peak-Hour Factor, PHF	0.70	0.70	0.70	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	7	71	12	1	53	2		
Percent Heavy Vehicles	9	--	--	3	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9	0	2	3	2	3		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.67	0.67	0.67		
Hourly Flow Rate, HFR (veh/h)	10	0	2	4	2	4		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	7	1		12			10	
C (m) (veh/h)	1506	1508		835			864	
v/c	0.00	0.00		0.01			0.01	
95% queue length	0.01	0.00		0.04			0.04	
Control Delay (s/veh)	7.4	7.4		9.4			9.2	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.4			9.2		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	6	59	10	0	43	3		
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	6	62	10	0	46	3		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	11	2	0	5	2	9		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	16	3	0	6	2	12		
Percent Heavy Vehicles	2	2	2	7	7	7		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	6	0		19			20	
C (m) (veh/h)	1558	1528		814			916	
v/c	0.00	0.00		0.02			0.02	
95% queue length	0.01	0.00		0.07			0.07	
Control Delay (s/veh)	7.3	7.4		9.5			9.0	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.5			9.0		
Approach LOS	--	--	A			A		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 Without Site AM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	10	6	6	0	7	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	1	1	0	3	21
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.64</i>		<i>0.31</i>		<i>0.35</i>		<i>0.88</i>	
Flow Rate (veh/h)	<i>33</i>		<i>22</i>		<i>21</i>		<i>26</i>	
% Heavy Vehicles	<i>6</i>		<i>2</i>		<i>14</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5		0.0		0.8		0.0	
Prop. Right-Turns	0.3		0.0		0.1		0.9	
Prop. Heavy Vehicle	0.1		0.0		0.1		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.0		0.3		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.03		0.02		0.02		0.02	
hd, final value (s)	4.05		4.06		4.38		3.54	
x, final value	0.04		0.02		0.03		0.03	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.1		2.4		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	283		272		271		276	
Delay (s/veh)	7.20		7.17		7.50		6.64	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.20		7.17		7.50		6.64	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.11							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 Without Site Noon Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	2	7	11	0	4	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	8	5	2	0	3	3
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.88</i>		<i>0.75</i>		<i>0.65</i>		<i>1.00</i>	
Flow Rate (veh/h)	<i>21</i>		<i>5</i>		<i>22</i>		<i>6</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.0		0.5		0.0	
Prop. Right-Turns	0.6		0.0		0.1		0.5	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.3		0.0		0.1		-0.3	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.00		0.02		0.01	
hd, final value (s)	3.67		4.01		4.02		3.71	
x, final value	0.02		0.01		0.02		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.7		2.0		2.0		1.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	271		255		272		256	
Delay (s/veh)	6.75		7.03		7.12		6.73	
LOS	A		A		A		A	
Approach: Delay (s/veh)	6.75		7.03		7.12		6.73	
LOS	A		A		A		A	
Intersection Delay (s/veh)	6.93							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 Without Site PM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	21	7	6	1	6	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	3	0	0	1	10
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.90</i>		<i>0.90</i>		<i>0.90</i>		<i>0.90</i>	
Flow Rate (veh/h)	<i>36</i>		<i>7</i>		<i>9</i>		<i>12</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.6		0.1		0.7		0.0	
Prop. Right-Turns	0.2		0.0		0.0		0.9	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1		0.1		0.2		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.03		0.01		0.01		0.01	
hd, final value (s)	4.01		4.04		4.17		3.49	
x, final value	0.04		0.01		0.01		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.0		2.2		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	286		257		259		262	
Delay (s/veh)	7.18		7.07		7.21		6.53	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.18		7.07		7.21		6.53	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.05							
Intersection LOS	A							

2023 With Site Phase 2

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phase 2 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1493			2131	388	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1658	0	0	2367	524	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			13			76	
Peak-Hour Factor, PHF	1.00	1.00	0.83	1.00	1.00	0.80	
Hourly Flow Rate, HFR (veh/h)	0	0	15	0	0	94	
Percent Heavy Vehicles	0	0	6	0	0	5	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					94		15
C (m) (veh/h)					337		221
v/c					0.28		0.07
95% queue length					1.12		0.22
Control Delay (s/veh)					19.8		22.5
LOS					C		C
Approach Delay (s/veh)	--	--	19.8			22.5	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phs 2 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1156			1805	359	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1284	0	0	2005	485	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			31			110	
Peak-Hour Factor, PHF	1.00	1.00	0.90	1.00	1.00	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	34	0	0	119	
Percent Heavy Vehicles	0	0	3	0	0	4	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					119		34
C (m) (veh/h)					442		290
v/c					0.27		0.12
95% queue length					1.08		0.39
Control Delay (s/veh)					16.1		19.1
LOS					C		C
Approach Delay (s/veh)	--	--	16.1			19.1	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phase 2 PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1517			2538	356	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.84	
Hourly Flow Rate, HFR (veh/h)	0	1685	0	0	2820	423	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			66			243	
Peak-Hour Factor, PHF	1.00	1.00	0.86	1.00	1.00	0.89	
Hourly Flow Rate, HFR (veh/h)	0	0	76	0	0	273	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					273		76
C (m) (veh/h)					338		168
v/c					0.81		0.45
95% queue length					6.84		2.10
Control Delay (s/veh)					48.2		43.0
LOS					E		E
Approach Delay (s/veh)	--	--	48.2			43.0	
Approach LOS	--	--	E			E	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phase 2 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		792	13		1363	1037	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.85	0.85	
Hourly Flow Rate, HFR (veh/h)	0	954	15	0	1603	1219	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	1	0	2	1	
Configuration		T	R		T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			388			192	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.96	
Hourly Flow Rate, HFR (veh/h)	0	0	524	0	0	200	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					524		200
C (m) (veh/h)					602		400
v/c					0.87		0.50
95% queue length					9.97		2.71
Control Delay (s/veh)					38.3		22.7
LOS					E		C
Approach Delay (s/veh)	--	--	38.3			22.7	
Approach LOS	--	--	E			C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 With Site Phs 2 Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		777	31		760	754		
Peak-Hour Factor, PHF	1.00	0.90	0.90	1.00	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	0	863	34	0	808	802		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	1	0	2	1		
Configuration		T	R		T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			359			163		
Peak-Hour Factor, PHF	1.00	1.00	0.81	1.00	1.00	0.74		
Hourly Flow Rate, HFR (veh/h)	0	0	443	0	0	220		
Percent Heavy Vehicles	0	0	4	0	0	4		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					443			220
C (m) (veh/h)					631			653
v/c					0.70			0.34
95% queue length					5.69			1.48
Control Delay (s/veh)					23.0			13.3
LOS					C			B
Approach Delay (s/veh)	--	--	23.0			13.3		
Approach LOS	--	--	C			B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 SB Off (#12)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 With Site Phase 2 PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 SB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		1541	66		1057	1152		
Peak-Hour Factor, PHF	1.00	0.86	0.86	1.00	0.92	0.92		
Hourly Flow Rate, HFR (veh/h)	0	1791	76	0	1148	1252		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	2	1	0	2	1		
Configuration		T	R		T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)			356			108		
Peak-Hour Factor, PHF	1.00	1.00	0.84	1.00	1.00	0.88		
Hourly Flow Rate, HFR (veh/h)	0	0	423	0	0	122		
Percent Heavy Vehicles	0	0	2	0	0	2		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	1	0	0	1		
Configuration			R			R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (veh/h)					423			122
C (m) (veh/h)					354			533
v/c					1.19			0.23
95% queue length					17.63			0.88
Control Delay (s/veh)					145.0			13.7
LOS					F			B
Approach Delay (s/veh)	--	--	145.0			13.7		
Approach LOS	--	--	F			B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phase 2 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1563	378	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1817	439	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						29	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	34	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							34
C (m) (veh/h)							265
v/c							0.13
95% queue length							0.44
Control Delay (s/veh)							20.6
LOS							C
Approach Delay (s/veh)	--	--				20.6	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phs 2 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					997	458	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1159	532	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						25	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	29	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							29
C (m) (veh/h)							380
v/c							0.08
95% queue length							0.25
Control Delay (s/veh)							15.3
LOS							C
Approach Delay (s/veh)	--	--				15.3	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phase 2 PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1458	521	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1695	605	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						21	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	24	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							24
C (m) (veh/h)							257
v/c							0.09
95% queue length							0.31
Control Delay (s/veh)							20.4
LOS							C
Approach Delay (s/veh)	--	--				20.4	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phase 2 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1835	37	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1994	40	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						44	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.40	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	109	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							109
C (m) (veh/h)							314
v/c							0.35
95% queue length							1.51
Control Delay (s/veh)							22.4
LOS							C
Approach Delay (s/veh)	--	--				22.4	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phs 2 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1237	45	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.95	0.95	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1302	47	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						49	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.44	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	111	
Percent Heavy Vehicles	0	0	0	0	0	25	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							111
C (m) (veh/h)							441
v/c							0.25
95% queue length							0.99
Control Delay (s/veh)							15.9
LOS							C
Approach Delay (s/veh)	--	--				15.9	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phase 2 PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1850	62	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	2032	68	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	1	
Configuration					T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						76	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.67	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	113	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							113
C (m) (veh/h)							314
v/c							0.36
95% queue length							1.59
Control Delay (s/veh)							22.8
LOS							C
Approach Delay (s/veh)	--	--				22.8	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phase 2 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		74	5	2	106		
Peak-Hour Factor, PHF	1.00	0.82	0.82	0.77	0.77	1.00	
Hourly Flow Rate, HFR (veh/h)	0	90	6	2	137	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	9		0				
Peak-Hour Factor, PHF	0.45	1.00	0.45	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	20	0	0	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		20			
C (m) (veh/h)		1485		753			
v/c		0.00		0.03			
95% queue length		0.00		0.08			
Control Delay (s/veh)		7.4		9.9			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.9				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phs 2 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		75	8	2	56		
Peak-Hour Factor, PHF	1.00	0.79	0.79	0.71	0.71	1.00	
Hourly Flow Rate, HFR (veh/h)	0	94	10	2	78	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	14		1				
Peak-Hour Factor, PHF	0.46	1.00	0.46	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	30	0	2	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		32			
C (m) (veh/h)		1475		815			
v/c		0.00		0.04			
95% queue length		0.00		0.12			
Control Delay (s/veh)		7.4		9.6			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.6				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phase 2 PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		278	18	1	143		
Peak-Hour Factor, PHF	1.00	0.62	0.62	0.62	0.62	1.00	
Hourly Flow Rate, HFR (veh/h)	0	448	29	1	230	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	11		7				
Peak-Hour Factor, PHF	0.85	1.00	0.85	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	12	0	8	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		1		20			
C (m) (veh/h)		1085		469			
v/c		0.00		0.04			
95% queue length		0.00		0.13			
Control Delay (s/veh)		8.3		13.0			
LOS		A		B			
Approach Delay (s/veh)	--	--	13.0				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hamilton & Cleland (#25)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 WithSite Phase 2 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	73	0	15	106	0	
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.82	0.82	0.82	
Hourly Flow Rate, HFR (veh/h)	0	96	0	18	129	0	
Percent Heavy Vehicles	9	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	5	0	0	0	
Peak-Hour Factor, PHF	0.75	0.75	0.75	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	2	0	6	0	0	0	
Percent Heavy Vehicles	2	2	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	0	18		8			0
C (m) (veh/h)	1414	1510		872			
v/c	0.00	0.01		0.01			
95% queue length	0.00	0.04		0.03			
Control Delay (s/veh)	7.5	7.4		9.2			
LOS	A	A		A			
Approach Delay (s/veh)	--	--	9.2				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hamilton & Cleland (#25)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2023		
Analysis Time Period	2023 With Site Phs 2 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	73	3	10	55	1	
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.64	0.64	0.64	
Hourly Flow Rate, HFR (veh/h)	0	96	3	15	85	1	
Percent Heavy Vehicles	3	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	10	0	0	0	
Peak-Hour Factor, PHF	0.25	0.25	0.25	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	8	0	40	0	0	0	
Percent Heavy Vehicles	2	2	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	0	15		48			0
C (m) (veh/h)	1504	1481		912			
v/c	0.00	0.01		0.05			
95% queue length	0.00	0.03		0.17			
Control Delay (s/veh)	7.4	7.5		9.2			
LOS	A	A		A			
Approach Delay (s/veh)	--	--	9.2				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 With Site Phase 2 PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	145	96	34	20	64	42		
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.68	0.68	0.68		
Hourly Flow Rate, HFR (veh/h)	254	168	59	29	94	61		
Percent Heavy Vehicles	2	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9	17	29	25	25	66		
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.51	0.51	0.51		
Hourly Flow Rate, HFR (veh/h)	16	32	54	49	49	129		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	254	29		102			227	
C (m) (veh/h)	1425	1330		305			344	
v/c	0.18	0.02		0.33			0.66	
95% queue length	0.65	0.07		1.43			4.46	
Control Delay (s/veh)	8.1	7.8		22.6			33.6	
LOS	A	A		C			D	
Approach Delay (s/veh)	--	--	22.6			33.6		
Approach LOS	--	--	C			D		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 With Site Phase 2 AM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	24	31	0	0	40	88
%Thrus Left Lane						
Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	0	0	0	65	0	13
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.66		0.75				0.70	
Flow Rate (veh/h)	82		170				110	
% Heavy Vehicles	10		4				10	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0				0.8	
Prop. Right-Turns	0.0		0.7				0.2	
Prop. Heavy Vehicle	0.1		0.0				0.1	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.3		-0.3				0.2	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.07		0.15				0.10	
hd, final value (s)	4.60		3.93				4.69	
x, final value	0.10		0.19				0.14	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.6		1.9				2.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	332		420				360	
Delay (s/veh)	8.14		7.82				8.47	
LOS	A		A				A	
Approach: Delay (s/veh)	8.14		7.82				8.47	
LOS	A		A				A	
Intersection Delay (s/veh)	8.09							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 With Site Phs 2 Noon Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	10	36	0	0	41	43
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	60	0	11
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.71		0.71				0.90	
Flow Rate (veh/h)	64		117				78	
% Heavy Vehicles	5		5				4	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				0.8	
Prop. Right-Turns	0.0		0.5				0.2	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.2				0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.06		0.10				0.07	
hd, final value (s)	4.33		3.93				4.43	
x, final value	0.08		0.13				0.10	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.3		1.9				2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	314		367				328	
Delay (s/veh)	7.69		7.51				7.90	
LOS	A		A				A	
Approach: Delay (s/veh)	7.69		7.51				7.90	
LOS	A		A				A	
Intersection Delay (s/veh)	7.67							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 With Site Phase 2 PM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	27	57	0	0	42	82
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	82	0	36
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.76		0.76				0.73	
Flow Rate (veh/h)	110		162				161	
% Heavy Vehicles	3		3				2	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.0				0.7	
Prop. Right-Turns	0.0		0.7				0.3	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.3				-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.10		0.14				0.14	
hd, final value (s)	4.58		4.08				4.49	
x, final value	0.14		0.18				0.20	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.6		2.1				2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	360		412				411	
Delay (s/veh)	8.32		7.99				8.62	
LOS	A		A				A	
Approach: Delay (s/veh)	8.32		7.99				8.62	
LOS	A		A				A	
Intersection Delay (s/veh)	8.31							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 With Site Phase 3 AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	52	68			56	75		
Peak-Hour Factor, PHF	0.88	0.88	1.00	1.00	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	59	77	0	0	63	85		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	55		43					
Peak-Hour Factor, PHF	0.72	1.00	0.72	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	76	0	59	0	0	0		
Percent Heavy Vehicles	9	0	9	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	59						135	
C (m) (veh/h)	1415						729	
v/c	0.04						0.19	
95% queue length	0.13						0.68	
Control Delay (s/veh)	7.7						11.1	
LOS	A						B	
Approach Delay (s/veh)	--	--				11.1		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 With Site Phs 2 Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	21	43			49	64		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.90	0.90		
Hourly Flow Rate, HFR (veh/h)	26	55	0	0	54	71		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	64		33					
Peak-Hour Factor, PHF	0.73	1.00	0.73	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	87	0	45	0	0	0		
Percent Heavy Vehicles	4	0	4	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	26						132	
C (m) (veh/h)	1443						815	
v/c	0.02						0.16	
95% queue length	0.06						0.58	
Control Delay (s/veh)	7.5						10.3	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.3		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 With Site Phase 3 PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	43	91			82	73		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	55	116	0	0	90	80		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	114		38					
Peak-Hour Factor, PHF	0.80	1.00	0.80	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	142	0	47	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	55						189	
C (m) (veh/h)	1407						650	
v/c	0.04						0.29	
95% queue length	0.12						1.20	
Control Delay (s/veh)	7.7						12.8	
LOS	A						B	
Approach Delay (s/veh)	--	--				12.8		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 With Site Phase 2 AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	65	6	1	44	1		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.79	0.79	0.79		
Hourly Flow Rate, HFR (veh/h)	1	78	7	1	55	1		
Percent Heavy Vehicles	6	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	14	1	0	0	2	0		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	21	1	0	0	4	0		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	1	1		22			4	
C (m) (veh/h)	1523	1512		817			745	
v/c	0.00	0.00		0.03			0.01	
95% queue length	0.00	0.00		0.08			0.02	
Control Delay (s/veh)	7.4	7.4		9.5			9.9	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.5			9.9		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 With Site Phs 2 Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	5	50	9	1	40	2		
Peak-Hour Factor, PHF	0.70	0.70	0.70	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	7	71	12	1	53	2		
Percent Heavy Vehicles	9	--	--	3	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9	0	2	3	2	3		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.67	0.67	0.67		
Hourly Flow Rate, HFR (veh/h)	10	0	2	4	2	4		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	7	1		12			10	
C (m) (veh/h)	1506	1508		835			864	
v/c	0.00	0.00		0.01			0.01	
95% queue length	0.01	0.00		0.04			0.04	
Control Delay (s/veh)	7.4	7.4		9.4			9.2	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.4			9.2		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2023			
Analysis Time Period	2023 With Site Phase 2 PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	6	59	10	0	43	3		
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	6	62	10	0	46	3		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	11	2	0	5	2	9		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	16	3	0	6	2	12		
Percent Heavy Vehicles	2	2	2	7	7	7		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	6	0		19			20	
C (m) (veh/h)	1558	1528		814			916	
v/c	0.00	0.00		0.02			0.02	
95% queue length	0.01	0.00		0.07			0.07	
Control Delay (s/veh)	7.3	7.4		9.5			9.0	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.5			9.0		
Approach LOS	--	--	A			A		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 With Site Phase 2 AM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	12	8	8	0	13	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	12	1	1	0	3	27
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.64</i>		<i>0.31</i>		<i>0.35</i>		<i>0.88</i>	
Flow Rate (veh/h)	<i>42</i>		<i>41</i>		<i>38</i>		<i>33</i>	
% Heavy Vehicles	<i>6</i>		<i>2</i>		<i>14</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0		0.9		0.0	
Prop. Right-Turns	0.3		0.0		0.1		0.9	
Prop. Heavy Vehicle	0.1		0.0		0.1		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.0		0.4		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.04		0.04		0.03		0.03	
hd, final value (s)	4.11		4.13		4.50		3.61	
x, final value	0.05		0.05		0.05		0.03	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.1		2.1		2.5		1.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	292		291		288		283	
Delay (s/veh)	7.32		7.33		7.72		6.73	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.32		7.33		7.72		6.73	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.30							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 With Site Phs 2 Noon Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	5	10	14	0	7	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	11	5	2	0	3	6
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.88		0.75		0.65		1.00	
Flow Rate (veh/h)	31		9		26		9	
% Heavy Vehicles	2		2		2		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0		0.6		0.0	
Prop. Right-Turns	0.5		0.0		0.1		0.7	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.2		0.0		0.1		-0.4	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.03		0.01		0.02		0.01	
hd, final value (s)	3.76		4.04		4.08		3.64	
x, final value	0.03		0.01		0.03		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.8		2.0		2.1		1.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	281		259		276		259	
Delay (s/veh)	6.88		7.08		7.20		6.67	
LOS	A		A		A		A	
Approach: Delay (s/veh)	6.88		7.08		7.20		6.67	
LOS	A		A		A		A	
Intersection Delay (s/veh)	6.99							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2023
Analysis Time Period	2023 With Site Phase 2 PM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	27	13	12	1	9	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	9	3	0	0	1	13
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.90</i>		<i>0.90</i>		<i>0.90</i>		<i>0.90</i>	
Flow Rate (veh/h)	<i>57</i>		<i>11</i>		<i>13</i>		<i>15</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5		0.1		0.8		0.0	
Prop. Right-Turns	0.2		0.0		0.0		0.9	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.1		0.2		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.05		0.01		0.01		0.01	
hd, final value (s)	3.97		4.06		4.25		3.53	
x, final value	0.06		0.01		0.02		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.1		2.2		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	307		261		263		265	
Delay (s/veh)	7.24		7.11		7.31		6.58	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.24		7.11		7.31		6.58	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.13							
Intersection LOS	A							

2028 Without Site Phase 3

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 Without Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1579			2257	407	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1754	0	0	2507	549	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			13			79	
Peak-Hour Factor, PHF	1.00	1.00	0.83	1.00	1.00	0.80	
Hourly Flow Rate, HFR (veh/h)	0	0	15	0	0	98	
Percent Heavy Vehicles	0	0	6	0	0	5	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					98		15
C (m) (veh/h)					315		201
v/c					0.31		0.07
95% queue length					1.29		0.24
Control Delay (s/veh)					21.5		24.3
LOS					C		C
Approach Delay (s/veh)	--	--	21.5			24.3	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1223			1910	377	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1358	0	0	2122	509	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			33			116	
Peak-Hour Factor, PHF	1.00	1.00	0.90	1.00	1.00	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	36	0	0	126	
Percent Heavy Vehicles	0	0	3	0	0	4	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					126		36
C (m) (veh/h)					420		268
v/c					0.30		0.13
95% queue length					1.24		0.46
Control Delay (s/veh)					17.2		20.5
LOS					C		C
Approach Delay (s/veh)	--	--	17.2			20.5	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 Without Site PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1607			2684	373	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.84	
Hourly Flow Rate, HFR (veh/h)	0	1785	0	0	2982	444	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			70			258	
Peak-Hour Factor, PHF	1.00	1.00	0.86	1.00	1.00	0.89	
Hourly Flow Rate, HFR (veh/h)	0	0	81	0	0	289	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					289		81
C (m) (veh/h)					315		151
v/c					0.92		0.54
95% queue length					8.91		2.66
Control Delay (s/veh)					69.0		53.5
LOS					F		F
Approach Delay (s/veh)	--	--	69.0			53.5	
Approach LOS	--	--	F			F	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 Without Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1655	395	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1924	459	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						30	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	35	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							35
C (m) (veh/h)							244
v/c							0.14
95% queue length							0.49
Control Delay (s/veh)							22.2
LOS							C
Approach Delay (s/veh)	--	--				22.2	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2023 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1053	482		
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1224	560		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						27		
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	31		
Percent Heavy Vehicles	0	0	2	0	0	2		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								31
C (m) (veh/h)								358
v/c								0.09
95% queue length								0.28
Control Delay (s/veh)								16.0
LOS								C
Approach Delay (s/veh)	--	--				16.0		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1539	548		
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1789	637		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	0		
Configuration					T	TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						22		
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	25		
Percent Heavy Vehicles	0	0	2	0	0	2		
Percent Grade (%)	-2			-2				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								25
C (m) (veh/h)								237
v/c								0.11
95% queue length								0.35
Control Delay (s/veh)								22.0
LOS								C
Approach Delay (s/veh)	--	--				22.0		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 Without Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1940	37	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	2108	40	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						44	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.40	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	109	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							109
C (m) (veh/h)							292
v/c							0.37
95% queue length							1.67
Control Delay (s/veh)							24.5
LOS							C
Approach Delay (s/veh)	--	--				24.5	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1306	45	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.95	0.95	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1374	47	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						49	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.44	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	111	
Percent Heavy Vehicles	0	0	0	0	0	25	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							111
C (m) (veh/h)							421
v/c							0.26
95% queue length							1.05
Control Delay (s/veh)							16.6
LOS							C
Approach Delay (s/veh)	--	--				16.6	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)					1953	62		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	2146	68		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Raised curb							
RT Channelized			0			0		
Lanes	0	0	0	0	2	1		
Configuration					T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)						76		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	113		
Percent Heavy Vehicles	0	0	0	0	0	2		
Percent Grade (%)	0			-3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	1		
Configuration						R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								113
C (m) (veh/h)								293
v/c								0.39
95% queue length								1.75
Control Delay (s/veh)								24.8
LOS								C
Approach Delay (s/veh)	--	--				24.8		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Cleland (#24)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		79	5	2	113			
Peak-Hour Factor, PHF	1.00	0.82	0.82	0.77	0.77	1.00		
Hourly Flow Rate, HFR (veh/h)	0	96	6	2	146	0		
Percent Heavy Vehicles	0	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10		0					
Peak-Hour Factor, PHF	0.45	1.00	0.45	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	22	0	0	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		2		22				
C (m) (veh/h)		1478		738				
v/c		0.00		0.03				
95% queue length		0.00		0.09				
Control Delay (s/veh)		7.4		10.0				
LOS		A		B				
Approach Delay (s/veh)	--	--	10.0					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		80	8	2	59		
Peak-Hour Factor, PHF	1.00	0.79	0.79	0.71	0.71	1.00	
Hourly Flow Rate, HFR (veh/h)	0	101	10	2	83	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	15		1				
Peak-Hour Factor, PHF	0.46	1.00	0.46	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	32	0	2	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		34			
C (m) (veh/h)		1466		803			
v/c		0.00		0.04			
95% queue length		0.00		0.13			
Control Delay (s/veh)		7.5		9.7			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.7				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Cleland (#24)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		295	19	1	151			
Peak-Hour Factor, PHF	1.00	0.62	0.62	0.62	0.62	1.00		
Hourly Flow Rate, HFR (veh/h)	0	475	30	1	243	0		
Percent Heavy Vehicles	0	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	12		7					
Peak-Hour Factor, PHF	0.85	1.00	0.85	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	14	0	8	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		1		22				
C (m) (veh/h)		1060		440				
v/c		0.00		0.05				
95% queue length		0.00		0.16				
Control Delay (s/veh)		8.4		13.6				
LOS		A		B				
Approach Delay (s/veh)	--	--	13.6					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	77	0	20	113	0		
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.82	0.82	0.82		
Hourly Flow Rate, HFR (veh/h)	0	101	0	24	137	0		
Percent Heavy Vehicles	9	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	2	0	8	0	0	0		
Peak-Hour Factor, PHF	0.75	0.75	0.75	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	2	0	10	0	0	0		
Percent Heavy Vehicles	2	2	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	0	24		12			0	
C (m) (veh/h)	1405	1504		887				
v/c	0.00	0.02		0.01				
95% queue length	0.00	0.05		0.04				
Control Delay (s/veh)	7.6	7.4		9.1				
LOS	A	A		A				
Approach Delay (s/veh)	--	--	9.1					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	77	3	10	58	1		
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.64	0.64	0.64		
Hourly Flow Rate, HFR (veh/h)	0	101	3	15	90	1		
Percent Heavy Vehicles	3	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	2	0	10	0	0	0		
Peak-Hour Factor, PHF	0.25	0.25	0.25	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	8	0	40	0	0	0		
Percent Heavy Vehicles	2	2	2	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	0	15		48			0	
C (m) (veh/h)	1498	1475		906				
v/c	0.00	0.01		0.05				
95% queue length	0.00	0.03		0.17				
Control Delay (s/veh)	7.4	7.5		9.2				
LOS	A	A		A				
Approach Delay (s/veh)	--	--	9.2					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hamilton & Cleland (#25)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	154	102	34	20	68	45		
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.68	0.68	0.68		
Hourly Flow Rate, HFR (veh/h)	270	178	59	29	99	66		
Percent Heavy Vehicles	2	--	--	4	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	9	17	29	27	25	70		
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.51	0.51	0.51		
Hourly Flow Rate, HFR (veh/h)	16	32	54	52	49	137		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	270	29		102			238	
C (m) (veh/h)	1413	1318		279			320	
v/c	0.19	0.02		0.37			0.74	
95% queue length	0.71	0.07		1.61			5.62	
Control Delay (s/veh)	8.1	7.8		25.2			42.8	
LOS	A	A		D			E	
Approach Delay (s/veh)	--	--	25.2			42.8		
Approach LOS	--	--	D			E		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 Without Site AM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	25	33	0	0	42	92
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	69	0	13
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.66		0.75				0.70	
Flow Rate (veh/h)	86		178				116	
% Heavy Vehicles	10		4				10	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0				0.8	
Prop. Right-Turns	0.0		0.7				0.2	
Prop. Heavy Vehicle	0.1		0.0				0.1	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.3		-0.3				0.2	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.08		0.16				0.10	
hd, final value (s)	4.63		3.95				4.72	
x, final value	0.11		0.20				0.15	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.6		2.0				2.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	336		428				366	
Delay (s/veh)	8.21		7.91				8.57	
LOS	A		A				A	
Approach: Delay (s/veh)	8.21		7.91				8.57	
LOS	A		A				A	
Intersection Delay (s/veh)	8.18							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 Without Site Noon Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Burning Tree Drive

North/South Street: Cleland Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	11	39	0	0	44	45
%Thrus Left Lane						
Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	0	0	0	63	0	12
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.71		0.71				0.90	
Flow Rate (veh/h)	69		124				83	
% Heavy Vehicles	5		5				4	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				0.8	
Prop. Right-Turns	0.0		0.5				0.2	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.2				0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.06		0.11				0.07	
hd, final value (s)	4.35		3.95				4.46	
x, final value	0.08		0.14				0.10	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.3		2.0				2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	319		374				333	
Delay (s/veh)	7.74		7.58				7.97	
LOS	A		A				A	
Approach: Delay (s/veh)	7.74		7.58				7.97	
LOS	A		A				A	
Intersection Delay (s/veh)	7.74							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 Without Site PM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	29	61	0	0	45	86
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	86	0	39
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.76		0.76				0.73	
Flow Rate (veh/h)	118		172				170	
% Heavy Vehicles	3		3				2	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.0				0.7	
Prop. Right-Turns	0.0		0.7				0.3	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.3				-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.10		0.15				0.15	
hd, final value (s)	4.62		4.11				4.53	
x, final value	0.15		0.20				0.21	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.6		2.1				2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	368		422				420	
Delay (s/veh)	8.44		8.12				8.76	
LOS	A		A				A	
Approach: Delay (s/veh)	8.44		8.12				8.76	
LOS	A		A				A	
Intersection Delay (s/veh)	8.44							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	56	73			59	79		
Peak-Hour Factor, PHF	0.88	0.88	1.00	1.00	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	63	82	0	0	67	89		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	58		46					
Peak-Hour Factor, PHF	0.72	1.00	0.72	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	80	0	63	0	0	0		
Percent Heavy Vehicles	9	0	9	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	63						143	
C (m) (veh/h)	1406						714	
v/c	0.04						0.20	
95% queue length	0.14						0.74	
Control Delay (s/veh)	7.7						11.3	
LOS	A						B	
Approach Delay (s/veh)	--	--				11.3		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	22	46			62	67		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.90	0.90		
Hourly Flow Rate, HFR (veh/h)	28	58	0	0	68	74		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	67		35					
Peak-Hour Factor, PHF	0.73	1.00	0.73	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	91	0	47	0	0	0		
Percent Heavy Vehicles	4	0	4	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	28						138	
C (m) (veh/h)	1423						791	
v/c	0.02						0.17	
95% queue length	0.06						0.63	
Control Delay (s/veh)	7.6						10.5	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.5		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	46	97			87	77		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	58	124	0	0	95	84		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	120		40					
Peak-Hour Factor, PHF	0.80	1.00	0.80	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	149	0	49	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	58						198	
C (m) (veh/h)	1397						631	
v/c	0.04						0.31	
95% queue length	0.13						1.34	
Control Delay (s/veh)	7.7						13.3	
LOS	A						B	
Approach Delay (s/veh)	--	--				13.3		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	69	6	1	47	1		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.79	0.79	0.79		
Hourly Flow Rate, HFR (veh/h)	1	83	7	1	59	1		
Percent Heavy Vehicles	6	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	15	1	0	0	2	0		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	23	1	0	0	4	0		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	1	1		24			4	
C (m) (veh/h)	1518	1505		808			737	
v/c	0.00	0.00		0.03			0.01	
95% queue length	0.00	0.00		0.09			0.02	
Control Delay (s/veh)	7.4	7.4		9.6			9.9	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.6			9.9		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Brandon (#29)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 Without Site Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Brandon Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	53	10	1	42	2	
Peak-Hour Factor, PHF	0.70	0.70	0.70	0.75	0.75	0.75	
Hourly Flow Rate, HFR (veh/h)	7	75	14	1	56	2	
Percent Heavy Vehicles	9	--	--	3	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	10	0	2	4	2	4	
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.67	0.67	0.67	
Hourly Flow Rate, HFR (veh/h)	12	0	2	5	2	5	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	7	1		14			12
C (m) (veh/h)	1503	1500		820			862
v/c	0.00	0.00		0.02			0.01
95% queue length	0.01	0.00		0.05			0.04
Control Delay (s/veh)	7.4	7.4		9.5			9.2
LOS	A	A		A			A
Approach Delay (s/veh)	--	--	9.5			9.2	
Approach LOS	--	--	A			A	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 Without Site PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	6	63	11	0	46	4		
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	6	67	11	0	49	4		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	12	2	0	5	2	10		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	18	3	0	6	2	13		
Percent Heavy Vehicles	2	2	2	7	7	7		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	6	0		21			21	
C (m) (veh/h)	1553	1520		804			912	
v/c	0.00	0.00		0.03			0.02	
95% queue length	0.01	0.00		0.08			0.07	
Control Delay (s/veh)	7.3	7.4		9.6			9.0	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.6			9.0		
Approach LOS	--	--	A			A		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 Without Site AM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Berkley Drive

North/South Street: Oakwood Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	12	8	8	0	13	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	12	1	1	0	4	27
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.64</i>		<i>0.31</i>		<i>0.35</i>		<i>0.88</i>	
Flow Rate (veh/h)	<i>42</i>		<i>41</i>		<i>38</i>		<i>34</i>	
% Heavy Vehicles	<i>6</i>		<i>2</i>		<i>14</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0		0.9		0.0	
Prop. Right-Turns	0.3		0.0		0.1		0.9	
Prop. Heavy Vehicle	0.1		0.0		0.1		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.0		0.4		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.04		0.04		0.03		0.03	
hd, final value (s)	4.11		4.13		4.50		3.63	
x, final value	0.05		0.05		0.05		0.03	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.1		2.1		2.5		1.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	292		291		288		284	
Delay (s/veh)	7.32		7.34		7.72		6.76	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.32		7.34		7.72		6.76	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.30							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 Without Site Noon Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	5	10	14	0	7	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	11	5	2	0	4	6
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.88</i>		<i>0.75</i>		<i>0.65</i>		<i>1.00</i>	
Flow Rate (veh/h)	<i>31</i>		<i>9</i>		<i>26</i>		<i>10</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0		0.6		0.0	
Prop. Right-Turns	0.5		0.0		0.1		0.6	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.2		0.0		0.1		-0.3	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.03		0.01		0.02		0.01	
hd, final value (s)	3.76		4.04		4.08		3.68	
x, final value	0.03		0.01		0.03		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.8		2.0		2.1		1.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	281		259		276		260	
Delay (s/veh)	6.89		7.08		7.20		6.72	
LOS	A		A		A		A	
Approach: Delay (s/veh)	6.89		7.08		7.20		6.72	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.00							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 Without Site PM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	27	13	12	1	9	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	9	4	0	0	1	13
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	57		11		14		15	
% Heavy Vehicles	2		2		2		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5		0.1		0.7		0.0	
Prop. Right-Turns	0.2		0.0		0.0		0.9	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.1		0.2		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.05		0.01		0.01		0.01	
hd, final value (s)	3.97		4.07		4.23		3.53	
x, final value	0.06		0.01		0.02		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.1		2.2		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	307		261		264		265	
Delay (s/veh)	7.24		7.12		7.31		6.59	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.24		7.12		7.31		6.59	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.13							
Intersection LOS	A							

2028 With Site Phase 3

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1582			2280	408	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1757	0	0	2533	551	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			13			79	
Peak-Hour Factor, PHF	1.00	1.00	0.83	1.00	1.00	0.80	
Hourly Flow Rate, HFR (veh/h)	0	0	15	0	0	98	
Percent Heavy Vehicles	0	0	6	0	0	5	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					98		15
C (m) (veh/h)					314		198
v/c					0.31		0.08
95% queue length					1.30		0.24
Control Delay (s/veh)					21.6		24.7
LOS					C		C
Approach Delay (s/veh)	--	--	21.6			24.7	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phs 3 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1231			1930	384	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.74	
Hourly Flow Rate, HFR (veh/h)	0	1367	0	0	2144	518	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			33			116	
Peak-Hour Factor, PHF	1.00	1.00	0.90	1.00	1.00	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	36	0	0	126	
Percent Heavy Vehicles	0	0	3	0	0	4	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					126		36
C (m) (veh/h)					417		264
v/c					0.30		0.14
95% queue length					1.26		0.47
Control Delay (s/veh)					17.3		20.8
LOS					C		C
Approach Delay (s/veh)	--	--	17.3			20.8	
Approach LOS	--	--	C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	15-501 & NC 54 EB OnRmps (#8)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 EB On-Ramp NB & SB				North/South Street: US 15-501 (Fordham Blvd)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		1609			2706	375	
Peak-Hour Factor, PHF	1.00	0.90	1.00	1.00	0.90	0.84	
Hourly Flow Rate, HFR (veh/h)	0	1787	0	0	3006	446	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	2	0	0	2	1	
Configuration		T			T	R	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			70			258	
Peak-Hour Factor, PHF	1.00	1.00	0.86	1.00	1.00	0.89	
Hourly Flow Rate, HFR (veh/h)	0	0	81	0	0	289	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	0			3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	0	1	
Configuration			R			R	
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration					R		R
v (veh/h)					289		81
C (m) (veh/h)					314		148
v/c					0.92		0.55
95% queue length					8.96		2.73
Control Delay (s/veh)					69.8		55.4
LOS					F		F
Approach Delay (s/veh)	--	--	69.8			55.4	
Approach LOS	--	--	F			F	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1679	405	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1952	470	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						30	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	35	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							35
C (m) (veh/h)							238
v/c							0.15
95% queue length							0.51
Control Delay (s/veh)							22.7
LOS							C
Approach Delay (s/veh)	--	--				22.7	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phs 3 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1073	491	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1247	570	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						27	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	31	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							31
C (m) (veh/h)							351
v/c							0.09
95% queue length							0.29
Control Delay (s/veh)							16.2
LOS							C
Approach Delay (s/veh)	--	--				16.2	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Raleigh & 15-501 NB Off (#13)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Raleigh Road				North/South Street: US 15-501 NB Off Ramps			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1563	559	
Peak-Hour Factor, PHF	1.00	0.83	0.83	1.00	0.86	0.86	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1817	649	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						22	
Peak-Hour Factor, PHF	1.00	1.00	0.74	1.00	1.00	0.85	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	25	
Percent Heavy Vehicles	0	0	2	0	0	2	
Percent Grade (%)	-2			-2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							25
C (m) (veh/h)							231
v/c							0.11
95% queue length							0.36
Control Delay (s/veh)							22.5
LOS							C
Approach Delay (s/veh)	--	--				22.5	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1971	37	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.92	0.92	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	2142	40	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						44	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.40	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	109	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							109
C (m) (veh/h)							286
v/c							0.38
95% queue length							1.71
Control Delay (s/veh)							25.1
LOS							D
Approach Delay (s/veh)	--	--				25.1	
Approach LOS	--	--				D	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phs 3 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1332	45	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.95	0.95	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1402	47	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	0	
Configuration					T	TR	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						49	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.44	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	111	
Percent Heavy Vehicles	0	0	0	0	0	25	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							111
C (m) (veh/h)							414
v/c							0.27
95% queue length							1.07
Control Delay (s/veh)							16.9
LOS							C
Approach Delay (s/veh)	--	--				16.9	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	NC 54 & Glennox Dr#2 (#15)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: NC 54 (Raleigh Road)				North/South Street: Glen Lennox Shp Ctr DR #2			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					1983	62	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.91	0.91	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	2179	68	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Raised curb						
RT Channelized			0			0	
Lanes	0	0	0	0	2	1	
Configuration					T	R	
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)						76	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.67	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	113	
Percent Heavy Vehicles	0	0	0	0	0	2	
Percent Grade (%)	0			-3			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	1	
Configuration						R	
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							113
C (m) (veh/h)							286
v/c							0.40
95% queue length							1.81
Control Delay (s/veh)							25.6
LOS							D
Approach Delay (s/veh)	--	--				25.6	
Approach LOS	--	--				D	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		79	5	2	113		
Peak-Hour Factor, PHF	1.00	0.82	0.82	0.77	0.77	1.00	
Hourly Flow Rate, HFR (veh/h)	0	96	6	2	146	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	10		0				
Peak-Hour Factor, PHF	0.45	1.00	0.45	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	22	0	0	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		22			
C (m) (veh/h)		1478		738			
v/c		0.00		0.03			
95% queue length		0.00		0.09			
Control Delay (s/veh)		7.4		10.0			
LOS		A		B			
Approach Delay (s/veh)	--	--	10.0				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 WithSite Phs 3 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		80	8	2	59		
Peak-Hour Factor, PHF	1.00	0.79	0.79	0.71	0.71	1.00	
Hourly Flow Rate, HFR (veh/h)	0	101	10	2	83	0	
Percent Heavy Vehicles	0	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	15		1				
Peak-Hour Factor, PHF	0.46	1.00	0.46	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	32	0	2	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		2		34			
C (m) (veh/h)		1466		803			
v/c		0.00		0.04			
95% queue length		0.00		0.13			
Control Delay (s/veh)		7.5		9.7			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.7				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Cleland (#24)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		295	19	1	151		
Peak-Hour Factor, PHF	1.00	0.62	0.62	0.62	0.62	1.00	
Hourly Flow Rate, HFR (veh/h)	0	475	30	1	243	0	
Percent Heavy Vehicles	0	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	12		7				
Peak-Hour Factor, PHF	0.85	1.00	0.85	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	14	0	8	0	0	0	
Percent Heavy Vehicles	2	0	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		1		22			
C (m) (veh/h)		1060		440			
v/c		0.00		0.05			
95% queue length		0.00		0.16			
Control Delay (s/veh)		8.4		13.6			
LOS		A		B			
Approach Delay (s/veh)	--	--	13.6				
Approach LOS	--	--	B				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hamilton & Cleland (#25)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 AM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	77	0	20	113	0	
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.82	0.82	0.82	
Hourly Flow Rate, HFR (veh/h)	0	101	0	24	137	0	
Percent Heavy Vehicles	9	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	11	0	0	0	
Peak-Hour Factor, PHF	0.75	0.75	0.75	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	2	0	14	0	0	0	
Percent Heavy Vehicles	2	2	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	0	24		16			0
C (m) (veh/h)	1405	1504		903			
v/c	0.00	0.02		0.02			
95% queue length	0.00	0.05		0.05			
Control Delay (s/veh)	7.6	7.4		9.1			
LOS	A	A		A			
Approach Delay (s/veh)	--	--	9.1				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hamilton & Cleland (#25)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phs 3 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	0	77	3	12	58	1	
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.64	0.64	0.64	
Hourly Flow Rate, HFR (veh/h)	0	101	3	18	90	1	
Percent Heavy Vehicles	3	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	2	0	12	0	0	0	
Peak-Hour Factor, PHF	0.25	0.25	0.25	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	8	0	48	0	0	0	
Percent Heavy Vehicles	2	2	2	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	0	18		56			0
C (m) (veh/h)	1498	1475		911			
v/c	0.00	0.01		0.06			
95% queue length	0.00	0.04		0.20			
Control Delay (s/veh)	7.4	7.5		9.2			
LOS	A	A		A			
Approach Delay (s/veh)	--	--	9.2				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hamilton & Cleland (#25)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 PM Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Cleland Road				North/South Street: Hamilton Road/Soccer Field Ent			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	154	102	34	20	68	45	
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.68	0.68	0.68	
Hourly Flow Rate, HFR (veh/h)	270	178	59	29	99	66	
Percent Heavy Vehicles	2	--	--	4	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	9	17	32	27	25	70	
Peak-Hour Factor, PHF	0.53	0.53	0.53	0.51	0.51	0.51	
Hourly Flow Rate, HFR (veh/h)	16	32	60	52	49	137	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	270	29		108			238
C (m) (veh/h)	1413	1318		289			318
v/c	0.19	0.02		0.37			0.75
95% queue length	0.71	0.07		1.67			5.69
Control Delay (s/veh)	8.1	7.8		24.7			43.5
LOS	A	A		C			E
Approach Delay (s/veh)	--	--	24.7			43.5	
Approach LOS	--	--	C			E	

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 With Site Phase 3 AM Peak				

Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS

East/West Street: Burning Tree Drive

North/South Street: Cleland Drive

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	25	33	0	0	42	92
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	72	0	13
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.66		0.75				0.70	
Flow Rate (veh/h)	86		178				120	
% Heavy Vehicles	10		4				10	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0				0.9	
Prop. Right-Turns	0.0		0.7				0.2	
Prop. Heavy Vehicle	0.1		0.0				0.1	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.3		-0.3				0.3	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.08		0.16				0.11	
hd, final value (s)	4.64		3.96				4.73	
x, final value	0.11		0.20				0.16	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.6		2.0				2.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	336		428				370	
Delay (s/veh)	8.22		7.93				8.61	
LOS	A		A				A	
Approach: Delay (s/veh)	8.22		7.93				8.61	
LOS	A		A				A	
Intersection Delay (s/veh)	8.21							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Burning Tree & Cleland (#27)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 With Site Phs 3 Noon Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Burning Tree Drive*

North/South Street: *Cleland Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	11	39	0	0	44	47
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	65	0	12
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.71		0.71				0.90	
Flow Rate (veh/h)	69		127				85	
% Heavy Vehicles	5		5				4	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				0.8	
Prop. Right-Turns	0.0		0.5				0.2	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.2				0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.06		0.11				0.08	
hd, final value (s)	4.36		3.95				4.47	
x, final value	0.08		0.14				0.11	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.4		2.0				2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	319		377				335	
Delay (s/veh)	7.75		7.59				7.99	
LOS	A		A				A	
Approach: Delay (s/veh)	7.75		7.59				7.99	
LOS	A		A				A	
Intersection Delay (s/veh)	7.75							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	CRS				Intersection	Burning Tree & Cleland (#27)		
Agency/Co.	HNTB North Carolina, PC				Jurisdiction	Chapel Hill, NC		
Date Performed	4/29/2013				Analysis Year	2028		
Analysis Time Period	2028 With Site Phase 3 PM Peak							
Project ID Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive					North/South Street: Cleland Drive			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	29	61	0		0	45	86	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	0	0	0		89	0	39	
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.76		0.76				0.73	
Flow Rate (veh/h)	118		172				174	
% Heavy Vehicles	3		3				2	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.3		0.0				0.7	
Prop. Right-Turns	0.0		0.7				0.3	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.3				-0.0	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.10		0.15				0.15	
hd, final value (s)	4.63		4.13				4.54	
x, final value	0.15		0.20				0.22	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t _s (s)	2.6		2.1				2.5	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	368		422				424	
Delay (s/veh)	8.45		8.14				8.81	
LOS	A		A				A	
Approach: Delay (s/veh)	8.45		8.14				8.81	
LOS	A		A				A	
Intersection Delay (s/veh)	8.47							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 With Site Phase 3 AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	56	73			59	79		
Peak-Hour Factor, PHF	0.88	0.88	1.00	1.00	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	63	82	0	0	67	89		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	61		46					
Peak-Hour Factor, PHF	0.72	1.00	0.72	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	84	0	63	0	0	0		
Percent Heavy Vehicles	9	0	9	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	63						147	
C (m) (veh/h)	1406						711	
v/c	0.04						0.21	
95% queue length	0.14						0.77	
Control Delay (s/veh)	7.7						11.4	
LOS	A						B	
Approach Delay (s/veh)	--	--				11.4		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 With Site Phs 3 Noon Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	22	46			62	69		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.90	0.90		
Hourly Flow Rate, HFR (veh/h)	28	58	0	0	68	76		
Percent Heavy Vehicles	5	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	69		35					
Peak-Hour Factor, PHF	0.73	1.00	0.73	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	94	0	47	0	0	0		
Percent Heavy Vehicles	4	0	4	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	28						141	
C (m) (veh/h)	1420						788	
v/c	0.02						0.18	
95% queue length	0.06						0.65	
Control Delay (s/veh)	7.6						10.6	
LOS	A						B	
Approach Delay (s/veh)	--	--				10.6		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Burning Tree & Pinehurst (#28)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 With Site Phase 3 PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Burning Tree Drive				North/South Street: Pinehurst Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	46	97			87	77		
Peak-Hour Factor, PHF	0.78	0.78	1.00	1.00	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	58	124	0	0	95	84		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	123		40					
Peak-Hour Factor, PHF	0.80	1.00	0.80	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	153	0	49	0	0	0		
Percent Heavy Vehicles	2	0	2	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	58						202	
C (m) (veh/h)	1397						630	
v/c	0.04						0.32	
95% queue length	0.13						1.38	
Control Delay (s/veh)	7.7						13.4	
LOS	A						B	
Approach Delay (s/veh)	--	--				13.4		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 With Site Phase 3 AM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	69	6	1	47	1		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.79	0.79	0.79		
Hourly Flow Rate, HFR (veh/h)	1	83	7	1	59	1		
Percent Heavy Vehicles	6	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	15	1	0	0	2	0		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	23	1	0	0	4	0		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	1	1		24			4	
C (m) (veh/h)	1518	1505		808			737	
v/c	0.00	0.00		0.03			0.01	
95% queue length	0.00	0.00		0.09			0.02	
Control Delay (s/veh)	7.4	7.4		9.6			9.9	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.6			9.9		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	CRS			Intersection	Hayes & Brandon (#29)		
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC		
Date Performed	4/28/2013			Analysis Year	2028		
Analysis Time Period	2028 With Site Phs 3 Noon Peak						
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS							
East/West Street: Brandon Road				North/South Street: Hayes Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	53	10	1	42	2	
Peak-Hour Factor, PHF	0.70	0.70	0.70	0.75	0.75	0.75	
Hourly Flow Rate, HFR (veh/h)	7	75	14	1	56	2	
Percent Heavy Vehicles	9	--	--	3	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	10	0	2	4	2	4	
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.67	0.67	0.67	
Hourly Flow Rate, HFR (veh/h)	12	0	2	5	2	5	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	7	1		14			12
C (m) (veh/h)	1503	1500		820			862
v/c	0.00	0.00		0.02			0.01
95% queue length	0.01	0.00		0.05			0.04
Control Delay (s/veh)	7.4	7.4		9.5			9.2
LOS	A	A		A			A
Approach Delay (s/veh)	--	--	9.5			9.2	
Approach LOS	--	--	A			A	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	CRS			Intersection	Hayes & Brandon (#29)			
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC			
Date Performed	4/28/2013			Analysis Year	2028			
Analysis Time Period	2028 With Site Phase 3 PM Peak							
Project Description Town of Chapel Hill - Glen Lennox Redevelopment TIS								
East/West Street: Brandon Road				North/South Street: Hayes Road				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	6	63	11	0	46	4		
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	6	67	11	0	49	4		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	12	2	0	5	2	10		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75		
Hourly Flow Rate, HFR (veh/h)	18	3	0	6	2	13		
Percent Heavy Vehicles	2	2	2	7	7	7		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	6	0		21			21	
C (m) (veh/h)	1553	1520		804			912	
v/c	0.00	0.00		0.03			0.02	
95% queue length	0.01	0.00		0.08			0.07	
Control Delay (s/veh)	7.3	7.4		9.6			9.0	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.6			9.0		
Approach LOS	--	--	A			A		

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 With Site Phase 3 AM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	13	9	9	0	13	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	12	1	1	0	4	27
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.64		0.31		0.35		0.88	
Flow Rate (veh/h)	48		41		38		34	
% Heavy Vehicles	6		2		14		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.0		0.9		0.0	
Prop. Right-Turns	0.3		0.0		0.1		0.9	
Prop. Heavy Vehicle	0.1		0.0		0.1		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.0		0.4		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.04		0.04		0.03		0.03	
hd, final value (s)	4.11		4.14		4.51		3.64	
x, final value	0.05		0.05		0.05		0.03	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.1		2.1		2.5		1.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	298		291		288		284	
Delay (s/veh)	7.35		7.34		7.74		6.77	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.35		7.34		7.74		6.77	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.32							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 With Site Phs 3 Noon Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	11	15	0	8	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	12	5	2	0	4	7
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.88</i>		<i>0.75</i>		<i>0.65</i>		<i>1.00</i>	
Flow Rate (veh/h)	<i>35</i>		<i>10</i>		<i>28</i>		<i>11</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0		0.6		0.0	
Prop. Right-Turns	0.5		0.0		0.1		0.6	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.2		0.0		0.1		-0.3	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.03		0.01		0.02		0.01	
hd, final value (s)	3.77		4.05		4.10		3.67	
x, final value	0.04		0.01		0.03		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.8		2.0		2.1		1.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	285		260		278		261	
Delay (s/veh)	6.91		7.09		7.24		6.71	
LOS	A		A		A		A	
Approach: Delay (s/veh)	6.91		7.09		7.24		6.71	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.02							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information	
Analyst	CRS			Intersection	Berkley & Oakwood (#30)
Agency/Co.	HNTB North Carolina, PC			Jurisdiction	Chapel Hill, NC
Date Performed	4/29/2013			Analysis Year	2028
Analysis Time Period	2028 With Site Phase 3 PM Peak				

Project ID *Town of Chapel Hill - Glen Lennox Redevelopment TIS*

East/West Street: *Berkley Drive*

North/South Street: *Oakwood Drive*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	28	14	13	1	9	0
%Thrus Left Lane						
Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	9	4	0	0	1	13
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.90</i>		<i>0.90</i>		<i>0.90</i>		<i>0.90</i>	
Flow Rate (veh/h)	<i>60</i>		<i>11</i>		<i>14</i>		<i>15</i>	
% Heavy Vehicles	<i>2</i>		<i>2</i>		<i>2</i>		<i>2</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5		0.1		0.7		0.0	
Prop. Right-Turns	0.2		0.0		0.0		0.9	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.0		0.1		0.2		-0.5	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.05		0.01		0.01		0.01	
hd, final value (s)	3.97		4.07		4.24		3.54	
x, final value	0.07		0.01		0.02		0.01	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.1		2.2		1.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	310		261		264		265	
Delay (s/veh)	7.25		7.12		7.31		6.59	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.25		7.12		7.31		6.59	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.14							
Intersection LOS	A							

Appendix G – Signal Warrant Analysis

Warrants Volume

Information

Analyst	CRS	Intersection	US 15-501 & Cleland Road
Agency/Co	HNTB North Carolina, PC	Jurisdiction	Chapel Hill, NC
Date Performed	8/19/2013	Units	U.S. Customary
Project ID	Glen Lennox Redevelopment TIS	Time Period Analyzed	2018 With Site
East/West Street	Cleland Road	North/South Street	US 15-501
File Name	5us15501&cl.xhy	Major Street	North-South

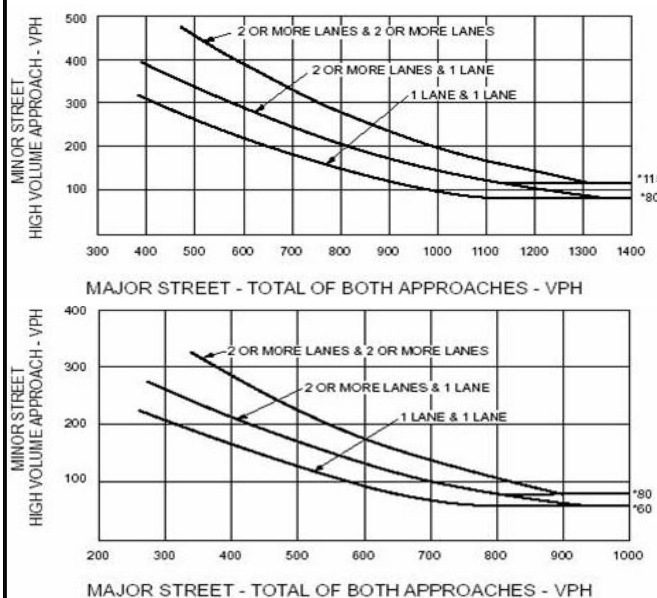
Project Description *Glen Lennox Redevelopment TIS*

Warrant 1

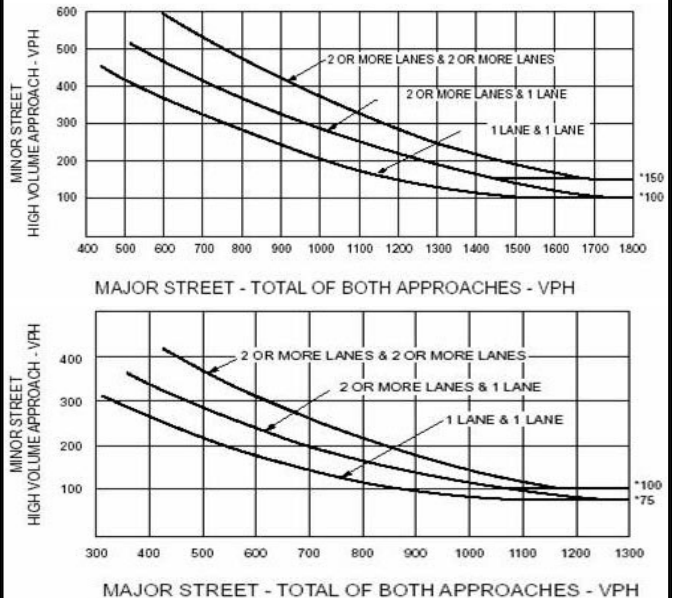
Condition A - Minimum Vehicular Volume							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100% ^a	80% ^a	70% ^c	100% ^a	80% ^a	70% ^c
1.....	1.....	500	400	350	150	120	105
2 or more...	1.....	600	480	420	150	120	105
2 or more...	2 or more...	600	480	420	200	160	140
1.....	2 or more...	500	400	350	200	160	140

Condition B - Interruption of Continuous Traffic							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100% ^a	80% ^a	70% ^c	100% ^a	80% ^a	70% ^c
1.....	1.....	750	600	525	75	60	53
2 or more...	1.....	900	720	630	75	60	53
2 or more...	2 or more...	900	720	630	100	80	70
1.....	2 or more...	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 2+			Minor Street Lanes 1		Speed		45		Population		10000+
Hours	Major Volume	Minor Volume	Total Volume	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)	
07-08	3331	107	3446	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
08-09	0	0	0	No	No	No	No	No	No	No	
09-10	0	0	0	No	No	No	No	No	No	No	
10-11	0	0	0	No	No	No	No	No	No	No	
11-12	0	0	0	No	No	No	No	No	No	No	
12-13	3186	73	3268	No	No	Yes	Yes	Yes	No	No	
13-14	0	0	0	No	No	No	No	No	No	No	
14-15	0	0	0	No	No	No	No	No	No	No	
15-16	0	0	0	No	No	No	No	No	No	No	
16-17	0	0	0	No	No	No	No	No	No	No	
17-18	4059	144	4207	Yes	Yes	Yes	Yes	Yes	No	Yes	
18-19	0	0	0	No	No	No	No	No	No	No	
Totals	10576	324	10921	2	2	3	3	3	1	2	

Warrants Volume

Information

Analyst CRS
 Agency/Co HNTB North Carolina, PC
 Date Performed 8/19/2013
 Project ID Glen Lennox Redevelopment TIS
 East/West Street Brandon Road
 File Name 6us15501&br.xhy

Intersection US 15-501 & Brandon Road
 Jurisdiction Chapel Hill, NC
 Units U.S. Customary
 Time Period Analyzed 2018 With Site
 North/South Street US 15-501
 Major Street North-South

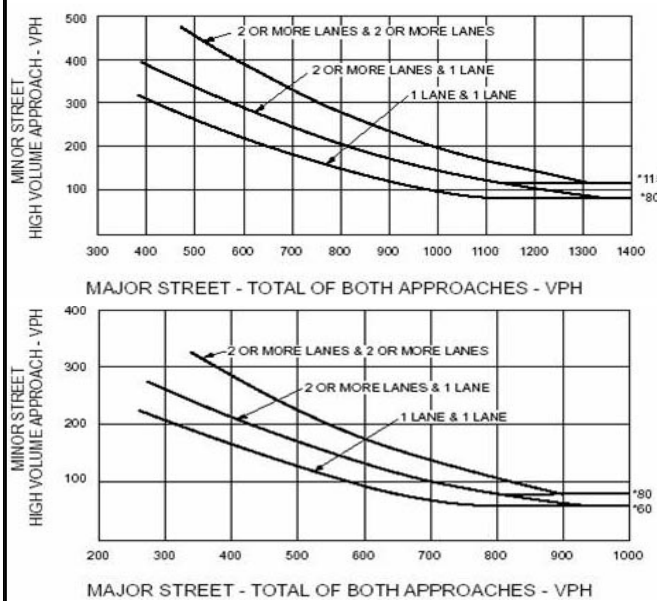
Project Description *Glen Lennox Redevelopment TIS*

Warrant 1

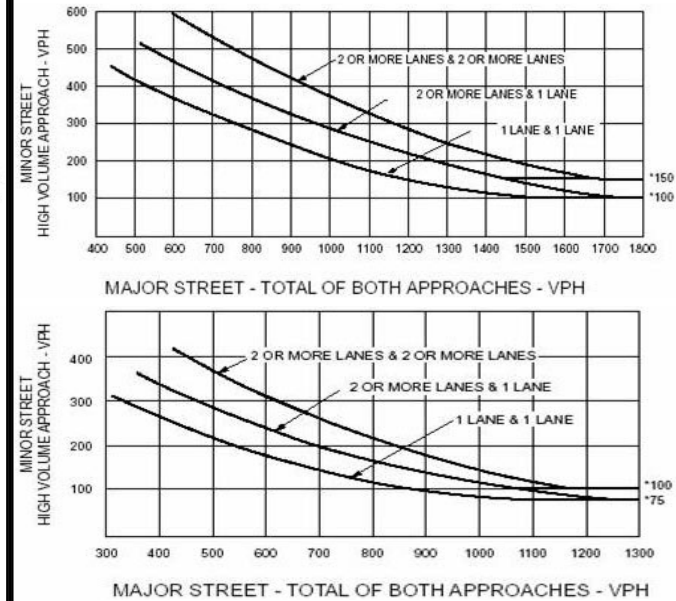
Condition A - Minimum Vehicular Volume							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b	70% ^c
1.....	1.....	500	400	350	150	120	105
2 or more...	1.....	600	480	420	150	120	105
2 or more...	2 or more...	600	480	420	200	160	140
1.....	2 or more....	500	400	350	200	160	140

Condition B - Interruption of Continuous Traffic							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b	70% ^c
1.....	1.....	750	600	525	75	60	53
2 or more...	1.....	900	720	630	75	60	53
2 or more...	2 or more...	900	720	630	100	80	70
1.....	2 or more....	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 2+			Minor Street Lanes 1		Speed		45		Population		10000+
Hours	Major Volume	Minor Volume	Total Volume	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)	
07-08	3384	51	3459	No	No	No	Yes	No	No	No	
08-09	0	0	0	No	No	No	No	No	No	No	
09-10	0	0	0	No	No	No	No	No	No	No	
10-11	0	0	0	No	No	No	No	No	No	No	
11-12	0	0	0	No	No	No	No	No	No	No	
12-13	3200	62	3280	No	No	Yes	Yes	Yes	No	No	
13-14	0	0	0	No	No	No	No	No	No	No	
14-15	0	0	0	No	No	No	No	No	No	No	
15-16	0	0	0	No	No	No	No	No	No	No	
16-17	0	0	0	No	No	No	No	No	No	No	
17-18	4041	51	4107	No	No	No	Yes	No	No	No	
18-19	0	0	0	No	No	No	No	No	No	No	
Totals	10625	164	10846	0	0	1	3	1	0	0	

Warrants Volume

Information

Analyst	CRS	Intersection	Raleigh Rd & US 15-501 SB Ramp
Agency/Co	HNTB North Carolina, PC	Jurisdiction	Chapel Hill, NC
Date Performed	8/19/2013	Units	U.S. Customary
Project ID	Glen Lennox Redevelopment TIS	Time Period Analyzed	2018 With Site
East/West Street	Raleigh Road EB	North/South Street	US 15-501 SB Off-Ramp
File Name	12rr&15501sbofframp.xhy	Major Street	East-West

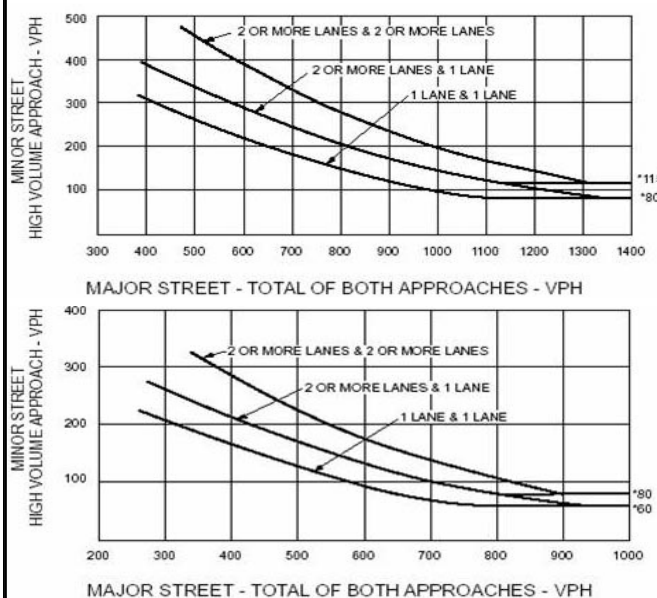
Project Description *Glen Lennox Redevelopment TIS*

Warrant 1

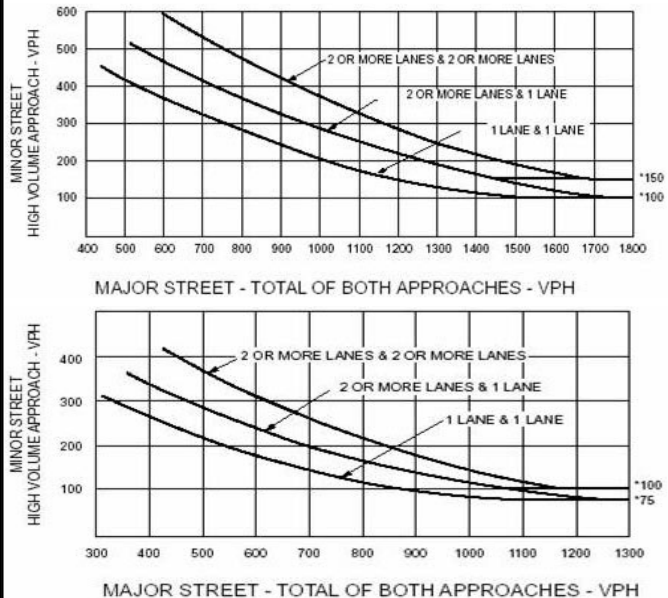
Condition A - Minimum Vehicular Volume						
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)	
Major Street	Minor Street	100%*	80%*	70%*	100%*	80%* 70%*
1.....	1.....	500	400	350	150	120 105
2 or more ...	1.....	600	480	420	150	120 105
2 or more ...	2 or more ...	600	480	420	200	160 140
1.....	2 or more	500	400	350	200	160 140

Condition B - Interruption of Continuous Traffic						
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)	
Major Street	Minor Street	100%*	80%*	70%*	100%*	80%* 70%*
1.....	1.....	750	600	525	75	60 53
2 or more ...	1.....	900	720	630	75	60 53
2 or more ...	2 or more ...	900	720	630	100	80 70
1.....	2 or more	750	600	525	100	80 70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 2+			Minor Street Lanes 1		Speed		Population		10000+	
Hours	Major Volume	Minor Volume	Total Volume	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)
07-08	704	319	1023	Yes	Yes	No	No	Yes	No	No
08-09	0	0	0	No	No	No	No	No	No	No
09-10	0	0	0	No	No	No	No	No	No	No
10-11	0	0	0	No	No	No	No	No	No	No
11-12	0	0	0	No	No	No	No	No	No	No
12-13	735	318	1053	Yes	Yes	No	Yes	Yes	No	No
13-14	0	0	0	No	No	No	No	No	No	No
14-15	0	0	0	No	No	No	No	No	No	No
15-16	0	0	0	No	No	No	No	No	No	No
16-17	0	0	0	No	No	No	No	No	No	No
17-18	1490	321	1811	Yes	Yes	Yes	Yes	Yes	No	Yes
18-19	0	0	0	No	No	No	No	No	No	No
Totals	2929	958	3887	3	3	1	2	3	0	1

Warrants Volume

Information

Analyst	CRS	Intersection	Raleigh Rd & US 15-501 SB Ramp
Agency/Co	HNTB North Carolina, PC	Jurisdiction	Chapel Hill, NC
Date Performed	8/19/2013	Units	U.S. Customary
Project ID	Glen Lennox Redevelopment TIS	Time Period Analyzed	2023 With Site
East/West Street	Raleigh Road EB	North/South Street	US 15-501 SB Off-Ramp
File Name	12rr&15501sbofframp.xhy	Major Street	East-West

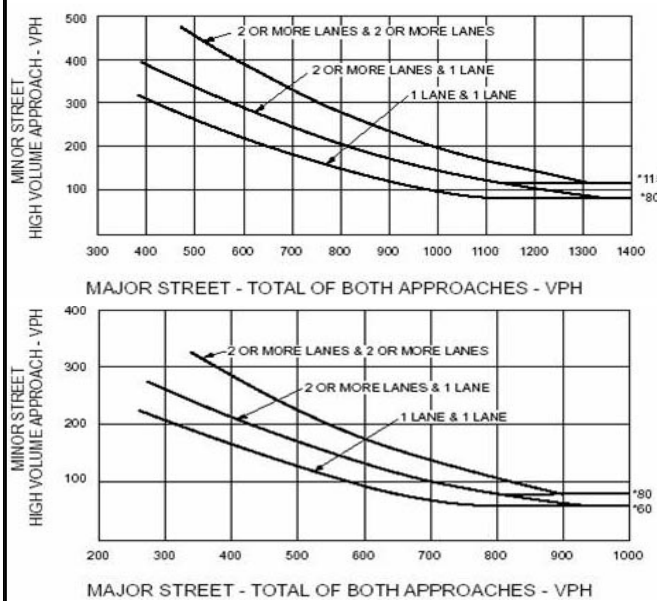
Project Description *Glen Lennox Redevelopment TIS*

Warrant 1

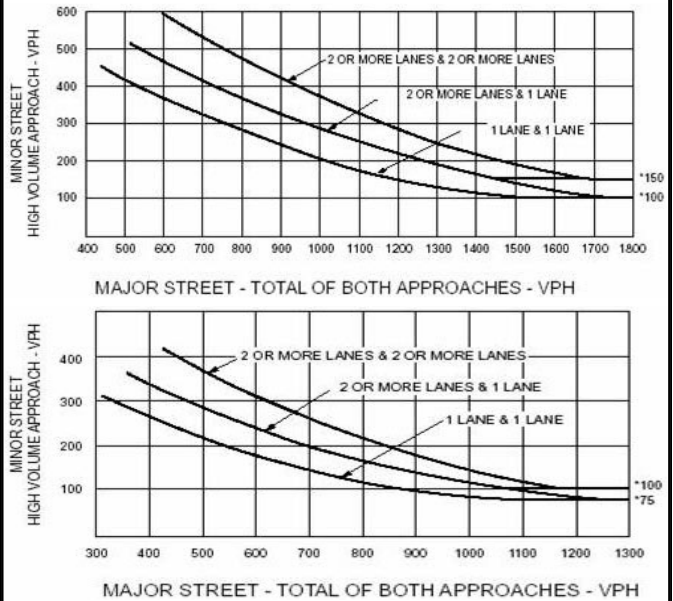
Condition A - Minimum Vehicular Volume							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100% ^a	80% ^a	70% ^c	100% ^a	80% ^a	70% ^c
1.....	1.....	500	400	350	150	120	105
2 or more...	1.....	600	480	420	150	120	105
2 or more...	2 or more...	600	480	420	200	160	140
1.....	2 or more...	500	400	350	200	160	140

Condition B - Interruption of Continuous Traffic							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100% ^a	80% ^a	70% ^c	100% ^a	80% ^a	70% ^c
1.....	1.....	750	600	525	75	60	53
2 or more...	1.....	900	720	630	75	60	53
2 or more...	2 or more...	900	720	630	100	80	70
1.....	2 or more...	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 2+		Minor Street Lanes 1		Speed		35		Population		10000+	
Hours	Major Volume	Minor Volume	Total Volume	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)	
07-08	805	388	1193	Yes	Yes	No	Yes	Yes	No	Yes	
08-09	0	0	0	No	No	No	No	No	No	No	
09-10	0	0	0	No	No	No	No	No	No	No	
10-11	0	0	0	No	No	No	No	No	No	No	
11-12	0	0	0	No	No	No	No	No	No	No	
12-13	808	359	1167	Yes	Yes	No	Yes	Yes	No	No	
13-14	0	0	0	No	No	No	No	No	No	No	
14-15	0	0	0	No	No	No	No	No	No	No	
15-16	0	0	0	No	No	No	No	No	No	No	
16-17	0	0	0	No	No	No	No	No	No	No	
17-18	1607	356	1963	Yes	Yes	Yes	Yes	Yes	No	Yes	
18-19	0	0	0	No	No	No	No	No	No	No	
Totals	3220	1103	4323	3	3	1	3	3	0	2	

Appendix H – Crash Data

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	1	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	0	0.00
Total Injury Crashes	0	0.00
Property Damage Only Crashes	1	100.00
Night Crashes	1	100.00
Wet Crashes	1	100.00
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	1	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	0	0.00
Property Damage Only Crashes	1	100.00

Vehicle Exposure Statistics

Annual ADT = 300

Total Vehicle Exposure = 0.33 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	304.14
Fatal Crash Rate	0.00
Non Fatal Crash Rate	0.00
Night Crash Rate	304.14
Wet Crash Rate	304.14
EPDO Rate	304.14

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	1.00
EPDO Crash Index =	1.00
Estimated Property Damage Total = \$	1200.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
RIGHT TURN, SAME ROADWAY	1	100.00

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	0	0.00
Total Non-Fatal Injuries	0	0.00
Total Injuries	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	0	0.00
Feb	0	0.00
Mar	0	0.00
Apr	0	0.00
May	1	100.00
Jun	0	0.00
Jul	0	0.00
Aug	0	0.00
Sep	0	0.00
Oct	0	0.00
Nov	0	0.00
Dec	0	0.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	0	0.00
Tue	0	0.00
Wed	1	100.00
Thu	0	0.00
Fri	0	0.00
Sat	0	0.00
Sun	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	0	0.00
1000-1059	0	0.00
1100-1159	0	0.00
1200-1259	0	0.00
1300-1359	0	0.00
1400-1459	0	0.00
1500-1559	0	0.00
1600-1659	0	0.00
1700-1759	0	0.00
1800-1859	0	0.00
1900-1959	0	0.00
2000-2059	1	100.00
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	0	0	0	0
Dark	0	1	0	1
Other	0	0	0	0
Total	0	1	0	1

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	1	50.00
SPORT UTILITY	1	50.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013	1	0	0	1
Total	1	0	0	1

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	0
2011	0	0
2012	0	0
2013	0	0
Total	0	0

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 0	0.00
2011	\$ 0	0.00
2012	\$ 0	0.00
2013	\$ 1200	1.00
Total	\$ 1200	1.00

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0
2013	0	1	0	0	0	0	0
Total	0	1	0	0	0	0	0

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025456	41000025456			76.8	8.4	300	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
07/05/2013		828 265 4706		919-546 9421

County			Municipality		Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code				
ORANGE	67	7	All and Rural		150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of SR 1799 (Hayes Road) and Brandon Road	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Fiche Roads

Name	Code
SR 1799	40001799
BATES	50001844
HAYES	50013457
BRANDON	50003509

Intersection Road Combinations

Name	Code	Code	Name
BRANDON	50003509	40001799	SR 1799
BRANDON	50003509	50013457	HAYES
BRANDON	50003509	50001844	BATES

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025392
Location: Crash analysis at intersection of SR 1010 (E. Franklin Street) and SR 1750 (Estes Dr)

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102936101	08/04/2010 08:31	LEFT TURN, SAME ROADWAY	\$ 4000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 8		Obj Strk:									
2	102961543	09/09/2010 17:08	LEFT TURN, DIFFERENT ROADWAYS	\$ 1600	0	0	0	0	1	1	1	1	0	13	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: SW	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
3	102995591	10/19/2010 17:26	REAR END, SLOW OR STOP	\$ 1550	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn: 11		Obj Strk:									
4	103015463	11/05/2010 16:36	OTHER COLLISION WITH VEHICLE	\$ 1100	0	0	0	0	1	1	1	2	0	3	1
Unit	1 : 13	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	3 : 10	Alchl/Drgs: 7	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 16		Obj Strk:									
5	103032782	11/26/2010 14:01	REAR END, SLOW OR STOP	\$ 1200	0	0	0	0	2	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn: 11		Obj Strk:									
6	103049668	12/15/2010 20:46	ANGLE	\$ 2700	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 16		Obj Strk:									
Unit	2 : 3	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 16		Obj Strk:									
7	103074733	01/10/2011 17:40	REAR END, TURN	\$ 2000	0	0	0	0	2	4	3	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 8		Obj Strk:									
8	103085503	01/27/2011 18:02	BACKING UP	\$ 1875	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn: 10		Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:	7	Obj Strk:									
9	103100994	02/18/2011 18:46	ANGLE	\$ 2000	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: SE	Veh Mnvr / Ped Actn:	8	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: NE	Veh Mnvr / Ped Actn:	7	Obj Strk:									
10	103123306	03/24/2011 10:30	REAR END, SLOW OR STOP	\$ 2500	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn:	11	Obj Strk:									
11	103164922	05/08/2011 09:23	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	2	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn:	11	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:	1	Obj Strk:									
12	103182777	06/01/2011 12:14	ANGLE	\$ 4800	0	0	0	0	1	1	1	3	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: NW	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 5 MPH Dir: NE	Veh Mnvr / Ped Actn:	4	Obj Strk:									
13	103195772	06/18/2011 10:51	REAR END, SLOW OR STOP	\$ 1150	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 3	Alchl/Drgs: 0	Speed: 8 MPH Dir: S	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:	11	Obj Strk:									
14	103215644	07/18/2011 12:49	PEDESTRIAN	\$ 0	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk: 14									
Unit	2 : 24	Alchl/Drgs: 0	Speed: 0 MPH Dir:	Veh Mnvr / Ped Actn:		Obj Strk: 14									
15	103235499	08/19/2011 16:33	LEFT TURN, SAME ROADWAY	\$ 350	0	1	0	0	1	1	1	1	0	13	1
Unit	1 : 22	Alchl/Drgs: 0	Speed: 0 MPH Dir:	Veh Mnvr / Ped Actn:		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: SE	Veh Mnvr / Ped Actn:	8	Obj Strk:									
16	103240267	08/26/2011 11:38	ANGLE	\$ 2100	0	0	0	0	1	1	2	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:	8	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
17	103268098	09/25/2011 22:16	BACKING UP	\$ 3000	0	0	0	0	2	4	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn:	1	Obj Strk:									
Unit	2 : 3	Alchl/Drgs: 0	Speed: 5 MPH Dir: NW	Veh Mnvr / Ped Actn:	10	Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	103309376	11/02/2011 18:15	REAR END, SLOW OR STOP	\$ 1400	0	0	0	0	1	1	1	1	0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
19	103320079	11/09/2011 22:45	SIDESWIPE, OPPOSITE DIRECTION	\$ 7000	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
20	103341239	12/06/2011 18:18	ANGLE	\$ 1700	0	0	0	0	1	4	1	1	0	0	1
Unit	1 : 9	Alchl/Drgs: 0	Speed: 5 MPH Dir: NE	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				8	Obj Strk:						
21	103346923	12/21/2011 12:56	LEFT TURN, SAME ROADWAY	\$ 8000	0	0	0	0	2	1	3	3	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: NW	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: SE	Veh Mnvr / Ped Actn:				8	Obj Strk:						
22	103368276	01/13/2012 12:27	REAR END, SLOW OR STOP	\$ 1000	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
23	103371486	01/17/2012 21:33	REAR END, SLOW OR STOP	\$ 600	0	0	0	1	2	4	3	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 1	Speed: 30 MPH Dir: SW	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SW	Veh Mnvr / Ped Actn:				1	Obj Strk:						
24	103388709	02/07/2012 18:11	OTHER COLLISION WITH VEHICLE	\$ 1200	0	0	0	0	1	4	1	3	0	0	
Unit	1 : 2	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				16	Obj Strk:						
25	103390783	02/12/2012 12:43	SIDESWIPE, SAME DIRECTION	\$ 5000	0	0	0	0	1	1	1	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn:				5	Obj Strk:						
26	103404612	02/27/2012 15:13	REAR END, SLOW OR STOP	\$ 2150	0	0	0	0	2	1	3	1	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: SE	Veh Mnvr / Ped Actn:				4	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
27	103420965	03/23/2012 18:59	REAR END, SLOW OR STOP	\$ 700	0	0	0	2	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				12	Obj Strk:						
28	103421559	03/24/2012 11:21	ANGLE	\$ 2600	0	0	0	0	2	1	3	1	0		
Unit	1 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 2	Alchl/Drugs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
29	103435110	04/15/2012 12:25	REAR END, SLOW OR STOP	\$ 1100	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 2	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				12	Obj Strk:						
30	103440038	04/25/2012 10:23	REAR END, SLOW OR STOP	\$ 8000	0	0	0	0	1	1	2	1	0	0	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 10	Alchl/Drugs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
31	103499494	07/12/2012 18:44	SIDESWIPE, SAME DIRECTION	\$ 3000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn:				5	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
32	103516868	08/02/2012 15:20	LEFT TURN, SAME ROADWAY	\$ 1100	0	0	0	0	1	1	2	3	0	0	
Unit	1 : 4	Alchl/Drugs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				8	Obj Strk:						
33	103563168	09/28/2012 07:55	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 2	Alchl/Drugs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
34	103579823	10/16/2012 04:34	RAN OFF ROAD - RIGHT	\$ 3050	0	0	0	1	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: NW	Veh Mnvr / Ped Actn:				8	Obj Strk: 34						
35	103616879	11/14/2012 10:20	ANGLE	\$ 4000	0	0	0	1	1	1	1	3	0	3	1
Unit	1 : 10	Alchl/Drugs: 0	Speed: 30 MPH Dir: NW	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
36	103659797	01/15/2013 17:41	REAR END, SLOW OR STOP	\$ 5200	0	0	0	2	2	2	2	1	0		1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn:				1	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 2	Alchl/Drgs: 0	Speed: 10 MPH Dir: SE		Veh Mnvr / Ped Actn:				11	Obj Strk:					
37	103690203	02/16/2013 11:05	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	2	1	4	1	0	0	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S		Veh Mnvr / Ped Actn:				4	Obj Strk:					
Unit	2 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: S		Veh Mnvr / Ped Actn:				4	Obj Strk:					
38	103721928	03/25/2013 11:48	REAR END, SLOW OR STOP	\$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE		Veh Mnvr / Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: NE		Veh Mnvr / Ped Actn:				12	Obj Strk:					
39	103718481	03/27/2013 15:39	REAR END, SLOW OR STOP	\$ 2900	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: S		Veh Mnvr / Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S		Veh Mnvr / Ped Actn:				1	Obj Strk:					
40	103734629	04/19/2013 12:48	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	2	1	0		3
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E		Veh Mnvr / Ped Actn:				12	Obj Strk:					
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E		Veh Mnvr / Ped Actn:				12	Obj Strk:					

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	40	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	10	25.00
Total Injury Crashes	10	25.00
Property Damage Only Crashes	30	75.00
Night Crashes	10	25.00
Wet Crashes	10	25.00
Alcohol/Drugs Involvement Crashes	1	2.50

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	40	100.00
Fatal Crashes	0	0.00
Class A Crashes	1	2.50
Class B Crashes	0	0.00
Class C Crashes	9	22.50
Property Damage Only Crashes	30	75.00

Vehicle Exposure Statistics

Annual ADT = 34500

Total Vehicle Exposure = 37.81 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	105.79
Fatal Crash Rate	0.00
Non Fatal Crash Rate	26.45
Night Crash Rate	26.45
Wet Crash Rate	26.45
EPDO Rate	482.39

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	4.56
EPDO Crash Index =	182.40
Estimated Property Damage Total = \$	103125.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	7	17.50
BACKING UP	2	5.00
LEFT TURN, DIFFERENT ROADWAYS	1	2.50
LEFT TURN, SAME ROADWAY	4	10.00
OTHER COLLISION WITH VEHICLE	2	5.00
PEDESTRIAN	1	2.50
RAN OFF ROAD - RIGHT	1	2.50
REAR END, SLOW OR STOP	18	45.00
REAR END, TURN	1	2.50
SIDESWIPE, OPPOSITE DIRECTION	1	2.50
SIDESWIPE, SAME DIRECTION	2	5.00

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	1	8.33
Class B Injuries	0	0.00
Class C Injuries	11	91.67
Total Non-Fatal Injuries	12	100.00
Total Injuries	12	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	5	12.50
Feb	5	12.50
Mar	5	12.50
Apr	3	7.50
May	1	2.50
Jun	2	5.00
Jul	2	5.00
Aug	4	10.00
Sep	3	7.50
Oct	2	5.00
Nov	5	12.50
Dec	3	7.50

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	4	10.00
Tue	6	15.00
Wed	9	22.50
Thu	5	12.50
Fri	9	22.50
Sat	3	7.50
Sun	4	10.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	1	2.50
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	1	2.50
0800-0859	1	2.50
0900-0959	1	2.50
1000-1059	4	10.00
1100-1159	4	10.00
1200-1259	7	17.50
1300-1359	0	0.00
1400-1459	1	2.50
1500-1559	3	7.50
1600-1659	2	5.00
1700-1759	4	10.00
1800-1859	7	17.50
1900-1959	0	0.00
2000-2059	1	2.50
2100-2159	1	2.50
2200-2259	2	5.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	23	6	0	29
Dark	7	3	0	10
Other	0	1	0	1
Total	30	10	0	40

Object Struck Summary

Object Type	Times Struck	Percent of Total
PEDESTRIAN	2	66.67
UTILITY POLE	1	33.33

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	3	3.75
MOTOR SCOOTER OR MOTOR BIKE	1	1.25
OTHER BUS	1	1.25
PASSENGER CAR	48	60.00
PEDESTRIAN	1	1.25
PICKUP	7	8.75
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	3	3.75
SPORT UTILITY	14	17.50
TRUCK/TRACTOR	1	1.25
VAN	1	1.25

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	6	0	0	6
2011	15	0	3	12
2012	14	0	6	8
2013	5	0	1	4
Total	40	0	10	30

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	0
2011	0	3
2012	0	7
2013	0	2
Total	0	12

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 12150	6.00
2011	\$ 42375	105.60
2012	\$ 35500	58.40
2013	\$ 13100	12.40
Total	\$ 103125	182.40

Type of Accident Totals

Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2010	2	0	2	0	1	0	1
2011	2	0	5	0	4	1	3
2012	1	0	7	1	2	2	1
2013	0	0	5	0	0	0	0
Total	5	0	19	1	7	3	5

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025392	200907173			76.8	8.4	34500	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
07/05/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
ORANGE	67	7	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of SR 1010 (E. Franklin Street) and SR 1750 (Estes Dr)	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Included Accidents
103074733
103085503
103100994
103390783
103435110
103718481

Excluded Accidents
103690925
103469683
103308541
103297415
103281250
103241368
103230621
103181478
103134781
102991068
102959436
102933353

Fiche Roads

Name	Code
SR 1010	40001010
SR 1750	40001750
FRANKLIN	50011079

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Fiche Roads

Name	Code
MAIN	50018682
ESTES	50009903
ESTES HILLS	50009904

Intersection Road Combinations

Name	Code	Code	Name
SR 1010	40001010	40001750	SR 1750
SR 1010	40001010	50009903	ESTES
SR 1010	40001010	50009904	ESTES HILLS
FRANKLIN	50011079	40001750	SR 1750
FRANKLIN	50011079	50009903	ESTES
FRANKLIN	50011079	50009904	ESTES HILLS

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025427
Location: Crash analysis at intersection of SR 1750 (Estes Dr) and Willow Drive.

Report Details

Acc No	Crash ID	Date	Accident Type					Total Damage	Injuries				Condition			Road		Trfc Ctl	
									F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102931154	07/29/2010 11:37	ANGLE					\$ 6500	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: W	Veh Mnvr / Ped Actn: 16				Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH	Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:										
2	102936094	08/04/2010 16:05	SIDESWIPE, SAME DIRECTION					\$ 2700	0	0	0	0	1	1	1	1	0	3 1	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: SE	Veh Mnvr / Ped Actn: 4				Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH	Dir: SE	Veh Mnvr / Ped Actn: 5				Obj Strk:										
3	103009336	11/03/2010 18:13	REAR END, SLOW OR STOP					\$ 200	0	0	0	4	1	1	1	1	0	3 1	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: SW	Veh Mnvr / Ped Actn: 11				Obj Strk:										
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: SW	Veh Mnvr / Ped Actn: 1				Obj Strk:										
4	103039440	11/30/2010 09:32	LEFT TURN, DIFFERENT ROADWAYS					\$ 900	0	0	0	1	1	1	1	3	0	3 1	
Unit	1 : 23	Alchl/Drgs: 0	Speed:	0 MPH	Dir:	Veh Mnvr / Ped Actn:				Obj Strk: 15									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: NE	Veh Mnvr / Ped Actn: 8				Obj Strk: 15										
5	103186281	06/06/2011 14:22	REAR END, TURN					\$ 2300	0	0	0	1	1	1	1	1	0	13 1	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH	Dir: NE	Veh Mnvr / Ped Actn: 7				Obj Strk:										
Unit	2 : 4	Alchl/Drgs: 0	Speed: 15 MPH	Dir: NE	Veh Mnvr / Ped Actn: 4				Obj Strk:										
Unit	3 : 2	Alchl/Drgs: 0	Speed: 0 MPH	Dir: NW	Veh Mnvr / Ped Actn: 1				Obj Strk:										
6	103271712	09/29/2011 07:24	LEFT TURN, SAME ROADWAY					\$ 2500	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr / Ped Actn: 8				Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH	Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:										
7	103327264	11/22/2011 10:10	REAR END, SLOW OR STOP					\$ 0	0	0	0	1	1	1	1	1	0	3 1	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:										
8	103345555	12/14/2011 18:10	REAR END, SLOW OR STOP					\$ 1500	0	0	0	0	1	4	1	1	0	0 2	
Unit	1 : 1	Alchl/Drqs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:										

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:	11			Obj Strk:							
9	103421558	03/24/2012 13:56	UNKNOWN	\$ 1700	0	0	0	0	2	1	2	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:	11			Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:	4			Obj Strk:							
10	103477639	06/11/2012 17:09	SIDESWIPE, SAME DIRECTION	\$ 5000	0	0	0	0	2	1	3	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:	5			Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: W	Veh Mnvr / Ped Actn:	4			Obj Strk:							
11	103494188	06/28/2012 13:30	REAR END, SLOW OR STOP	\$ 2000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:	1			Obj Strk:							
Unit	2 : 5	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:	12			Obj Strk:							
12	103715695	03/20/2013 18:13	LEFT TURN, DIFFERENT ROADWAYS	\$ 5000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: SE	Veh Mnvr / Ped Actn:	4			Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:	8			Obj Strk:							

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	12	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	5	41.67
Total Injury Crashes	5	41.67
Property Damage Only Crashes	7	58.33
Night Crashes	1	8.33
Wet Crashes	2	16.67
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	12	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	5	41.67
Property Damage Only Crashes	7	58.33

Vehicle Exposure Statistics

Annual ADT = 14100

Total Vehicle Exposure = 15.45 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	77.65
Fatal Crash Rate	0.00
Non Fatal Crash Rate	32.35
Night Crash Rate	6.47
Wet Crash Rate	12.94
EPDO Rate	317.08

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	4.08
EPDO Crash Index =	49.00
Estimated Property Damage Total = \$	30300.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	1	8.33
LEFT TURN, DIFFERENT ROADWAYS	2	16.67
LEFT TURN, SAME ROADWAY	1	8.33
REAR END, SLOW OR STOP	4	33.33
REAR END, TURN	1	8.33
SIDESWIPE, SAME DIRECTION	2	16.67
UNKNOWN	1	8.33

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	8	100.00
Total Non-Fatal Injuries	8	100.00
Total Injuries	8	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	0	0.00
Feb	0	0.00
Mar	2	16.67
Apr	0	0.00
May	0	0.00
Jun	3	25.00
Jul	1	8.33
Aug	1	8.33
Sep	1	8.33
Oct	0	0.00
Nov	3	25.00
Dec	1	8.33

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	2	16.67
Tue	2	16.67
Wed	4	33.33
Thu	3	25.00
Fri	0	0.00
Sat	1	8.33
Sun	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	1	8.33
0800-0859	0	0.00
0900-0959	1	8.33
1000-1059	1	8.33
1100-1159	1	8.33
1200-1259	0	0.00
1300-1359	2	16.67
1400-1459	1	8.33
1500-1559	0	0.00
1600-1659	1	8.33
1700-1759	1	8.33
1800-1859	3	25.00
1900-1959	0	0.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	9	2	0	11
Dark	1	0	0	1
Other	0	0	0	0
Total	10	2	0	12

Object Struck Summary

Object Type	Times Struck	Percent of Total
PEDALCYCLIST	2	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	15	60.00
PEDALCYCLE	1	4.00
PICKUP	2	8.00
SPORT UTILITY	6	24.00
VAN	1	4.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	4	0	2	2
2011	4	0	2	2
2012	3	0	1	2
2013	1	0	0	1
Total	12	0	5	7

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	5
2011	0	2
2012	0	1
2013	0	0
Total	0	8

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 10300	18.80
2011	\$ 6300	18.80
2012	\$ 8700	10.40
2013	\$ 5000	1.00
Total	\$ 30300	49.00

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	1	0	1	0	1	1	0
2011	1	0	3	0	0	0	0
2012	0	0	1	0	0	1	1
2013	1	0	0	0	0	0	0
Total	3	0	5	0	1	2	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025427	41000025427			76.8	8.4	14100	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
07/05/2013		828 265 4706		919-546 9421

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
ORANGE	67	7	All and Rural		150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of SR 1750 (Estes Dr) and Willow Drive.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Included Accidents
103421558

Excluded Accidents
103512684

Fiche Roads

Name	Code
SR 1750	40001750
ESTES	50009903
ESTES HILLS	50009904
WILLOW	50033137
SHEPARD	50027873
CAMELOT	50004698

Intersection Road Combinations

Name	Code	Code	Name
CAMELOT	50004698	40001750	SR 1750
CAMELOT	50004698	50009903	ESTES
CAMELOT	50004698	50009904	ESTES HILLS
SHEPARD	50027873	40001750	SR 1750
SHEPARD	50027873	50009903	ESTES
SHEPARD	50027873	50009904	ESTES HILLS
WILLOW	50033137	40001750	SR 1750
WILLOW	50033137	50009903	ESTES
WILLOW	50033137	50009904	ESTES HILLS

Study Criteria Summary

Study Criteria

Name	Code	Code	Name
SR 1853	40001853	40001799	SR 1799
SR 1853	40001853	50001844	BATES
SR 1853	40001853	50013457	HAYES
CLELAND	50006273	40001799	SR 1799
CLELAND	50006273	50001844	BATES
CLELAND	50006273	50013457	HAYES

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: DURHAM **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025818
Location: Crash analysis at intersection of NC 54 (Raleigh Rd) and Barbee Chapel Road/Barbee Chapel Road Extension.

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	103500386	07/14/2012 14:19	RAN OFF ROAD - RIGHT	\$ 350	0	0	0	1	1	1	2	3	0	3	1
Unit	1 : 2	Alchl/Drgs: 3	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:			55			
2	103499166	07/17/2012 17:02	SIDESWIPE, SAME DIRECTION	\$ 2000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 7	Speed: 30 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
3	103512671	07/27/2012 13:12	LEFT TURN, SAME ROADWAY	\$ 7500	0	0	1	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
4	103694118	02/23/2013 12:02	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	2	1	3	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						

Legend for Report Details:
 Acc No - Accident Number
 Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
 Condition: R - Road Surface, L - Ambient Light, W - Weather
 Rd Ch - Road Character
 Rd Ci - Roadway Contributing Circumstances
 Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
 Alchl/Drgs - Alcohol Drugs Suspected
 Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
 Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	4	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	2	50.00
Total Injury Crashes	2	50.00
Property Damage Only Crashes	2	50.00
Night Crashes	0	0.00
Wet Crashes	1	25.00
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	4	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	1	25.00
Class C Crashes	1	25.00
Property Damage Only Crashes	2	50.00

Vehicle Exposure Statistics

Annual ADT = 54000

Total Vehicle Exposure = 59.18 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	6.76
Fatal Crash Rate	0.00
Non Fatal Crash Rate	3.38
Night Crash Rate	0.00
Wet Crash Rate	1.69
EPDO Rate	31.77

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	4.70
EPDO Crash Index =	18.80
Estimated Property Damage Total = \$	10850.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
LEFT TURN, SAME ROADWAY	1	25.00
RAN OFF ROAD - RIGHT	1	25.00
REAR END, SLOW OR STOP	1	25.00
SIDESWIPE, SAME DIRECTION	1	25.00

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	1	33.33
Class C Injuries	2	66.67
Total Non-Fatal Injuries	3	100.00
Total Injuries	3	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	0	0.00
Feb	1	25.00
Mar	0	0.00
Apr	0	0.00
May	0	0.00
Jun	0	0.00
Jul	3	75.00
Aug	0	0.00
Sep	0	0.00
Oct	0	0.00
Nov	0	0.00
Dec	0	0.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	0	0.00
Tue	1	25.00
Wed	0	0.00
Thu	0	0.00
Fri	1	25.00
Sat	2	50.00
Sun	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	0	0.00
1000-1059	0	0.00
1100-1159	0	0.00
1200-1259	1	25.00
1300-1359	1	25.00
1400-1459	1	25.00
1500-1559	0	0.00
1600-1659	0	0.00
1700-1759	1	25.00
1800-1859	0	0.00
1900-1959	0	0.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	3	1	0	4
Dark	0	0	0	0
Other	0	0	0	0
Total	3	1	0	4

Object Struck Summary

Object Type	Times Struck	Percent of Total
TRAFFIC ISLAND CURB OR MEDIAN	1	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	6	85.71
PICKUP	1	14.29

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	0	0	0	0
2011	0	0	0	0
2012	3	0	2	1
2013	1	0	0	1
Total	4	0	2	2

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	0
2011	0	0
2012	0	3
2013	0	0
Total	0	3

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 0	0.00
2011	\$ 0	0.00
2012	\$ 9850	17.80
2013	\$ 1000	1.00
Total	\$ 10850	18.80

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0
2012	1	0	0	1	0	1	0
2013	0	0	1	0	0	0	0
Total	1	0	1	1	0	1	0

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025818	41000025818			76.8	8.4	54000	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
DURHAM	31	5	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of NC 54 (Raleigh Rd) and Barbee Chapel Road/Barbee Chapel Road Extension.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Fiche Roads

Name	Code
BARBEE CHAPEL	50001635
NC 54	30000054
RALEIGH	50025238
SR 1110	40001110

Intersection Road Combinations

Name	Code	Code	Name
NC 54	30000054	40001110	SR 1110
RALEIGH	50025238	50001635	BARBEE CHAPEL
RALEIGH	50025238	40001110	SR 1110
NC 54	30000054	50001635	BARBEE CHAPEL

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025868
Location: Crash analysis at intersection of NC 54 (Raleigh Rd) and Meadowmont Lane/Friday Center Dr.

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102908256	06/22/2010 17:37	REAR END, SLOW OR STOP	\$ 1500	0	0	0	2	1	1	1	3	0		
Unit	1 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: SE	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: SE	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	3 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: SE	Veh Mnvr / Ped Actn: 4		Obj Strk:									
2	102949665	08/23/2010 15:02	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	2	1	3	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
3	102974358	09/21/2010 19:56	REAR END, SLOW OR STOP	\$ 2500	0	0	0	0	1	4	1	1	0	0	
Unit	1 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 11		Obj Strk:									
4	102972990	09/23/2010 09:57	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	12	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 11		Obj Strk:									
5	102983175	10/04/2010 08:26	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
6	103071110	12/16/2010 06:46	RAN OFF ROAD - RIGHT	\$ 5000	0	0	0	0	4	1	6	1	0		
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: SW	Veh Mnvr / Ped Actn: 4		Obj Strk: 56									
7	103080415	01/19/2011 17:41	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	2	1	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 11		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 11		Obj Strk:									
8	103123098	03/23/2011 17:13	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	103162880	05/15/2011 15:29	SIDESWIPE, SAME DIRECTION	\$ 6000	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				5	Obj Strk:						
10	103218896	07/27/2011 17:13	REAR END, SLOW OR STOP	\$ 8500	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
11	103235344	08/18/2011 17:05	REAR END, SLOW OR STOP	\$ 1600	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
12	103254206	09/12/2011 15:13	LEFT TURN, DIFFERENT ROADWAYS	\$ 5000	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 32	Alchl/Drgs: 7	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
13	103254231	09/12/2011 16:54	RIGHT TURN, DIFFERENT ROADWAYS	\$ 1200	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn:				7	Obj Strk:						
14	103394073	02/14/2012 08:31	ANGLE	\$ 18000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:						
15	103405756	02/28/2012 17:30	REAR END, SLOW OR STOP	\$ 17000	0	0	0	0	1	1	1	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	4 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	5 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
16	103435520	04/09/2012 17:28	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 3	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
17	103461320	05/21/2012 17:33	REAR END, SLOW OR STOP	\$ 35000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	3 : 4	Alchl/Drugs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	4 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:					1	Obj Strk:					
18	103488689	06/26/2012 20:23	REAR END, SLOW OR STOP	\$ 6000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	2 : 1	Alchl/Drugs: 0	Speed: 40 MPH Dir: W	Veh Mnvr / Ped Actn:					4	Obj Strk:					
19	103542197	08/30/2012 16:06	PEDALCYCLIST	\$ 250	0	0	1	0	1	1	1	1	0		
Unit	1 : 23	Alchl/Drugs: 1	Speed: 0 MPH Dir:	Veh Mnvr / Ped Actn:						Obj Strk:		15			
Unit	2 : 1	Alchl/Drugs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:					8	Obj Strk:		15			
20	103559927	09/26/2012 07:17	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	1	1	3	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	2 : 1	Alchl/Drugs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn:					11	Obj Strk:					
21	103608942	11/13/2012 13:50	REAR END, SLOW OR STOP	\$ 2500	0	0	0	0	2	1	2	1	0		
Unit	1 : 1	Alchl/Drugs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	2 : 2	Alchl/Drugs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn:					11	Obj Strk:					
22	103641182	12/17/2012 20:31	SIDESWIPE, SAME DIRECTION	\$ 1250	0	0	0	0	1	4	2	2	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 4	Alchl/Drugs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:					8	Obj Strk:					
23	103657392	01/10/2013 12:01	REAR END, SLOW OR STOP	\$ 13500	0	0	1	1	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 40 MPH Dir: W	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	2 : 4	Alchl/Drugs: 0	Speed: 40 MPH Dir: W	Veh Mnvr / Ped Actn:					4	Obj Strk:					
24	103667749	01/23/2013 19:42	ANGLE	\$ 14000	0	0	0	0	1	6	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
25	103704959	03/04/2013 09:09	REAR END, SLOW OR STOP	\$ 2400	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 2	Alchl/Drugs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:					1	Obj Strk:					
26	103705913	03/11/2013 16:52	REAR END, SLOW OR STOP	\$ 1950	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn:					11	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 2	Alchl/Drgs: 0	Speed: 40 MPH Dir: W	Veh Mnvr / Ped Actn:					4	Obj Strk:					
27	103731337	04/11/2013 17:12	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0		2
Unit	1 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:					4	Obj Strk:					

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	27	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	5	18.52
Total Injury Crashes	5	18.52
Property Damage Only Crashes	22	81.48
Night Crashes	3	11.11
Wet Crashes	2	7.41
Alcohol/Drugs Involvement Crashes	1	3.70

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	27	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	2	7.41
Class C Crashes	3	11.11
Property Damage Only Crashes	22	81.48

Vehicle Exposure Statistics

Annual ADT = 44400

Total Vehicle Exposure = 48.66 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	55.48
Fatal Crash Rate	0.00
Non Fatal Crash Rate	10.27
Night Crash Rate	6.16
Wet Crash Rate	4.11
EPDO Rate	131.52

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	2.37
EPDO Crash Index =	64.00
Estimated Property Damage Total = \$	165650.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	2	7.41
LEFT TURN, DIFFERENT ROADWAYS	1	3.70
PEDALCYCLIST	1	3.70
RAN OFF ROAD - RIGHT	1	3.70
REAR END, SLOW OR STOP	19	70.37
RIGHT TURN, DIFFERENT ROADWAYS	1	3.70
SIDESWIPE, SAME DIRECTION	2	7.41

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	2	28.57
Class C Injuries	5	71.43
Total Non-Fatal Injuries	7	100.00
Total Injuries	7	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	3	11.11
Feb	2	7.41
Mar	3	11.11
Apr	2	7.41
May	2	7.41
Jun	2	7.41
Jul	1	3.70
Aug	3	11.11
Sep	5	18.52
Oct	1	3.70
Nov	1	3.70
Dec	2	7.41

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	9	33.33
Tue	6	22.22
Wed	5	18.52
Thu	6	22.22
Fri	0	0.00
Sat	0	0.00
Sun	1	3.70

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	1	3.70
0700-0759	1	3.70
0800-0859	2	7.41
0900-0959	2	7.41
1000-1059	0	0.00
1100-1159	0	0.00
1200-1259	1	3.70
1300-1359	1	3.70
1400-1459	0	0.00
1500-1559	3	11.11
1600-1659	3	11.11
1700-1759	9	33.33
1800-1859	0	0.00
1900-1959	2	7.41
2000-2059	2	7.41
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	20	2	1	23
Dark	3	0	0	3
Other	1	0	0	1
Total	24	2	1	27

Object Struck Summary

Object Type	Times Struck	Percent of Total
CATCH BASIN OR CULVERT ON SHOULDER	1	33.33
PEDALCYCLIST	2	66.67

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	1.69
PASSENGER CAR	34	57.63
PEDALCYCLE	1	1.69
PICKUP	8	13.56
SPORT UTILITY	13	22.03
UNKNOWN	1	1.69
VAN	1	1.69

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	6	0	1	5
2011	7	0	0	7
2012	9	0	2	7
2013	5	0	2	3
Total	27	0	5	22

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	2
2011	0	0
2012	0	2
2013	0	3
Total	0	7

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 19500	13.40
2011	\$ 26300	7.00
2012	\$ 86000	23.80
2013	\$ 33850	19.80
Total	\$ 165650	64.00

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	0	5	1	0	0	0
2011	1	1	4	0	0	1	0
2012	0	0	6	0	1	1	1
2013	0	0	4	0	1	0	0
Total	1	1	19	1	2	2	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025868				76.8	8.4	44400	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality		Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code				
ORANGE	67	7	All and Rural		150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of NC 54 (Raleigh Rd) and Meadowmont Lane/Friday Center Dr.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Excluded Accidents
103579836
103428784
103255287
103041932

Fiche Roads

Name	Code
FRIDAY CENTER	50011204
MEADOWMONT	50037129
NC 54	30000054
RALEIGH	50025238

Intersection Road Combinations

Name	Code	Code	Name
NC 54	30000054	50037129	MEADOWMONT
NC 54	30000054	50011204	FRIDAY CENTER
RALEIGH	50025238	50037129	MEADOWMONT
RALEIGH	50025238	50011204	FRIDAY CENTER

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl		
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op	
Unit	2 : 24	Alchl/Drgs: 0	Speed: 0 MPH Dir:	Veh Mnvr / Ped Actn:				Obj Strk:				14				
9	103143076	04/16/2011 06:15	LEFT TURN, DIFFERENT ROADWAYS	\$ 2000	0	0	0	0	1	4	2	1	0	3	1	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:				8	Obj Strk:							
Unit	2 : 32	Alchl/Drgs: 7	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:							
10	103190601	06/10/2011 09:00	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	3	0	3	1	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:							
11	103251366	09/11/2011 09:18	ANGLE	\$ 4000	0	0	0	3	1	1	1	1	0	3	1	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:							
12	103268890	09/27/2011 17:58	REAR END, SLOW OR STOP	\$ 18000	0	0	0	3	1	1	1	1	0	3	1	
Unit	1 : 5	Alchl/Drgs: 0	Speed: 40 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:							
Unit	3 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:							
Unit	4 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:							
Unit	5 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:							
13	103296101	10/22/2011 07:48	ANGLE	\$ 9000	0	0	0	1	1	1	1	1	0	3	1	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:							
14	103307653	10/29/2011 12:53	REAR END, SLOW OR STOP	\$ 2100	0	0	0	1	1	1	2	1	0	3	1	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:							
Unit	3 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:							
15	103323325	11/15/2011 16:40	OTHER NON-COLLISION	\$ 1000	0	0	0	0	1	1	1	1	11			
Unit	1 : 5	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:							
16	103323498	11/16/2011 07:53	ANGLE	\$ 9500	0	0	0	0	1	1	2	3	0	3	1	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
17	103336174	12/02/2011 18:44	SIDESWIPE, SAME DIRECTION	\$ 3000	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn:				5	Obj Strk:						
18	103343798	12/12/2011 07:47	REAR END, SLOW OR STOP	\$ 800	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				5	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
19	103343803	12/12/2011 17:05	SIDESWIPE, SAME DIRECTION	\$ 13000	0	0	0	1	1	4	1	1	0	0	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 50 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk: 64						
20	103350823	12/16/2011 19:31	OTHER NON-COLLISION	\$ 2500	0	0	0	0	1	4	3	1	1	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: E	Veh Mnvr / Ped Actn:				16	Obj Strk:						
21	103630203	12/05/2012 18:35	ANGLE	\$ 1800	0	0	0	0	1	2	1	1	0		2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
22	103637555	12/12/2012 19:14	LEFT TURN, DIFFERENT ROADWAYS	\$ 3500	0	0	0	0	2	4	3		0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: NW	Veh Mnvr / Ped Actn:				4	Obj Strk:						
23	103638407	12/14/2012 22:59	REAR END, SLOW OR STOP	\$ 3000	0	0	0	1	1	4	1	1	0		2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:						
24	103675235	02/04/2013 19:45	PEDESTRIAN	\$ 0	0	0	0	1	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				7	Obj Strk: 14						
Unit	2 : 24	Alchl/Drgs: 0	Speed: 0 MPH Dir:	Veh Mnvr / Ped Actn:					Obj Strk: 14						
25	103679303	02/07/2013 13:02	HEAD ON	\$ 3000	0	0	0	0	1	1	1	3	0	1	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 10	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type					Total Damage	Injuries				Condition			Road		Trfc Ctl	
									F	A	B	C	R	L	W	Ch	Ci	Dv	Op
26	103751745	05/08/2013 07:46	REAR END, SLOW OR STOP					\$ 3700	0	0	0	1	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: E	Veh Mnvr / Ped Actn: 7				Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr / Ped Actn: 7				Obj Strk:										

27	103752787	05/10/2013 12:29	REAR END, SLOW OR STOP					\$ 1800	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH	Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:										
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:										

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	27	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	12	44.44
Total Injury Crashes	12	44.44
Property Damage Only Crashes	15	55.56
Night Crashes	11	40.74
Wet Crashes	1	3.70
Alcohol/Drugs Involvement Crashes	1	3.70

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	27	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	12	44.44
Property Damage Only Crashes	15	55.56

Vehicle Exposure Statistics

Annual ADT = 46600

Total Vehicle Exposure = 51.07 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	52.86
Fatal Crash Rate	0.00
Non Fatal Crash Rate	23.50
Night Crash Rate	21.54
Wet Crash Rate	1.96
EPDO Rate	226.73

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	4.29
EPDO Crash Index =	115.80
Estimated Property Damage Total = \$	113200.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	5	18.52
BACKING UP	1	3.70
HEAD ON	1	3.70
LEFT TURN, DIFFERENT ROADWAYS	2	7.41
LEFT TURN, SAME ROADWAY	1	3.70
OTHER COLLISION WITH VEHICLE	1	3.70
OTHER NON-COLLISION	2	7.41
PEDESTRIAN	2	7.41
REAR END, SLOW OR STOP	10	37.04
SIDESWIPE, SAME DIRECTION	2	7.41

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	18	100.00
Total Non-Fatal Injuries	18	100.00
Total Injuries	18	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	1	3.70
Feb	3	11.11
Mar	0	0.00
Apr	1	3.70
May	2	7.41
Jun	1	3.70
Jul	2	7.41
Aug	0	0.00
Sep	5	18.52
Oct	2	7.41
Nov	3	11.11
Dec	7	25.93

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	4	14.81
Tue	4	14.81
Wed	4	14.81
Thu	4	14.81
Fri	6	22.22
Sat	3	11.11
Sun	2	7.41

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	2	7.41
0700-0759	4	14.81
0800-0859	0	0.00
0900-0959	2	7.41
1000-1059	0	0.00
1100-1159	1	3.70
1200-1259	2	7.41
1300-1359	2	7.41
1400-1459	0	0.00
1500-1559	1	3.70
1600-1659	1	3.70
1700-1759	3	11.11
1800-1859	2	7.41
1900-1959	3	11.11
2000-2059	1	3.70
2100-2159	2	7.41
2200-2259	1	3.70
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	15	0	0	15
Dark	10	1	0	11
Other	1	0	0	1
Total	26	1	0	27

Object Struck Summary

Object Type	Times Struck	Percent of Total
OTHER FIXED OBJECT	1	20.00
PEDESTRIAN	4	80.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
MOTORCYCLE	1	1.72
PASSENGER CAR	35	60.34
PEDESTRIAN	2	3.45
PICKUP	3	5.17
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	1	1.72
SPORT UTILITY	11	18.97
UNKNOWN	1	1.72
VAN	4	6.90

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	6	0	3	3
2011	14	0	6	8
2012	3	0	1	2
2013	4	0	2	2
Total	27	0	12	15

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	5
2011	0	10
2012	0	1
2013	0	2
Total	0	18

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 25300	28.20
2011	\$ 71100	58.40
2012	\$ 8300	10.40
2013	\$ 8500	18.80
Total	\$ 113200	115.80

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road &		Side Swipe	Other
				Fixed Object	Angle		
2010	1	0	3	0	0	0	2
2011	1	0	4	0	4	2	3
2012	1	0	1	0	1	0	0
2013	0	0	2	0	0	0	2
Total	3	0	10	0	5	2	7

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025847	41000025847			76.8	8.4	46600	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality		Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code				
ORANGE	67	7	All and Rural		150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of NC 54 (Raleigh Rd) and Hamilton Street.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Excluded Accidents
103295349
103086579
102980489

Fiche Roads

Name	Code
HAMILTON	50012965
NC 54	30000054
RALEIGH	50025238

Intersection Road Combinations

Name	Code	Code	Name
NC 54	30000054	50012965	HAMILTON
RALEIGH	50025238	50012965	HAMILTON

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025812
Location: Crash analysis at intersection of NC 54 (Raleigh Rd) and SR 1900 (Burning Tree Dr/Finley Golf Course Rd)

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	103172992	05/18/2011 22:51	ANGLE	\$ 18000	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 15 MPH Dir: SW	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: SE	Veh Mnvr / Ped Actn: 4		Obj Strk:									
2	103257771	09/16/2011 15:21	LEFT TURN, DIFFERENT ROADWAYS	\$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: SE	Veh Mnvr / Ped Actn: 8		Obj Strk:									
3	103409437	03/12/2012 11:01	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 11		Obj Strk:									
Unit	2 : 4	Alchl/Drugs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 11		Obj Strk:									
4	103433068	04/17/2012 13:14	OTHER COLLISION WITH VEHICLE	\$ 4500	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn: 7		Obj Strk:									
5	103510030	07/19/2012 12:56	RIGHT TURN, SAME ROADWAY	\$ 6000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 5 MPH Dir: SE	Veh Mnvr / Ped Actn: 7		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
6	103578755	10/11/2012 08:50	REAR END, SLOW OR STOP	\$ 7900	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 11		Obj Strk:									
Unit	3 : 1	Alchl/Drugs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn: 11		Obj Strk:									
Unit	4 : 10	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1		Obj Strk:									
7	103615903	11/23/2012 14:48	ANGLE	\$ 2750	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
8	103648308	01/06/2013 18:36	LEFT TURN, DIFFERENT ROADWAYS	\$ 4750	0	0	0	1	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	8	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	3	37.50
Total Injury Crashes	3	37.50
Property Damage Only Crashes	5	62.50
Night Crashes	2	25.00
Wet Crashes	0	0.00
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	8	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	3	37.50
Property Damage Only Crashes	5	62.50

Vehicle Exposure Statistics

Annual ADT = 46200

Total Vehicle Exposure = 50.64 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	15.80
Fatal Crash Rate	0.00
Non Fatal Crash Rate	5.92
Night Crash Rate	3.95
Wet Crash Rate	0.00
EPDO Rate	59.64

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.77
EPDO Crash Index =	30.20
Estimated Property Damage Total = \$	47900.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	2	25.00
LEFT TURN, DIFFERENT ROADWAYS	2	25.00
OTHER COLLISION WITH VEHICLE	1	12.50
REAR END, SLOW OR STOP	2	25.00
RIGHT TURN, SAME ROADWAY	1	12.50

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	3	100.00
Total Non-Fatal Injuries	3	100.00
Total Injuries	3	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	1	12.50
Feb	0	0.00
Mar	1	12.50
Apr	1	12.50
May	1	12.50
Jun	0	0.00
Jul	1	12.50
Aug	0	0.00
Sep	1	12.50
Oct	1	12.50
Nov	1	12.50
Dec	0	0.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	1	12.50
Tue	1	12.50
Wed	1	12.50
Thu	2	25.00
Fri	2	25.00
Sat	0	0.00
Sun	1	12.50

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	1	12.50
0900-0959	0	0.00
1000-1059	0	0.00
1100-1159	1	12.50
1200-1259	1	12.50
1300-1359	1	12.50
1400-1459	1	12.50
1500-1559	1	12.50
1600-1659	0	0.00
1700-1759	0	0.00
1800-1859	1	12.50
1900-1959	0	0.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	1	12.50
2300-2359	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	6	0	0	6
Dark	2	0	0	2
Other	0	0	0	0
Total	8	0	0	8

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	16	88.89
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	1	5.56
SPORT UTILITY	1	5.56

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	0	0	0	0
2011	2	0	0	2
2012	5	0	2	3
2013	1	0	1	0
Total	8	0	3	5

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	0
2011	0	0
2012	0	2
2013	0	1
Total	0	3

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 0	0.00
2011	\$ 20500	2.00
2012	\$ 22650	19.80
2013	\$ 4750	8.40
Total	\$ 47900	30.20

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	0	0	0	0	0	0
2011	1	0	0	0	1	0	0
2012	0	1	2	0	1	0	1
2013	1	0	0	0	0	0	0
Total	2	1	2	0	2	0	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025812	41000025812			76.8	8.4	46200	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
ORANGE	67	7	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of NC 54 (Raleigh Rd) and SR 1900 (Burning Tree Dr/Finley Golf Course Rd)	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Excluded Accidents
103280939
102952472

Fiche Roads

Name	Code
BURNINGTREE	50004364
FINLEY GOLF COURSE	50010516
NC 54	30000054
RALEIGH	50025238
SR 1900	40001900

Intersection Road Combinations

Name	Code	Code	Name
NC 54	30000054	40001900	SR 1900
NC 54	30000054	50004364	BURNING TREE
NC 54	30000054	50010516	FINLEY GOLF COURSE
RALEIGH	50025238	50010516	FINLEY GOLF COURSE
RALEIGH	50025238	50004364	BURNING TREE
RALEIGH	50025238	40001900	SR 1900

Study Criteria Summary

County:	ORANGE	City:	All and Rural
Date:	06/01/2010	to	05/31/2013
		Study:	MW41000025793
Location:	Crash analysis at intersection of NC 54 (Raleigh Road) and US 15-501 (Fordham Blvd) East Side Ramps.		

Report Details

Acc No	Crash ID	Date	Accident Type					Total Damage	Injuries				Condition			Road		Trfc Ctl	
									F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102925272	07/22/2010 16:15	SIDESWIPE, SAME DIRECTION					\$ 6000	0	0	0	0	1	1	1	5	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed:	35 MPH	Dir:	N	Veh Mnvr / Ped Actn:				5	Obj Strk:						
Unit	2 : 3	Alchl/Drgs:	0	Speed:	35 MPH	Dir:	N	Veh Mnvr / Ped Actn:				5	Obj Strk:						
2	102941311	08/08/2010 19:26	SIDESWIPE, SAME DIRECTION					\$ 1300	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	15 MPH	Dir:	E	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
3	102941483	08/10/2010 16:55	REAR END, SLOW OR STOP					\$ 2000	0	0	0	0	1	1	1	3	0	1	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
4	102952474	08/29/2010 15:54	REAR END, SLOW OR STOP					\$ 2500	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed:	20 MPH	Dir:	E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
5	102984789	10/07/2010 13:00	REAR END, SLOW OR STOP					\$ 3000	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	15 MPH	Dir:	NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 2	Alchl/Drgs:	0	Speed:	10 MPH	Dir:	NE	Veh Mnvr / Ped Actn:				11	Obj Strk:						
6	102986418	10/09/2010 11:10	SIDESWIPE, SAME DIRECTION					\$ 2000	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	E	Veh Mnvr / Ped Actn:				5	Obj Strk:						
7	102998429	10/23/2010 11:33	REAR END, SLOW OR STOP					\$ 1100	0	0	0	0	1	1	1	2	0	2	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed:	10 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
8	103001174	10/26/2010 14:59	REAR END, SLOW OR STOP					\$ 500	0	0	0	1	1	1	1	7	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	E	Veh Mnvr / Ped Actn:				16	Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed:	5 MPH	Dir:	E	Veh Mnvr / Ped Actn:				16	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	103036320	12/03/2010 20:50	REAR END, TURN	\$ 2300	0	0	0	0	1	6	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 16				Obj Strk:							
Unit	2 : 17	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn: 7				Obj Strk:							
10	103049587	12/14/2010 17:14	REAR END, SLOW OR STOP	\$ 5500	0	0	0	0	1	5	1	1	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 3	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							
11	103062760	12/27/2010 12:43	REAR END, TURN	\$ 5000	0	0	0	0	2	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn: 5				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 5				Obj Strk:							
12	103071601	01/03/2011 16:51	REAR END, SLOW OR STOP	\$ 3500	0	0	0	1	1	2	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: NE	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
13	103080213	01/15/2011 15:42	REAR END, SLOW OR STOP	\$ 1700	0	0	0	0	1	1	1	3	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							
14	103080413	01/19/2011 16:23	REAR END, SLOW OR STOP	\$ 1850	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							
15	103089578	02/03/2011 15:40	SIDESWIPE, SAME DIRECTION	\$ 2000	0	0	0	0	1	1	1	3	0	2	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 10 MPH Dir: NE	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: NE	Veh Mnvr / Ped Actn: 11				Obj Strk:							
16	103099907	02/12/2011 16:07	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	1	1	8	0	2	1
Unit	1 : 32	Alchl/Drgs: 7	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
17	103109549	03/04/2011 14:22	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	1	1	7	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 4				Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	103145578	04/19/2011 08:09	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	1	0	2	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
19	103148177	04/19/2011 13:13	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	6	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
20	103195364	06/16/2011 16:43	REAR END, SLOW OR STOP	\$ 3700	0	0	0	1	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 40 MPH Dir: NE	Veh Mnvr / Ped Actn:				11	Obj Strk:						
21	103218071	07/24/2011 14:57	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	1	1	1	3	0	2	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
22	103219186	07/27/2011 16:18	REAR END, SLOW OR STOP	\$ 1400	0	0	0	0	1	1	1	5	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
23	103232869	08/15/2011 09:13	REAR END, SLOW OR STOP	\$ 200	0	0	0	1	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
24	103235487	08/19/2011 12:45	REAR END, SLOW OR STOP	\$ 4300	0	0	0	0	1	1	1	3	12	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
25	103250056	09/05/2011 16:01	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	1	1	6	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
26	103320261	11/10/2011 17:30	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	1	5	2	1	0	0	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
27	103364895	01/05/2012 18:20	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
28	103392153	02/15/2012 14:02	REAR END, SLOW OR STOP	\$ 1600	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
29	103416353	03/21/2012 17:28	REAR END, SLOW OR STOP	\$ 2850	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
30	103426689	03/31/2012 11:04	REAR END, SLOW OR STOP	\$ 1600	0	0	0	0	2	1	3	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
31	103432261	04/09/2012 16:57	REAR END, SLOW OR STOP	\$ 1200	0	0	0	0	1	1	1	5	0	1	1
Unit	1 : 3	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:						
32	103472839	06/06/2012 14:56	REAR END, SLOW OR STOP	\$ 1100	0	0	0	0	1	1	2	1	0	2	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 3	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
33	103480166	06/15/2012 11:03	REAR END, SLOW OR STOP	\$ 2100	0	0	0	1	1	1	1	1	0	2	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
34	103573882	10/10/2012 09:09	SIDESWIPE, SAME DIRECTION	\$ 1100	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				5	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn:				5	Obj Strk:						
35	103578743	10/11/2012 08:53	REAR END, SLOW OR STOP	\$ 5950	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
36	103585917	10/24/2012 07:39	ANIMAL	\$ 1500	0	0	0	0	1	1	1	3	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:			17			
37	103613435	11/09/2012 14:45	REAR END, SLOW OR STOP	\$ 1050	0	0	0	0	1	1	1	7	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
38	103633899	12/07/2012 18:05	REAR END, SLOW OR STOP	\$ 1300	0	0	0	0	2	4	3	5	0	2	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: NE	Veh Mnvr / Ped Actn:				12	Obj Strk:						
39	103629692	12/10/2012 18:17	REAR END, SLOW OR STOP	\$ 1700	0	0	0	0	1	5	1	3	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: NE	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: NE	Veh Mnvr / Ped Actn:				11	Obj Strk:						
40	103678231	02/08/2013 13:13	REAR END, SLOW OR STOP	\$ 800	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 5	Alchl/Drgs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn:				7	Obj Strk:						
41	103698803	02/28/2013 17:13	REAR END, SLOW OR STOP	\$ 6000	0	0	0	0	1	1	2	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
42	103704007	03/09/2013 09:50	REAR END, SLOW OR STOP	\$ 1000	0	0	0	2	1	1	1	3	0	2	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
43	103715662	03/21/2013 12:02	REAR END, SLOW OR STOP	\$ 6000	0	0	0	0	1	1	1	3	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
44	103721893	03/25/2013 14:07	REAR END, TURN	\$ 1500	0	0	0	0	1	1	2	5	0	2	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				7	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type					Total Damage	Injuries				Condition			Road		Trfc Ctl	
									F	A	B	C	R	L	W	Ch	Ci	Dv	Op
45	103735632	04/22/2013 11:19	REAR END, SLOW OR STOP					\$ 1500	0	0	0	1	1	1	1	7	0	2	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: E	Veh Mnvr / Ped Actn:				12	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH	Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:									

46	103768726	05/30/2013 17:44	REAR END, SLOW OR STOP					\$ 1300	0	0	0	0	1	1	1	6	0	1 2	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 2 MPH	Dir: N	Veh Mnvr / Ped Actn:				12	Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 2 MPH	Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:									

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	46	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	7	15.22
Total Injury Crashes	7	15.22
Property Damage Only Crashes	39	84.78
Night Crashes	5	10.87
Wet Crashes	3	6.52
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	46	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	7	15.22
Property Damage Only Crashes	39	84.78

Vehicle Exposure Statistics

Annual ADT = 9300

Total Vehicle Exposure = 10.19 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	451.30
Fatal Crash Rate	0.00
Non Fatal Crash Rate	68.68
Night Crash Rate	49.05
Wet Crash Rate	29.43
EPDO Rate	959.50

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	2.13
EPDO Crash Index =	97.80
Estimated Property Damage Total = \$	121000.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANIMAL	1	2.17
REAR END, SLOW OR STOP	37	80.43
REAR END, TURN	3	6.52
SIDESWIPE, SAME DIRECTION	5	10.87

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	8	100.00
Total Non-Fatal Injuries	8	100.00
Total Injuries	8	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	4	8.70
Feb	5	10.87
Mar	6	13.04
Apr	4	8.70
May	1	2.17
Jun	3	6.52
Jul	3	6.52
Aug	5	10.87
Sep	1	2.17
Oct	7	15.22
Nov	2	4.35
Dec	5	10.87

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	8	17.39
Tue	5	10.87
Wed	7	15.22
Thu	10	21.74
Fri	7	15.22
Sat	6	13.04
Sun	3	6.52

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	1	2.17
0800-0859	2	4.35
0900-0959	3	6.52
1000-1059	0	0.00
1100-1159	5	10.87
1200-1259	3	6.52
1300-1359	3	6.52
1400-1459	7	15.22
1500-1559	3	6.52
1600-1659	9	19.57
1700-1759	5	10.87
1800-1859	3	6.52
1900-1959	1	2.17
2000-2059	1	2.17
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	38	2	0	40
Dark	4	1	0	5
Other	1	0	0	1
Total	43	3	0	46

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	1	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	4	4.30
PASSENGER CAR	61	65.59
PICKUP	3	3.23
SPORT UTILITY	18	19.35
TAXICAB	1	1.08
UNKNOWN	1	1.08
VAN	5	5.38

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	11	0	1	10
2011	15	0	3	12
2012	13	0	1	12
2013	7	0	2	5
Total	46	0	7	39

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	1
2011	0	3
2012	0	1
2013	0	3
Total	0	8

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 31200	18.40
2011	\$ 44650	37.20
2012	\$ 27050	20.40
2013	\$ 18100	21.80
Total	\$ 121000	97.80

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	0	8	0	0	3	0
2011	0	0	14	0	0	1	0
2012	0	0	11	0	0	1	1
2013	0	0	7	0	0	0	0
Total	0	0	40	0	0	5	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025793	41000025793			76.8	8.4	9300	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
ORANGE	67	7	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of NC 54 (Raleigh Road) and US 15-501 (Fordham Blvd) East Side Ramps.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Included Accidents

102925272
102941311
102941483
102952474
102984789
102986418
102998429
103001174
103036320
103049587
103062760
103071601
103080213
103080413
103089578
103099907
103109549
103145578
103148177
103195364
103218071
103219186
103232869
103235487
103250056
103320261
103364895

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

103392153
103416353
103426689
103432261
103472839
103480166
103573882
103578743
103585917
103613435
103629692
103633899
103678231
103698803
103704007
103715662
103721893
103735632
103768726

Fiche Roads

Name	Code
FORDHAM	50010799
NC 54	30000054
RALEIGH	50025238
US 15	20000015
US 501	20000501
SR 2028	40002028

Intersection Road Combinations

Name	Code	Code	Name
NC 54	30000054	10000001	I 1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025839
Location: Crash analysis at intersection of NC 54 (Raleigh Road) and US 15-501(Fordham Blvd) West Side Ramps.

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102913828	07/05/2010 14:40	REAR END, TURN	\$ 2500	0	0	0	0	1	1	1	6	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
2	102918366	07/12/2010 07:42	REAR END, SLOW OR STOP	\$ 1200	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 4				Obj Strk:							
3	102967335	09/15/2010 09:40	REAR END, SLOW OR STOP	\$ 900	0	0	0	0	1	1	1	7	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1				Obj Strk:							
4	102968875	09/17/2010 20:15	REAR END, SLOW OR STOP	\$ 600	0	0	0	1	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 12				Obj Strk:							
5	102970791	09/20/2010 12:52	RIGHT TURN, DIFFERENT ROADWAYS	\$ 7800	0	0	0	0	1	1	1	6	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:			33				
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 7				Obj Strk:							
6	102977473	09/28/2010 16:24	REAR END, SLOW OR STOP	\$ 6000	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
7	103015633	11/08/2010 12:25	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 10 MPH Dir: SE	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
8	103021965	11/15/2010 06:52	REAR END, SLOW OR STOP	\$ 1800	0	0	0	0	1	1	2	3	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 4				Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	103032630	11/24/2010 13:58	REAR END, SLOW OR STOP	\$ 3100	0	0	0	0	1	1	1	6	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
10	103054053	12/18/2010 11:25	REAR END, SLOW OR STOP	\$ 2200	0	0	0	0	1	1	2	6	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
11	103072846	01/09/2011 12:44	REAR END, SLOW OR STOP	\$ 2200	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: SE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
12	103089767	02/05/2011 10:54	REAR END, SLOW OR STOP	\$ 2200	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
13	103089975	02/06/2011 09:38	REAR END, SLOW OR STOP	\$ 1900	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
14	103097240	02/13/2011 17:18	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	2	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
15	103108840	03/03/2011 09:43	REAR END, SLOW OR STOP	\$ 1400	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:						
16	103111603	03/03/2011 11:35	REAR END, SLOW OR STOP	\$ 999	0	0	0	5	1	5	1	6	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
17	103111914	03/07/2011 11:54	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	1	7	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	103113203	03/11/2011 15:14	REAR END, SLOW OR STOP	\$ 2100	0	0	0	0	1	1	2	3	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
19	103128983	03/30/2011 18:36	REAR END, SLOW OR STOP	\$ 1300	0	0	0	0	2	2	2	8	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				12	Obj Strk:						
20	103148171	04/19/2011 16:34	REAR END, SLOW OR STOP	\$ 4500	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 2 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
21	103152304	04/25/2011 11:00	REAR END, SLOW OR STOP	\$ 600	0	0	0	1	1	1	1	6	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 17	Alchl/Drgs: 0	Speed: 7 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
22	103164817	05/05/2011 16:22	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	3	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
23	103174347	05/23/2011 10:13	REAR END, SLOW OR STOP	\$ 1100	0	0	0	0	1	1	1	7	0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
24	103213952	07/15/2011 08:51	REAR END, SLOW OR STOP	\$ 1700	0	0	0	0	1	1	1	7	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
25	103213953	07/15/2011 11:54	REAR END, SLOW OR STOP	\$ 1700	0	0	0	0	1	1	1	6	0	3	1
Unit	1 : 3	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
26	103248433	09/02/2011 18:24	ANGLE	\$ 20600	0	0	0	0	1	1	1	6	0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
27	103251304	09/08/2011 09:04	RIGHT TURN, SAME ROADWAY	\$ 3700	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							
28	103262543	09/22/2011 13:29	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	1	1	1	3	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							
29	103318096	11/07/2011 12:57	REAR END, SLOW OR STOP	\$ 2200	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 11				Obj Strk:							
30	103321769	11/12/2011 12:02	REAR END, SLOW OR STOP	\$ 7000	0	0	0	0	1	1	1	7	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 4				Obj Strk:							
31	103336177	12/02/2011 12:14	REAR END, SLOW OR STOP	\$ 3100	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
32	103336339	12/03/2011 10:23	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	1	6	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 2 MPH Dir: SE	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 11				Obj Strk:							
33	103343310	12/09/2011 07:33	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	2	7	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 8 MPH Dir: E	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
34	103351929	12/20/2011 08:50	REAR END, SLOW OR STOP	\$ 1400	0	0	0	1	1	1	2	6	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 2	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
35	103373323	01/19/2012 14:06	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	1	6	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 12				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
36	103380178	01/25/2012 19:52	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	5	1	7	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				12	Obj Strk:						
37	103384735	02/01/2012 16:06	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	3	0	2	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
38	103388711	02/07/2012 15:03	REAR END, SLOW OR STOP	\$ 2200	0	0	0	0	1	1	1	6	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
39	103408340	03/08/2012 16:55	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	6	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
40	103432258	04/09/2012 13:44	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	1	1	1	6	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
41	103457443	05/12/2012 14:27	REAR END, TURN	\$ 250	0	0	0	1	1	1	1	5	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: NE	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
42	103457474	05/18/2012 17:05	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	5	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
43	103496107	07/09/2012 08:00	REAR END, SLOW OR STOP	\$ 400	0	0	0	3	1	1	1	7	0	2	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
44	103509607	07/23/2012 13:11	REAR END, SLOW OR STOP	\$ 0	0	0	0	1	1	1	2	7	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 7 MPH Dir: E	Veh Mnvr / Ped Actn:				12	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
45	103574563	10/09/2012 22:49	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	1	1	0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 7				Obj Strk:							
46	103579808	10/12/2012 08:38	REAR END, SLOW OR STOP	\$ 5200	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 4				Obj Strk:							
47	103579811	10/14/2012 12:50	REAR END, SLOW OR STOP	\$ 7000	0	0	0	0	1	1	1	7	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 4				Obj Strk:							
48	103579820	10/16/2012 16:11	REAR END, SLOW OR STOP	\$ 1000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							
49	103598444	10/30/2012 11:22	REAR END, SLOW OR STOP	\$ 1400	0	0	0	0	1	1	2	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 7 MPH Dir: E	Veh Mnvr / Ped Actn: 12				Obj Strk:							
50	103599421	11/01/2012 15:41	RIGHT TURN, DIFFERENT ROADWAYS	\$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: SE	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
51	103629996	11/29/2012 09:12	REAR END, SLOW OR STOP	\$ 1200	0	0	0	0	1	1	1	5	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1				Obj Strk:							
52	103651894	12/21/2012 14:56	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	7	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: NE	Veh Mnvr / Ped Actn: 7				Obj Strk:							
53	103675230	02/02/2013 09:09	REAR END, SLOW OR STOP	\$ 5300	0	0	0	1	1	1	1	6	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
54	103746930	05/03/2013 12:40	REAR END, SLOW OR STOP	\$ 700	0	0	1	0	1	1	1	5	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							

**Legend for
Report Details:**

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	54	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	12	22.22
Total Injury Crashes	12	22.22
Property Damage Only Crashes	42	77.78
Night Crashes	3	5.56
Wet Crashes	1	1.85
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	54	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	1	1.85
Class C Crashes	11	20.37
Property Damage Only Crashes	42	77.78

Vehicle Exposure Statistics

Annual ADT = 8900

Total Vehicle Exposure = 9.75 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	553.60
Fatal Crash Rate	0.00
Non Fatal Crash Rate	123.02
Night Crash Rate	30.76
Wet Crash Rate	10.25
EPDO Rate	1463.95

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	2.64
EPDO Crash Index =	142.80
Estimated Property Damage Total = \$	153449.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	1	1.85
REAR END, SLOW OR STOP	48	88.89
REAR END, TURN	2	3.70
RIGHT TURN, DIFFERENT ROADWAYS	2	3.70
RIGHT TURN, SAME ROADWAY	1	1.85

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	1	5.56
Class C Injuries	17	94.44
Total Non-Fatal Injuries	18	100.00
Total Injuries	18	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	3	5.56
Feb	6	11.11
Mar	6	11.11
Apr	3	5.56
May	5	9.26
Jun	0	0.00
Jul	6	11.11
Aug	0	0.00
Sep	7	12.96
Oct	5	9.26
Nov	7	12.96
Dec	6	11.11

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	12	22.22
Tue	7	12.96
Wed	5	9.26
Thu	9	16.67
Fri	11	20.37
Sat	6	11.11
Sun	4	7.41

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	1	1.85
0700-0759	2	3.70
0800-0859	4	7.41
0900-0959	6	11.11
1000-1059	3	5.56
1100-1159	6	11.11
1200-1259	8	14.81
1300-1359	4	7.41
1400-1459	4	7.41
1500-1559	3	5.56
1600-1659	6	11.11
1700-1759	2	3.70
1800-1859	2	3.70
1900-1959	1	1.85
2000-2059	1	1.85
2100-2159	0	0.00
2200-2259	1	1.85
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	49	0	0	49
Dark	3	0	0	3
Other	1	1	0	2
Total	53	1	0	54

Object Struck Summary

Object Type	Times Struck	Percent of Total
TREE	1	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	0.92
PASSENGER CAR	66	60.55
PICKUP	5	4.59
SPORT UTILITY	29	26.61
TAXICAB	1	0.92
VAN	7	6.42

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	10	0	1	9
2011	24	0	5	19
2012	18	0	4	14
2013	2	0	2	0
Total	54	0	12	42

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	1
2011	0	9
2012	0	6
2013	0	2
Total	0	18

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 30100	17.40
2011	\$ 76199	61.00
2012	\$ 41150	47.60
2013	\$ 6000	16.80
Total	\$ 153449	142.80

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	1	9	0	0	0	0
2011	0	1	22	0	1	0	0
2012	0	1	17	0	0	0	0
2013	0	0	2	0	0	0	0
Total	0	3	50	0	1	0	0

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025839	41000025839			76.8	8.4	8900	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality		Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code				
ORANGE	67	7	All and Rural		150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of NC 54 (Raleigh Road) and US 15-501(Fordham Blvd) West Side Ramps.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Included Accidents

102913828
102918366
102967335
102968875
102970791
102977473
103015633
103021965
103032630
103054053
103072846
103089767
103089975
103097240
103108840
103111603
103111914
103113203
103128983
103148171
103152304
103164817
103174347
103213952
103213953
103248433
103251304

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

103262543
103318096
103321769
103336177
103336339
103343310
103351929
103373323
103380178
103384735
103388711
103408340
103432258
103457443
103457474
103496107
103509607
103574563
103579808
103579811
103579820
103598444
103599421
103629996
103651894
103675230
103746930

Fiche Roads

Name	Code
FORDHAM	50010799
NC 54	30000054
RALEIGH	50025238
US 15	20000015
US 501	20000501
SR 2028	40002028

Intersection Road Combinations

Name	Code	Code	Name
RALEIGH	50025238	10000001	I 1

Study Criteria Summary

County:	ORANGE	City:	All and Rural
Date:	06/01/2010 to 05/31/2013	Study:	MW41000025814
Location:	Crash analysis at intersection of NC 54 (Raleigh Rd) and W. Barbee Chapel Road.		

Report Details

Acc No	Crash ID	Date	Accident Type		Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102946319	08/19/2010 18:28	REAR END, SLOW OR STOP		\$ 1750	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	35 MPH	Dir:	W	Veh Mnvr / Ped Actn:			4	Obj Strk:				
Unit	2 : 4	Alchl/Drgs:	0	Speed:	30 MPH	Dir:	W	Veh Mnvr / Ped Actn:			11	Obj Strk:				
2	102967823	09/16/2010 14:49	REAR END, SLOW OR STOP		\$ 2000	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	W	Veh Mnvr / Ped Actn:			1	Obj Strk:				
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	W	Veh Mnvr / Ped Actn:			4	Obj Strk:				
3	102974351	09/27/2010 18:19	REAR END, SLOW OR STOP		\$ 1600	0	0	0	0	2	1	3	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	W	Veh Mnvr / Ped Actn:			11	Obj Strk:				
Unit	2 : 5	Alchl/Drgs:	0	Speed:	20 MPH	Dir:	W	Veh Mnvr / Ped Actn:			11	Obj Strk:				
4	103008406	10/29/2010 16:23	LEFT TURN, SAME ROADWAY		\$ 4500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	10 MPH	Dir:	W	Veh Mnvr / Ped Actn:			8	Obj Strk:				
Unit	2 : 1	Alchl/Drgs:	0	Speed:	25 MPH	Dir:	E	Veh Mnvr / Ped Actn:			4	Obj Strk:				
Unit	3 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	E	Veh Mnvr / Ped Actn:			1	Obj Strk:				
5	103049282	12/12/2010 13:12	REAR END, SLOW OR STOP		\$ 8500	0	0	0	0	2	1	2	1	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed:	45 MPH	Dir:	W	Veh Mnvr / Ped Actn:			4	Obj Strk:				
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	W	Veh Mnvr / Ped Actn:			1	Obj Strk:				
6	103054002	12/17/2010 09:40	ANGLE		\$ 4000	0	0	0	1	2	1	2	3	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	SE	Veh Mnvr / Ped Actn:			8	Obj Strk:				
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	W	Veh Mnvr / Ped Actn:			4	Obj Strk:				
7	103085492	01/26/2011 13:31	REAR END, SLOW OR STOP		\$ 2000	0	0	0	0	2	1	3	1	0		
Unit	1 : 4	Alchl/Drgs:	0	Speed:	35 MPH	Dir:	E	Veh Mnvr / Ped Actn:			11	Obj Strk:				
Unit	2 : 1	Alchl/Drgs:	0	Speed:	35 MPH	Dir:	E	Veh Mnvr / Ped Actn:			4	Obj Strk:				
8	103108638	03/02/2011 08:50	REAR END, SLOW OR STOP		\$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	35 MPH	Dir:	E	Veh Mnvr / Ped Actn:			4	Obj Strk:				

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:	11	Obj Strk:									
9	103172835	05/17/2011 06:49	REAR END, SLOW OR STOP	\$ 3000	0	0	0	1	1	1	2	1	0	12	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
10	103205095	06/29/2011 18:43	REAR END, SLOW OR STOP	\$ 1100	0	0	0	0	1	1	1	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:	11	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:	11	Obj Strk:									
11	103205463	06/30/2011 18:54	REAR END, SLOW OR STOP	\$ 1200	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 3 MPH Dir: E	Veh Mnvr / Ped Actn:	11	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn:	11	Obj Strk:									
12	103251333	09/08/2011 08:50	REAR END, SLOW OR STOP	\$ 4600	0	0	0	0	1	1	1	3	12	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:	1	Obj Strk:									
Unit	2 : 3	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:	1	Obj Strk:									
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk:									
13	103259362	09/19/2011 17:34	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	2	1	0		2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:	8	Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
14	103291319	10/16/2011 02:39	SIDESWIPE, SAME DIRECTION	\$ 2000	0	0	0	0	1	5	1	1	0		
Unit	1 : 5	Alchl/Drgs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: W	Veh Mnvr / Ped Actn:	5	Obj Strk:									
15	103383938	01/29/2012 12:49	LEFT TURN, SAME ROADWAY	\$ 7000	0	0	2	2	1	1	1	5	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn:	8	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk:									
16	103416189	03/20/2012 15:20	SIDESWIPE, SAME DIRECTION	\$ 4200	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:	1	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:	15	Obj Strk:									
Unit	3 : 32	Alchl/Drgs: 7	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:	5	Obj Strk:									
17	103426702	03/31/2012 10:44	SIDESWIPE, SAME DIRECTION	\$ 1000	0	0	0	0	2	1	3	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: E	Veh Mnvr / Ped Actn:				5	Obj Strk:						
18	103432047	04/07/2012 09:56	REAR END, SLOW OR STOP	\$ 2500	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: NW	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: NW	Veh Mnvr / Ped Actn:				11	Obj Strk:						
19	103560044	09/24/2012 12:21	LEFT TURN, SAME ROADWAY	\$ 2700	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:						
20	103563166	09/28/2012 13:33	ANGLE	\$ 28000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
21	103578808	10/04/2012 09:20	REAR END, SLOW OR STOP	\$ 1000	0	0	0	1	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
22	103585736	10/23/2012 17:12	REAR END, SLOW OR STOP	\$ 12300	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
23	103599086	11/01/2012 08:06	ANGLE	\$ 14000	0	0	1	3	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: NE	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: NW	Veh Mnvr / Ped Actn:				4	Obj Strk:						
24	103665570	01/22/2013 07:46	REAR END, SLOW OR STOP	\$ 8550	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
25	103704985	03/06/2013 10:28	PEDALCYCLIST	\$ 0	0	0	0	1	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: SW	Veh Mnvr / Ped Actn:				12	Obj Strk: 15						
Unit	2 : 23	Alchl/Drgs: 0	Speed: 0 MPH Dir:	Veh Mnvr / Ped Actn:				Obj Strk: 15							
26	103716430	03/21/2013 15:52	ANGLE	\$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 65 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
27	103734640	04/20/2013 22:57	REAR END, SLOW OR STOP	\$ 3800	0	0	0	0	1	4	1	3	0	0	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: E	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	27	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	8	29.63
Total Injury Crashes	8	29.63
Property Damage Only Crashes	19	70.37
Night Crashes	2	7.41
Wet Crashes	5	18.52
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	27	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	2	7.41
Class C Crashes	6	22.22
Property Damage Only Crashes	19	70.37

Vehicle Exposure Statistics

Annual ADT = 44600

Total Vehicle Exposure = 48.88 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	55.24
Fatal Crash Rate	0.00
Non Fatal Crash Rate	16.37
Night Crash Rate	4.09
Wet Crash Rate	10.23
EPDO Rate	176.34

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.19
EPDO Crash Index =	86.20
Estimated Property Damage Total = \$	128300.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	4	14.81
LEFT TURN, SAME ROADWAY	3	11.11
PEDALCYCLIST	1	3.70
REAR END, SLOW OR STOP	16	59.26
SIDESWIPE, SAME DIRECTION	3	11.11

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	3	21.43
Class C Injuries	11	78.57
Total Non-Fatal Injuries	14	100.00
Total Injuries	14	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	3	11.11
Feb	0	0.00
Mar	5	18.52
Apr	2	7.41
May	1	3.70
Jun	2	7.41
Jul	0	0.00
Aug	1	3.70
Sep	6	22.22
Oct	4	14.81
Nov	1	3.70
Dec	2	7.41

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	3	11.11
Tue	4	14.81
Wed	4	14.81
Thu	7	25.93
Fri	3	11.11
Sat	3	11.11
Sun	3	11.11

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	1	3.70
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	1	3.70
0700-0759	1	3.70
0800-0859	3	11.11
0900-0959	3	11.11
1000-1059	2	7.41
1100-1159	0	0.00
1200-1259	2	7.41
1300-1359	3	11.11
1400-1459	1	3.70
1500-1559	2	7.41
1600-1659	1	3.70
1700-1759	2	7.41
1800-1859	4	14.81
1900-1959	0	0.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	1	3.70
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	20	5	0	25
Dark	2	0	0	2
Other	0	0	0	0
Total	22	5	0	27

Object Struck Summary

Object Type	Times Struck	Percent of Total
PEDALCYCLIST	2	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	1.72
PASSENGER CAR	43	74.14
PEDALCYCLE	1	1.72
SPORT UTILITY	10	17.24
UNKNOWN	1	1.72
VAN	2	3.45

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	6	0	1	5
2011	8	0	1	7
2012	9	0	5	4
2013	4	0	1	3
Total	27	0	8	19

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	1
2011	0	1
2012	0	11
2013	0	1
Total	0	14

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 22350	13.40
2011	\$ 18400	15.40
2012	\$ 72700	46.00
2013	\$ 14850	11.40
Total	\$ 128300	86.20

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	1	0	4	0	1	0	0
2011	0	0	7	0	0	1	0
2012	2	0	3	0	2	2	0
2013	0	0	2	0	1	0	1
Total	3	0	16	0	4	3	1

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025814	41000025814			76.8	8.4	44600	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
ORANGE	67	7	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of NC 54 (Raleigh Rd) and W. Barbee Chapel Road.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Excluded Accidents
103658134

Fiche Roads

Name	Code
NC 54	30000054
RALEIGH	50025238
BARBEE CHAPEL	50001635

Intersection Road Combinations

Name	Code	Code	Name
NC 54	30000054	50001635	BARBEE CHAPEL
RALEIGH	50025238	50001635	BARBEE CHAPEL

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025798
Location: Crash analysis on NC 54 (Raleigh Rd) from US 15-501 SB Ramps to SR 1900 (Finley Golf Course Road/Burning Tree Drive)

Report Details

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102970791	15.503	09/20/2010 12:52	RIGHT TURN, DIFFERENT ROADWAYS	\$ 7800	0	0	0	0	1	1	1	6	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 45 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:			33		
Unit	2 : 1	Alchl/Drugs:	0	Speed: 10 MPH Dir: S		Veh Mnvr/Ped Actn:				7	Obj Strk:					
2	103248433	15.503	09/02/2011 18:24	ANGLE	\$ 20600	0	0	0	0	1	1	1	6	0	3	2
Unit	1 : 1	Alchl/Drugs:	0	Speed: 30 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 30 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
3	103251304	15.503	09/08/2011 09:04	RIGHT TURN, SAME ROADWAY	\$ 3700	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed: 10 MPH Dir: N		Veh Mnvr/Ped Actn:				7	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 35 MPH Dir: W		Veh Mnvr/Ped Actn:				4	Obj Strk:					
4	103599421	15.503	11/01/2012 15:41	RIGHT TURN, DIFFERENT ROADWAYS	\$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drugs:	0	Speed: 10 MPH Dir: SE		Veh Mnvr/Ped Actn:				7	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 45 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
5	103036320	15.601	12/03/2010 20:50	REAR END, TURN	\$ 2300	0	0	0	0	1	6	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				16	Obj Strk:					
Unit	2 : 17	Alchl/Drugs:	0	Speed: 45 MPH Dir: W		Veh Mnvr/Ped Actn:				7	Obj Strk:					
6	103573882	15.601	10/10/2012 09:09	SIDESWIPE, SAME DIRECTION	\$ 1100	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed: 15 MPH Dir: N		Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 2	Alchl/Drugs:	0	Speed: 40 MPH Dir: N		Veh Mnvr/Ped Actn:				5	Obj Strk:					
7	102986418	15.603	10/09/2010 11:10	SIDESWIPE, SAME DIRECTION	\$ 2000	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				5	Obj Strk:					
8	103184862	15.604	06/04/2011 18:03	SIDESWIPE, SAME DIRECTION	\$ 13500	0	0	0	0	1	1	1	1	0		
Unit	1 : 4	Alchl/Drugs:	0	Speed: 35 MPH Dir: W		Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 35 MPH Dir: W		Veh Mnvr/Ped Actn:				4	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	102915091	15.605	07/08/2010 14:13	REAR END, SLOW OR STOP	\$ 2150	0	0	0	0	1	1	2	1	0		
Unit	1 : 4	Alchl/Drugs: 0	Speed: 15 MPH	Dir: W		Veh Mnvr/Ped Actn: 11				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 20 MPH	Dir: W		Veh Mnvr/Ped Actn: 4				Obj Strk:						
10	103334090	15.605	11/26/2011 16:01	SIDESWIPE, SAME DIRECTION	\$ 2000	0	0	0	0	1	1	1	1	0		
Unit	1 : 12	Alchl/Drugs: 0	Speed: 35 MPH	Dir: NW		Veh Mnvr/Ped Actn: 5				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 35 MPH	Dir: NW		Veh Mnvr/Ped Actn: 4				Obj Strk:						
11	103657393	15.609	01/10/2013 17:36	REAR END, SLOW OR STOP	\$ 2500	0	0	0	0	1	2	1	1	0	0	1
Unit	1 : 2	Alchl/Drugs: 0	Speed: 0 MPH	Dir: W		Veh Mnvr/Ped Actn: 1				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 5 MPH	Dir: W		Veh Mnvr/Ped Actn: 11				Obj Strk:						
12	103735632	15.610	04/22/2013 11:19	REAR END, SLOW OR STOP	\$ 1500	0	0	0	1	1	1	1	7	0	2	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 5 MPH	Dir: E		Veh Mnvr/Ped Actn: 12				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: E		Veh Mnvr/Ped Actn: 11				Obj Strk:						
13	103013112	15.620	11/04/2010 17:17	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	2	1	2	1	0	0	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 20 MPH	Dir: E		Veh Mnvr/Ped Actn: 5				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 35 MPH	Dir: E		Veh Mnvr/Ped Actn: 11				Obj Strk:						
14	103438841	15.645	04/22/2012 21:43	RAN OFF ROAD - LEFT	\$ 5000	0	0	0	0	2	4	3	1	0	0	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 40 MPH	Dir: W		Veh Mnvr/Ped Actn: 4				Obj Strk:			53			
15	103211870	15.658	07/14/2011 19:04	REAR END, SLOW OR STOP	\$ 4700	0	0	1	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 5 MPH	Dir: E		Veh Mnvr/Ped Actn: 11				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 5 MPH	Dir: E		Veh Mnvr/Ped Actn: 11				Obj Strk:						
Unit	3 : 4	Alchl/Drugs: 0	Speed: 40 MPH	Dir: E		Veh Mnvr/Ped Actn: 4				Obj Strk:						
16	103086579	15.707	01/27/2011 09:57	SIDESWIPE, SAME DIRECTION	\$ 3300	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 11	Alchl/Drugs: 0	Speed: 25 MPH	Dir: W		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 5 MPH	Dir: W		Veh Mnvr/Ped Actn: 5				Obj Strk:						
17	102980489	15.715	10/01/2010 16:39	SIDESWIPE, SAME DIRECTION	\$ 1000	0	0	0	0	1	1	1	1	12	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 25 MPH	Dir: E		Veh Mnvr/Ped Actn: 5				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 3 MPH	Dir: E		Veh Mnvr/Ped Actn: 11				Obj Strk:						
Unit	3 : 1	Alchl/Drugs: 7	Speed: 20 MPH	Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	103295349	15.715	10/21/2011 12:28	OTHER NON-COLLISION	\$ 1200	0	0	0	1	1	1	1	1	0		
Unit	1 : 20	Alchl/Drgs:	0	Speed: 30 MPH Dir: W		Veh Mnvr/Ped Actn:				5	Obj Strk:					
19	103343803	15.726	12/12/2011 17:05	SIDESWIPE, SAME DIRECTION	\$ 13000	0	0	0	1	1	4	1	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 35 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 50 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:				64	
20	103190601	15.736	06/10/2011 09:00	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				11	Obj Strk:					
21	103638407	15.736	12/14/2012 22:59	REAR END, SLOW OR STOP	\$ 3000	0	0	0	1	1	4	1	1	0		2
Unit	1 : 1	Alchl/Drgs:	0	Speed: 10 MPH Dir: E		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 40 MPH Dir: E		Veh Mnvr/Ped Actn:				11	Obj Strk:					
22	103343798	15.737	12/12/2011 07:47	REAR END, SLOW OR STOP	\$ 800	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 10 MPH Dir: E		Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
23	103307653	15.741	10/29/2011 12:53	REAR END, SLOW OR STOP	\$ 2100	0	0	0	1	1	1	2	1	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed: 35 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
24	103751745	15.744	05/08/2013 07:46	REAR END, SLOW OR STOP	\$ 3700	0	0	0	1	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 5 MPH Dir: E		Veh Mnvr/Ped Actn:				7	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				7	Obj Strk:					
25	102972965	15.745	09/23/2010 06:10	REAR END, SLOW OR STOP	\$ 2100	0	0	0	2	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: SE		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 20 MPH Dir: SE		Veh Mnvr/Ped Actn:				11	Obj Strk:					
26	103029952	15.745	11/22/2010 13:47	LEFT TURN, SAME ROADWAY	\$ 5000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 15 MPH Dir: SW		Veh Mnvr/Ped Actn:				8	Obj Strk:					
Unit	2 : 20	Alchl/Drgs:	0	Speed: 40 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
27	103077888	15.745	01/16/2011 20:31	ANGLE	\$ 1700	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	1	Speed: 35 MPH Dir: S		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 4	Alchl/Drgs:	0	Speed: 25 MPH Dir: NW		Veh Mnvr/Ped Actn: 8				Obj Strk:						
28	103107382	15.745	02/24/2011 15:33	PEDESTRIAN	\$ 0	0	0	0	1	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: NW		Veh Mnvr/Ped Actn: 8				Obj Strk: 14						
Unit	2 : 24	Alchl/Drgs:	0	Speed: 0 MPH Dir:		Veh Mnvr/Ped Actn:				Obj Strk: 14						
29	103143076	15.745	04/16/2011 06:15	LEFT TURN, DIFFERENT ROADWAYS	\$ 2000	0	0	0	0	1	4	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 5 MPH Dir: E		Veh Mnvr/Ped Actn: 8				Obj Strk:						
Unit	2 : 32	Alchl/Drgs:	7	Speed: 35 MPH Dir: W		Veh Mnvr/Ped Actn: 4				Obj Strk:						
30	103251366	15.745	09/11/2011 09:18	ANGLE	\$ 4000	0	0	0	3	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 40 MPH Dir: E		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed: 10 MPH Dir: N		Veh Mnvr/Ped Actn: 8				Obj Strk:						
31	103296101	15.745	10/22/2011 07:48	ANGLE	\$ 9000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 35 MPH Dir: E		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed: 25 MPH Dir: N		Veh Mnvr/Ped Actn: 8				Obj Strk:						
32	103323498	15.745	11/16/2011 07:53	ANGLE	\$ 9500	0	0	0	0	1	1	2	3	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn: 4				Obj Strk:						
33	103336174	15.745	12/02/2011 18:44	SIDESWIPE, SAME DIRECTION	\$ 3000	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs:	0	Speed: 20 MPH Dir: E		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 2	Alchl/Drgs:	0	Speed: 20 MPH Dir: E		Veh Mnvr/Ped Actn: 5				Obj Strk:						
34	103350823	15.745	12/16/2011 19:31	OTHER NON-COLLISION	\$ 2500	0	0	0	0	1	4	3	1	1	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed: 35 MPH Dir: NE		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed: 40 MPH Dir: E		Veh Mnvr/Ped Actn: 16				Obj Strk:						
35	103630203	15.745	12/05/2012 18:35	ANGLE	\$ 1800	0	0	0	0	1	2	1	1	0		2
Unit	1 : 1	Alchl/Drgs:	0	Speed: 20 MPH Dir: N		Veh Mnvr/Ped Actn: 8				Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed: 20 MPH Dir: S		Veh Mnvr/Ped Actn: 4				Obj Strk:						

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
36	103637555	15.745	12/12/2012 19:14	LEFT TURN, DIFFERENT ROADWAYS	\$ 3500	0	0	0	0	2	4	3		0	3	2
Unit	1 : 1	Alchl/Drgs:	0	Speed: 5 MPH Dir: N		Veh Mnvr/Ped Actn:				8	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 40 MPH Dir: NW		Veh Mnvr/Ped Actn:				4	Obj Strk:					
37	103752787	15.745	05/10/2013 12:29	REAR END, SLOW OR STOP	\$ 1800	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 20 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
38	103268890	15.748	09/27/2011 17:58	REAR END, SLOW OR STOP	\$ 18000	0	0	0	3	1	1	1	1	0	3	1
Unit	1 : 5	Alchl/Drgs:	0	Speed: 40 MPH Dir: NE		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: NE		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	3 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: NE		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	4 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: NE		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	5 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: NE		Veh Mnvr/Ped Actn:				1	Obj Strk:					
39	102925271	15.751	07/22/2010 17:28	REAR END, SLOW OR STOP	\$ 2200	0	0	0	2	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 20 MPH Dir: E		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				11	Obj Strk:					
40	103323325	15.764	11/15/2011 16:40	OTHER NON-COLLISION	\$ 1000	0	0	0	0	1	1	1	1	11		
Unit	1 : 5	Alchl/Drgs:	0	Speed: 5 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					
41	102970836	15.775	09/21/2010 21:57	REAR END, SLOW OR STOP	\$ 6500	0	0	0	1	1	4	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs:	0	Speed: 35 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed: 10 MPH Dir: E		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
42	103102474	15.795	02/21/2011 16:48	REAR END, SLOW OR STOP	\$ 1700	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 5	Alchl/Drgs:	0	Speed: 25 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 5	Alchl/Drgs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
43	102915089	15.821	07/08/2010 16:46	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	2	1	2		0		
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed: 30 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					
44	102994624	15.856	10/16/2010 19:41	REAR END, SLOW OR STOP	\$ 2200	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				16	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				16	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
45	102970688	15.909	09/21/2010 21:56	OTHER COLLISION WITH VEHICLE	\$ 2000	0	0	0	0	1	4	1	3	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 15 MPH Dir: W		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 15 MPH Dir: W		Veh Mnvr/Ped Actn:				5	Obj Strk:					
46	102974361	15.935	09/27/2010 15:07	REAR END, SLOW OR STOP	\$ 1500	0	0	1	0	2	1	3	3	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 30 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					
47	103629986	15.937	11/29/2012 07:41	FIXED OBJECT	\$ 1875	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 35 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk: 37					
48	103225064	15.939	08/04/2011 16:33	PEDALCYCLIST	\$ 0	0	0	0	1	1	1	1	5	0	0	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 5 MPH Dir: S		Veh Mnvr/Ped Actn:				12	Obj Strk: 15					
Unit	2 : 23	Alchl/Drugs:	0	Speed: 0 MPH Dir:		Veh Mnvr/Ped Actn:					Obj Strk: 15					
49	103235350	15.958	08/18/2011 15:17	SIDESWIPE, SAME DIRECTION	\$ 3000	0	0	0	0	1	1	1	1	0		
Unit	1 : 1	Alchl/Drugs:	0	Speed: 35 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 35 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
50	103487475	15.958	06/25/2012 18:29	ANGLE	\$ 5300	0	0	0	1	1	1	1	1	0	0	2
Unit	1 : 1	Alchl/Drugs:	0	Speed: 35 MPH Dir: E		Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	3 : 9	Alchl/Drugs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
51	102952472	15.969	08/29/2010 10:14	REAR END, SLOW OR STOP	\$ 1200	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				4	Obj Strk:					
52	103537168	15.986	08/29/2012 18:46	ANGLE	\$ 4000	0	0	0	0	1	2	1	1	0		
Unit	1 : 1	Alchl/Drugs:	0	Speed: 35 MPH Dir: E		Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 6	Alchl/Drugs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
53	103578755	16.041	10/11/2012 08:50	REAR END, SLOW OR STOP	\$ 7900	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed: 25 MPH Dir: W		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed: 10 MPH Dir: W		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	3 : 1	Alchl/Drugs:	0	Speed: 5 MPH Dir: W		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	4 : 10	Alchl/Drugs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				1	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
54	103409437	16.048	03/12/2012 11:01	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed:	0 MPH Dir: E	Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	2 : 4	Alchl/Drugs:	0	Speed:	0 MPH Dir: E	Veh Mnvr/Ped Actn:				11	Obj Strk:					
55	103172992	16.050	05/18/2011 22:51	ANGLE	\$ 18000	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed:	15 MPH Dir: SW	Veh Mnvr/Ped Actn:				8	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed:	35 MPH Dir: SE	Veh Mnvr/Ped Actn:				4	Obj Strk:					
56	103257771	16.050	09/16/2011 15:21	LEFT TURN, DIFFERENT ROADWAYS	\$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed:	35 MPH Dir: W	Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed:	10 MPH Dir: SE	Veh Mnvr/Ped Actn:				8	Obj Strk:					
57	103433068	16.050	04/17/2012 13:14	OTHER COLLISION WITH VEHICLE	\$ 4500	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed:	35 MPH Dir: W	Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed:	10 MPH Dir: N	Veh Mnvr/Ped Actn:				7	Obj Strk:					
58	103510030	16.050	07/19/2012 12:56	RIGHT TURN, SAME ROADWAY	\$ 6000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed:	5 MPH Dir: SE	Veh Mnvr/Ped Actn:				7	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed:	35 MPH Dir: E	Veh Mnvr/Ped Actn:				4	Obj Strk:					
59	103615903	16.050	11/23/2012 14:48	ANGLE	\$ 2750	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed:	10 MPH Dir: W	Veh Mnvr/Ped Actn:				8	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed:	35 MPH Dir: E	Veh Mnvr/Ped Actn:				4	Obj Strk:					
60	103648308	16.050	01/06/2013 18:36	LEFT TURN, DIFFERENT ROADWAYS	\$ 4750	0	0	0	1	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed:	15 MPH Dir: W	Veh Mnvr/Ped Actn:				8	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed:	35 MPH Dir: E	Veh Mnvr/Ped Actn:				4	Obj Strk:					

Legend for Report Details:

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drugs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	60	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	21	35.00
Total Injury Crashes	21	35.00
Property Damage Only Crashes	39	65.00
Night Crashes	15	25.00
Wet Crashes	5	8.33
Alcohol/Drugs Involvement Crashes	1	1.67

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	60	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	2	3.33
Class C Crashes	19	31.67
Property Damage Only Crashes	39	65.00

Vehicle Exposure Statistics

Annual ADT = 47400

Total Length = 0.547 (Miles)

0.88 (Kilometers)

Total Vehicle Exposure = 28.42 (MVMt)

45.73 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	211.14	131.20
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	73.90	45.92
Night Crash Rate	52.79	32.80
Wet Crash Rate	17.60	10.93
EPDO Rate	758.00	471.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Miscellaneous Statistics

Severity Index =	3.59
EPDO Crash Index =	215.40
Estimated Property Damage Total = \$	254225.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	10	16.67
FIXED OBJECT	1	1.67
LEFT TURN, DIFFERENT ROADWAYS	4	6.67
LEFT TURN, SAME ROADWAY	1	1.67
OTHER COLLISION WITH VEHICLE	2	3.33
OTHER NON-COLLISION	3	5.00
PEDALCYCLIST	1	1.67
PEDESTRIAN	1	1.67
RAN OFF ROAD - LEFT	1	1.67
REAR END, SLOW OR STOP	22	36.67
REAR END, TURN	1	1.67
RIGHT TURN, DIFFERENT ROADWAYS	2	3.33
RIGHT TURN, SAME ROADWAY	2	3.33
SIDESWIPE, SAME DIRECTION	9	15.00

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	2	7.14
Class C Injuries	26	92.86
Total Non-Fatal Injuries	28	100.00
Total Injuries	28	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	4	6.67
Feb	2	3.33
Mar	1	1.67
Apr	4	6.67
May	3	5.00
Jun	3	5.00
Jul	5	8.33
Aug	4	6.67
Sep	10	16.67
Oct	8	13.33
Nov	8	13.33
Dec	8	13.33

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	9	15.00
Tue	5	8.33
Wed	7	11.67
Thu	16	26.67
Fri	11	18.33
Sat	7	11.67
Sun	5	8.33

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	2	3.33
0700-0759	5	8.33
0800-0859	1	1.67
0900-0959	5	8.33
1000-1059	1	1.67
1100-1159	3	5.00
1200-1259	5	8.33
1300-1359	2	3.33
1400-1459	2	3.33
1500-1559	5	8.33
1600-1659	6	10.00
1700-1759	5	8.33
1800-1859	7	11.67
1900-1959	4	6.67
2000-2059	2	3.33
2100-2159	3	5.00
2200-2259	2	3.33
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	39	3	0	42
Dark	13	2	0	15
Other	3	0	0	3
Total	55	5	0	60

Object Struck Summary

Object Type	Times Struck	Percent of Total
OFFICIAL HIGHWAY SIGN NON-BREAKAWAY	1	12.50
OTHER FIXED OBJECT	1	12.50
PEDALCYCLIST	2	25.00
PEDESTRIAN	2	25.00
PIER IN MEDIAN OF UNDERPASS	1	12.50
TREE	1	12.50

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
COMMERCIAL BUS	1	0.79
MOTORCYCLE	2	1.59
OTHER BUS	1	0.79
PASSENGER CAR	89	70.63
PEDALCYCLE	1	0.79
PEDESTRIAN	1	0.79
PICKUP	6	4.76
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	1	0.79
SINGLE UNIT TRUCK (3 OR MORE AXLES)	1	0.79
SPORT UTILITY	16	12.70
TAXICAB	1	0.79
TRUCK/TRAILER	1	0.79
UNKNOWN	1	0.79
VAN	4	3.17

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	15	0	4	11
2011	26	0	10	16
2012	14	0	4	10
2013	5	0	3	2
Total	60	0	21	39

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	6
2011	0	15
2012	0	4
2013	0	3
Total	0	28

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 42450	44.60
2011	\$ 145300	100.00
2012	\$ 52225	43.60
2013	\$ 14250	27.20
Total	\$ 254225	215.40

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	1	1	10	0	0	2	1
2011	2	1	6	0	6	6	5
2012	1	2	3	2	4	1	1
2013	1	0	4	0	0	0	0
Total	5	4	23	2	10	9	7

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Strip Diagram

Features	Milepost	Crash IDs
US 15-501 SB ON/OFF RAMPS BEGIN	15.50	102970791 103248433 103251304 103599421
	15.51	
	15.52	
	15.53	
	15.54	
	15.55	
US 501 US 15 STRUCTURE SR 2048 RALEIGH FORDHAM	15.56	
	15.57	
	15.58	
	15.59	
	15.60	103036320 103573882 102986418 103184862 102915091 103334090
	15.61	103657393 103735632
	15.62	103013112
	15.63	
	15.64	
	15.65	103438841
	15.66	103211870
	15.67	
	15.68	
	15.69	
	15.70	
	15.71	103086579
	15.72	102980489 103295349
	15.73	103343803
HAMILTON	15.74	103190601 103638407 103343798 103307653 103751745 102972965 103029952 103077888 103107382 103143076 103251366 103296101 103323498 103336174 103350823 103630203 103637555 103752787
	15.75	103268890 102925271
	15.76	103323325
	15.77	102970836
	15.78	
	15.79	
	15.80	103102474
	15.81	
AUDLEY	15.82	102915089
	15.83	
	15.84	
	15.85	

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Features	Milepost	Crash IDs
OAKWOOD	15.86	102994624
	15.87	
	15.88	
	15.89	
	15.90	
	15.91	102970688
ROGERSON ENVIRON WAY	15.92	
	15.93	
	15.94	102974361 103629986 103225064
	15.95	
	15.96	103235350 103487475
	15.97	102952472
	15.98	
	15.99	103537168
	16.00	
	16.01	
	16.02	
	16.03	
US 15-501 NB ON/OFF RAMPS SR 1900 FINLEY GOLF COURSE END BURNINGTREE	16.04	103578755
	16.05	103409437 103172992 103257771 103433068
		103510030 103615903 103648308

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025798	41000025798			76.8	8.4	47400	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
ORANGE	67	7	All and Rural		0	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis on NC 54 (Raleigh Rd) from US 15-501 SB Ramps to SR 1900 (Finley Golf Corse Road/Burning Tree Drive)	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Included Accidents	Old MP	New MP	Type
102915089		15.821	I
102915091		15.605	I
102925271		15.751	I
102952472		15.969	I
102970688		15.909	I
102970791		15.503	I
102970836		15.775	I
102972965		15.745	I
102974361		15.935	I
102980489		15.715	I
102986418		15.603	I
102994624		15.856	I
103013112		15.62	I
103029952		15.745	I
103036320		15.601	I
103077888		15.745	I
103086579		15.707	I
103102474		15.795	I
103107382		15.745	I
103143076		15.745	I
103172992		16.05	I
103184862		15.604	I
103190601		15.736	I
103211870		15.658	I
103225064		15.939	I
103235350		15.958	I

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

103248433	15.503	I
103251304	15.503	I
103251366	15.745	I
103257771	16.05	I
103268890	15.748	I
103295349	15.715	I
103296101	15.745	I
103307653	15.741	I
103323325	15.764	I
103323498	15.745	I
103334090	15.605	I
103336174	15.745	I
103343798	15.737	I
103343803	15.726	I
103350823	15.745	I
103409437	16.048	I
103433068	16.05	I
103438841	15.645	I
103487475	15.958	I
103510030	16.05	I
103537168	15.986	I
103573882	15.601	I
103578755	16.041	I
103599421	15.503	I
103615903	16.05	I
103629986	15.937	I
103630203	15.745	I
103637555	15.745	I
103638407	15.736	I
103648308	16.05	I
103657393	15.609	I
103735632	15.61	I
103751745	15.744	I
103752787	15.745	I

Fiche Roads

Name	Code
I 1	10000001
RALEIGH	50025238
NC 54	30000054

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
I 1	10000001	15.503	16.050	0.547	0.880

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025819
Location: Crash analysis at intersection of SR 2048 (Raleigh Rd/South Road) and Country Club Road.

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102909357	06/08/2010 17:35	REAR END, SLOW OR STOP	\$ 1700	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
2	102956741	09/02/2010 22:52	SIDESWIPE, SAME DIRECTION	\$ 1800	0	0	0	0	1	4	1	1	0		
Unit	1 : 1	Alchl/Drugs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn:				16	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn:				16	Obj Strk:						
3	103154677	04/19/2011 18:39	ANGLE	\$ 2500	0	0	0	0	1	1	1	2	0		2
Unit	1 : 1	Alchl/Drugs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn:				8	Obj Strk:						
4	103155471	04/29/2011 09:05	LEFT TURN, SAME ROADWAY	\$ 1500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn:				8	Obj Strk:						
5	103248530	08/21/2011 19:38	REAR END, SLOW OR STOP	\$ 1100	0	0	0	0	1	2	2	1	0	0	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	3 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
6	103249452	09/03/2011 12:48	REAR END, SLOW OR STOP	\$ 1300	0	0	0	1	1	1	1	3	0	9	3
Unit	1 : 4	Alchl/Drugs: 0	Speed: 2 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
7	103326310	11/19/2011 10:58	LEFT TURN, DIFFERENT ROADWAYS	\$ 8000	0	0	1	0	1	1	1	2	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 30 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
8	103618424	11/13/2012 09:41	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:				11	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					
9	103654967	12/09/2012 02:42	HEAD ON	\$ 12500	0	0	2	1	1	4	2	2	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn:					8	Obj Strk:					
10	103683623	01/30/2013 20:17	ANGLE	\$ 2500	0	0	0	0	1	4	2	1	0		2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: SW	Veh Mnvr / Ped Actn:					12	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:					11	Obj Strk:					

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	10	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	3	30.00
Total Injury Crashes	3	30.00
Property Damage Only Crashes	7	70.00
Night Crashes	3	30.00
Wet Crashes	0	0.00
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	10	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	2	20.00
Class C Crashes	1	10.00
Property Damage Only Crashes	7	70.00

Vehicle Exposure Statistics

Annual ADT = 10200

Total Vehicle Exposure = 11.18 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	89.45
Fatal Crash Rate	0.00
Non Fatal Crash Rate	26.84
Night Crash Rate	26.84
Wet Crash Rate	0.00
EPDO Rate	288.03

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.22
EPDO Crash Index =	32.20
Estimated Property Damage Total = \$	37900.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	2	20.00
HEAD ON	1	10.00
LEFT TURN, DIFFERENT ROADWAYS	1	10.00
LEFT TURN, SAME ROADWAY	1	10.00
REAR END, SLOW OR STOP	4	40.00
SIDESWIPE, SAME DIRECTION	1	10.00

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	3	60.00
Class C Injuries	2	40.00
Total Non-Fatal Injuries	5	100.00
Total Injuries	5	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	1	10.00
Feb	0	0.00
Mar	0	0.00
Apr	2	20.00
May	0	0.00
Jun	1	10.00
Jul	0	0.00
Aug	1	10.00
Sep	2	20.00
Oct	0	0.00
Nov	2	20.00
Dec	1	10.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	0	0.00
Tue	3	30.00
Wed	1	10.00
Thu	1	10.00
Fri	1	10.00
Sat	2	20.00
Sun	2	20.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	1	10.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	2	20.00
1000-1059	1	10.00
1100-1159	0	0.00
1200-1259	1	10.00
1300-1359	0	0.00
1400-1459	0	0.00
1500-1559	0	0.00
1600-1659	0	0.00
1700-1759	1	10.00
1800-1859	1	10.00
1900-1959	1	10.00
2000-2059	1	10.00
2100-2159	0	0.00
2200-2259	1	10.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	6	0	0	6
Dark	3	0	0	3
Other	1	0	0	1
Total	10	0	0	10

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	19	90.48
SPORT UTILITY	2	9.52

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	2	0	0	2
2011	5	0	2	3
2012	2	0	1	1
2013	1	0	0	1
Total	10	0	3	7

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	0
2011	0	2
2012	0	3
2013	0	0
Total	0	5

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 3500	2.00
2011	\$ 14400	19.80
2012	\$ 17500	9.40
2013	\$ 2500	1.00
Total	\$ 37900	32.20

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	0	1	0	0	1	0
2011	2	0	2	0	1	0	0
2012	0	0	1	0	0	0	1
2013	0	0	0	0	1	0	0
Total	2	0	4	0	2	1	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025819	41000025819			76.8	8.4	10200	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
ORANGE	67	7	All and Rural		150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of SR 2048 (Raleigh Rd/South Road) and Country Club Road.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Included Accidents
103326310

Excluded Accidents
103600159
103463589
103439860
103414225
103266104
103147071
103084739
103071111
102924768
102924758
102924749

Fiche Roads

Name	Code
SR 2028	40002028
COUNTRY CLUB	50007073
RIDGE	50025900
RALEIGH	50025238
SOUTH	50028612
NC 54	30000054

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Intersection Road Combinations			
Name	Code	Code	Name
NC 54	30000054	50007073	COUNTRY CLUB
NC 54	30000054	50025900	RIDGE
NC 54	30000054	50028612	SOUTH
RALEIGH	50025238	50007073	COUNTRY CLUB
RALEIGH	50025238	50025900	RIDGE
RALEIGH	50025238	50028612	SOUTH
RIDGE	50025900	50007073	COUNTRY CLUB
SOUTH	50028612	50007073	COUNTRY CLUB
SOUTH	50028612	50025900	RIDGE

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op

Legend for
Report Details:
 Acc No - Accident Number
 Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
 Condition: R - Road Surface, L - Ambient Light, W - Weather
 Rd Ch - Road Character
 Rd Ci - Roadway Contributing Circumstances
 Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
 Alchl/Drgs - Alcohol Drugs Suspected
 Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
 Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	8	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	3	37.50
Total Injury Crashes	3	37.50
Property Damage Only Crashes	5	62.50
Night Crashes	0	0.00
Wet Crashes	0	0.00
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	8	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	1	12.50
Class C Crashes	2	25.00
Property Damage Only Crashes	5	62.50

Vehicle Exposure Statistics

Annual ADT = 37100

Total Vehicle Exposure = 40.66 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	19.67
Fatal Crash Rate	0.00
Non Fatal Crash Rate	7.38
Night Crash Rate	0.00
Wet Crash Rate	0.00
EPDO Rate	74.27

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.77
EPDO Crash Index =	30.20
Estimated Property Damage Total = \$	48400.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	2	25.00
ANIMAL	1	12.50
LEFT TURN, SAME ROADWAY	1	12.50
RAN OFF ROAD - LEFT	1	12.50
REAR END, SLOW OR STOP	2	25.00
RIGHT TURN, DIFFERENT ROADWAYS	1	12.50

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	1	33.33
Class C Injuries	2	66.67
Total Non-Fatal Injuries	3	100.00
Total Injuries	3	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	0	0.00
Feb	0	0.00
Mar	2	25.00
Apr	2	25.00
May	0	0.00
Jun	0	0.00
Jul	1	12.50
Aug	1	12.50
Sep	0	0.00
Oct	0	0.00
Nov	1	12.50
Dec	1	12.50

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	1	12.50
Tue	1	12.50
Wed	1	12.50
Thu	1	12.50
Fri	0	0.00
Sat	4	50.00
Sun	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	1	12.50
1000-1059	0	0.00
1100-1159	0	0.00
1200-1259	1	12.50
1300-1359	1	12.50
1400-1459	0	0.00
1500-1559	2	25.00
1600-1659	0	0.00
1700-1759	2	25.00
1800-1859	0	0.00
1900-1959	0	0.00
2000-2059	1	12.50
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	8	0	0	8
Dark	0	0	0	0
Other	0	0	0	0
Total	8	0	0	8

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	1	50.00
TRAFFIC ISLAND CURB OR MEDIAN	1	50.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	6.67
PASSENGER CAR	10	66.67
PICKUP	1	6.67
SPORT UTILITY	2	13.33
VAN	1	6.67

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	0	0	0	0
2011	5	0	2	3
2012	1	0	1	0
2013	2	0	0	2
Total	8	0	3	5

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	0
2011	0	2
2012	0	1
2013	0	0
Total	0	3

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 0	0.00
2011	\$ 24500	19.80
2012	\$ 9000	8.40
2013	\$ 14900	2.00
Total	\$ 48400	30.20

Type of Accident Totals

Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2010	0	0	0	0	0	0	0
2011	0	1	1	0	2	0	1
2012	0	0	1	0	0	0	0
2013	1	0	0	1	0	0	0
Total	1	1	2	1	2	0	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025984	41000025984			76.8	8.4	37100	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
ORANGE	67	7	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of US 15-501 and Brandon Road	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Excluded Accidents
103039412
103615899

Fiche Roads

Name	Code
US 15	20000015
US 501	20000501
FORDHAM	50010799
BRANDON	50003509

Intersection Road Combinations

Name	Code	Code	Name
US 15	20000015	50003509	BRANDON
US 501	20000501	50003509	BRANDON
FORDHAM	50010799	50003509	BRANDON

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000026006
Location: Crash analysis at intersection of US 15 501 and Elliot Road.

Report Details

Acc No	Crash ID	Date	Accident Type				Total Damage	Injuries				Condition			Road		Trfc Ctl	
								F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102893462	06/15/2010 13:00	RAN OFF ROAD - LEFT				\$ 1700	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 5	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	S	Veh Mnvr / Ped Actn:				1	Obj Strk:					
Unit	2 : 10	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	S	Veh Mnvr / Ped Actn:				4	Obj Strk:					
2	102946305	08/19/2010 15:26	REAR END, SLOW OR STOP				\$ 4800	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 2	Alchl/Drgs:	0	Speed:	15 MPH	Dir:	N	Veh Mnvr / Ped Actn:				11	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	25 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:					
3	102997457	10/22/2010 18:48	ANGLE				\$ 9600	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	S	Veh Mnvr / Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	45 MPH	Dir:	S	Veh Mnvr / Ped Actn:				4	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed:	20 MPH	Dir:	W	Veh Mnvr / Ped Actn:				8	Obj Strk:					
4	103002419	10/28/2010 07:42	LEFT TURN, DIFFERENT ROADWAYS				\$ 7500	0	0	0	0	2	1	2	1	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	S	Veh Mnvr / Ped Actn:				9	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	45 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:					
5	103054041	12/18/2010 05:28	ANIMAL				\$ 3000	0	0	0	0	1	4	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed:	45 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:				17	
6	103058675	12/20/2010 12:12	REAR END, SLOW OR STOP				\$ 1200	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 5	Alchl/Drgs:	0	Speed:	45 MPH	Dir:	N	Veh Mnvr / Ped Actn:				11	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	45 MPH	Dir:	N	Veh Mnvr / Ped Actn:				1	Obj Strk:					
7	103079489	01/18/2011 19:27	REAR END, TURN				\$ 2000	0	0	0	1	1	5	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	50 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	15 MPH	Dir:	N	Veh Mnvr / Ped Actn:				9	Obj Strk:					
8	103087484	01/31/2011 11:15	ANGLE				\$ 4500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	S	Veh Mnvr / Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	W	Veh Mnvr / Ped Actn:				7	Obj Strk:					

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	103097243	02/13/2011 19:28	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
10	103100088	02/15/2011 19:01	LEFT TURN, DIFFERENT ROADWAYS	\$ 6800	0	0	0	0	1	4	1	1	0	12	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn:				8	Obj Strk: 42						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk: 42						
Unit	3 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				2	Obj Strk: 42						
11	103102384	02/19/2011 17:04	ANGLE	\$ 6000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:						
12	103102733	02/22/2011 16:09	LEFT TURN, SAME ROADWAY	\$ 23000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
13	103102961	02/23/2011 14:58	ANGLE	\$ 2300	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: SW	Veh Mnvr / Ped Actn:				7	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: NW	Veh Mnvr / Ped Actn:				8	Obj Strk:						
14	103143643	04/10/2011 10:23	ANGLE	\$ 13000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: NE	Veh Mnvr / Ped Actn:				8	Obj Strk:						
15	103143082	04/16/2011 16:54	REAR END, SLOW OR STOP	\$ 2300	0	0	0	0	2	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
16	103148935	04/21/2011 07:53	LEFT TURN, SAME ROADWAY	\$ 7000	0	0	1	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: NW	Veh Mnvr / Ped Actn:				8	Obj Strk:						
17	103173386	05/20/2011 18:11	REAR END, SLOW OR STOP	\$ 1200	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 3 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	103205462	06/30/2011 20:34	LEFT TURN, SAME ROADWAY	\$ 3500	0	0	0	2	1	2	1	1	0	12	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
19	103229589	08/09/2011 06:46	REAR END, SLOW OR STOP	\$ 3500	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 3	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	3 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
20	103308613	11/01/2011 12:06	LEFT TURN, DIFFERENT ROADWAYS	\$ 11500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
21	103324586	11/18/2011 19:14	RIGHT TURN, DIFFERENT ROADWAYS	\$ 1800	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
22	103408170	03/07/2012 10:07	ANGLE	\$ 7000	0	0	0	2	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 2	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
23	103439999	04/25/2012 10:03	REAR END, SLOW OR STOP	\$ 2350	0	0	0	1	1	1	2	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	3 : 3	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
24	103442169	04/30/2012 14:01	LEFT TURN, DIFFERENT ROADWAYS	\$ 5500	0	0	0	0	1	1	1	1	0	12	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 40 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
25	103470133	06/04/2012 17:42	REAR END, SLOW OR STOP	\$ 2800	0	0	0	1	1	1	1	1	0		2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
26	103478509	06/12/2012 14:14	REAR END, SLOW OR STOP	\$ 5200	0	0	1	1	2	1	3	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
27	103496075	07/07/2012 09:45	ANGLE	\$ 7000	0	0	0	3	1	1	1	1	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
28	103510688	07/26/2012 13:52	ANGLE	\$ 5000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn: 9				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
29	103569197	09/25/2012 16:54	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	1	1	1	0	1	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
30	103566037	10/03/2012 19:33	ANGLE	\$ 2200	0	0	0	0	1	6	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
31	103577707	10/09/2012 08:56	LEFT TURN, SAME ROADWAY	\$ 1800	0	0	0	0	2	1	3	1	0	14	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
32	103599430	11/02/2012 17:34	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
33	103676221	01/30/2013 19:10	LEFT TURN, SAME ROADWAY	\$ 8000	0	0	0	4	1	5	2	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: NW	Veh Mnvr / Ped Actn: 8				Obj Strk:							
34	103675233	02/04/2013 09:18	LEFT TURN, DIFFERENT ROADWAYS	\$ 4700	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 10	Alchl/Drgs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
35	103711934	03/16/2013 09:10	ANGLE	\$ 23000	0	0	0	2	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
36	103732493	04/11/2013 14:54	REAR END, SLOW OR STOP	\$ 1100	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 3 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						

37	103731886	04/16/2013 16:57	REAR END, SLOW OR STOP	\$ 3700	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: SE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	37	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	12	32.43
Total Injury Crashes	12	32.43
Property Damage Only Crashes	25	67.57
Night Crashes	7	18.92
Wet Crashes	4	10.81
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	37	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	2	5.41
Class C Crashes	10	27.03
Property Damage Only Crashes	25	67.57

Vehicle Exposure Statistics

Annual ADT = 31700

Total Vehicle Exposure = 34.74 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	106.50
Fatal Crash Rate	0.00
Non Fatal Crash Rate	34.54
Night Crash Rate	20.15
Wet Crash Rate	11.51
EPDO Rate	362.09

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.40
EPDO Crash Index =	125.80
Estimated Property Damage Total = \$	206050.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	10	27.03
ANIMAL	1	2.70
LEFT TURN, DIFFERENT ROADWAYS	5	13.51
LEFT TURN, SAME ROADWAY	5	13.51
RAN OFF ROAD - LEFT	1	2.70
REAR END, SLOW OR STOP	13	35.14
REAR END, TURN	1	2.70
RIGHT TURN, DIFFERENT ROADWAYS	1	2.70

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	2	9.09
Class C Injuries	20	90.91
Total Non-Fatal Injuries	22	100.00
Total Injuries	22	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	3	8.11
Feb	6	16.22
Mar	2	5.41
Apr	7	18.92
May	1	2.70
Jun	4	10.81
Jul	2	5.41
Aug	2	5.41
Sep	1	2.70
Oct	4	10.81
Nov	3	8.11
Dec	2	5.41

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	5	13.51
Tue	10	27.03
Wed	5	13.51
Thu	6	16.22
Fri	4	10.81
Sat	5	13.51
Sun	2	5.41

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	1	2.70
0600-0659	1	2.70
0700-0759	2	5.41
0800-0859	1	2.70
0900-0959	3	8.11
1000-1059	3	8.11
1100-1159	1	2.70
1200-1259	2	5.41
1300-1359	2	5.41
1400-1459	4	10.81
1500-1559	1	2.70
1600-1659	4	10.81
1700-1759	3	8.11
1800-1859	2	5.41
1900-1959	6	16.22
2000-2059	1	2.70
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	25	4	0	29
Dark	7	0	0	7
Other	1	0	0	1
Total	33	4	0	37

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	1	25.00
GUARDRAIL FACE ON SHOULDER	3	75.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	2	2.56
PASSENGER CAR	55	70.51
PICKUP	3	3.85
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	2	2.56
SPORT UTILITY	11	14.10
VAN	5	6.41

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	6	0	0	6
2011	15	0	4	11
2012	11	0	5	6
2013	5	0	3	2
Total	37	0	12	25

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	0
2011	0	6
2012	0	9
2013	0	7
Total	0	22

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 27800	6.00
2011	\$ 91900	44.60
2012	\$ 45850	48.00
2013	\$ 40500	27.20
Total	\$ 206050	125.80

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	1	0	2	1	1	0	1
2011	5	1	5	0	4	0	0
2012	2	0	5	0	4	0	0
2013	2	0	2	0	1	0	0
Total	10	1	14	1	10	0	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000026006	41000026006			76.8	8.4	31700	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
ORANGE	67	7	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of US 15_501 and Elliot Road.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Included Accidents
103496075

Excluded Accidents
103085705
103268914
103268920

Fiche Roads	
Name	Code
ESTES	50009903
FORDHAM	50010799
US 15	20000015
US 501	20000501

Intersection Road Combinations			
Name	Code	Code	Name
US 15	20000015	50009600	ELLIOT
US 501	20000501	50009600	ELLIOT
FORDHAM	50010799	50009600	ELLIOT

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000026008
Location: Crash analysis at intersection of US 15-501 and SR 1742 (Ephesus Church Rd)

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102962659	09/10/2010 10:38	RAN OFF ROAD - RIGHT	\$ 2500	0	0	1	0	1	1	1	3	12	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:			55			
2	102964958	09/14/2010 08:12	RIGHT TURN, DIFFERENT ROADWAYS	\$ 5500	0	0	0	1	1	1	1	1	0	13	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				7	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
3	103036318	12/03/2010 11:47	BACKING UP	\$ 1800	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 3	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				10	Obj Strk:						
4	103049441	12/13/2010 12:27	BACKING UP	\$ 1500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				10	Obj Strk:						
5	103054000	12/17/2010 14:09	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
6	103062767	12/25/2010 17:59	REAR END, SLOW OR STOP	\$ 1600	0	0	0	0	2	4	3	1	12	3	1
Unit	1 : 3	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				3	Obj Strk:						
7	103100031	02/15/2011 22:14	LEFT TURN, DIFFERENT ROADWAYS	\$ 2800	0	0	0	1	1	4	1	1	0	12	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn:				8	Obj Strk:			34			
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:			34			
8	103112010	03/07/2011 11:04	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	103164984	05/09/2011 14:24	SIDESWIPE, SAME DIRECTION	\$ 1400	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 10	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SW	Veh Mnvr / Ped Actn:				8	Obj Strk:						
10	103237914	08/22/2011 14:23	REAR END, SLOW OR STOP	\$ 100	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
11	103250276	09/07/2011 11:58	REAR END, SLOW OR STOP	\$ 6500	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
12	103297419	10/26/2011 19:29	REAR END, SLOW OR STOP	\$ 600	0	0	0	1	1	5	1	1	2	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 20	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
13	103320273	11/10/2011 16:38	SIDESWIPE, SAME DIRECTION	\$ 4200	0	0	0	0	2	1	3	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn:				8	Obj Strk: 58						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn:				8	Obj Strk:						
14	103382821	01/28/2012 17:53	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
15	103399620	02/22/2012 21:38	ANGLE	\$ 2000	0	0	1	0	1	1	1	1	0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:				7	Obj Strk:						
16	103439154	04/20/2012 19:26	ANGLE	\$ 3200	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:				12	Obj Strk:						
17	103444570	05/02/2012 09:44	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	103451462	05/09/2012 08:20	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	2	1	2	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
19	103455405	05/16/2012 11:51	ANGLE	\$ 4900	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
20	103501574	07/10/2012 18:24	REAR END, SLOW OR STOP	\$ 7000	0	0	0	0	1	1	2	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 12	Alchl/Drgs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn:				7	Obj Strk:						
21	103526117	08/06/2012 18:48	REAR END, SLOW OR STOP	\$ 1400	0	0	0	4	2	1	2	1	0	0	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
22	103579812	10/14/2012 16:49	ANGLE	\$ 2000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: SE	Veh Mnvr / Ped Actn:				8	Obj Strk:						
23	103585959	10/20/2012 19:17	REAR END, SLOW OR STOP	\$ 600	0	0	0	1	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 3 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 3 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
24	103592390	10/29/2012 20:44	RAN OFF ROAD - RIGHT	\$ 3025	0	0	0	0	2	4	3	1	0		
Unit	1 : 1	Alchl/Drgs: 7	Speed: 55 MPH Dir: N	Veh Mnvr / Ped Actn:				5	Obj Strk: 58						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
25	103632678	12/03/2012 07:49	REAR END, SLOW OR STOP	\$ 2500	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 2	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 3	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
26	103632679	12/03/2012 17:29	REAR END, SLOW OR STOP	\$ 2700	0	0	0	0	1	6	1	1	0	0	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
27	103690204	02/16/2013 10:41	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	2	1	4	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	27	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	10	37.04
Total Injury Crashes	10	37.04
Property Damage Only Crashes	17	62.96
Night Crashes	6	22.22
Wet Crashes	6	22.22
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	27	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	2	7.41
Class C Crashes	8	29.63
Property Damage Only Crashes	17	62.96

Vehicle Exposure Statistics

Annual ADT = 31300

Total Vehicle Exposure = 34.3 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	78.71
Fatal Crash Rate	0.00
Non Fatal Crash Rate	29.15
Night Crash Rate	17.49
Wet Crash Rate	17.49
EPDO Rate	294.42

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.74
EPDO Crash Index =	101.00
Estimated Property Damage Total = \$	72325.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	4	14.81
BACKING UP	2	7.41
LEFT TURN, DIFFERENT ROADWAYS	1	3.70
RAN OFF ROAD - RIGHT	2	7.41
REAR END, SLOW OR STOP	15	55.56
RIGHT TURN, DIFFERENT ROADWAYS	1	3.70
SIDESWIPE, SAME DIRECTION	2	7.41

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	2	15.38
Class C Injuries	11	84.62
Total Non-Fatal Injuries	13	100.00
Total Injuries	13	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	1	3.70
Feb	3	11.11
Mar	1	3.70
Apr	1	3.70
May	4	14.81
Jun	0	0.00
Jul	1	3.70
Aug	2	7.41
Sep	3	11.11
Oct	4	14.81
Nov	1	3.70
Dec	6	22.22

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	8	29.63
Tue	3	11.11
Wed	6	22.22
Thu	1	3.70
Fri	4	14.81
Sat	4	14.81
Sun	1	3.70

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	1	3.70
0800-0859	2	7.41
0900-0959	1	3.70
1000-1059	2	7.41
1100-1159	4	14.81
1200-1259	1	3.70
1300-1359	0	0.00
1400-1459	3	11.11
1500-1559	0	0.00
1600-1659	2	7.41
1700-1759	3	11.11
1800-1859	2	7.41
1900-1959	3	11.11
2000-2059	1	3.70
2100-2159	1	3.70
2200-2259	1	3.70
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	17	4	0	21
Dark	4	2	0	6
Other	0	0	0	0
Total	21	6	0	27

Object Struck Summary

Object Type	Times Struck	Percent of Total
DITCH	2	40.00
TRAFFIC ISLAND CURB OR MEDIAN	1	20.00
UTILITY POLE	2	40.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	3	5.45
MOTORCYCLE	1	1.82
PASSENGER CAR	33	60.00
PICKUP	4	7.27
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	1	1.82
SPORT UTILITY	10	18.18
TRUCK/TRAILER	1	1.82
VAN	2	3.64

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	6	0	2	4
2011	7	0	4	3
2012	13	0	4	9
2013	1	0	0	1
Total	27	0	10	17

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	2
2011	0	4
2012	0	7
2013	0	0
Total	0	13

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 16400	20.80
2011	\$ 17600	36.60
2012	\$ 36825	42.60
2013	\$ 1500	1.00
Total	\$ 72325	101.00

Type of Accident Totals

Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2010	0	1	2	1	0	0	2
2011	1	0	4	0	0	2	0
2012	0	0	8	1	4	0	0
2013	0	0	1	0	0	0	0
Total	1	1	15	2	4	2	2

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000026008	41000026008			76.8	8.4	31300	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
ORANGE	67	7	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of US 15-501 and SR 1742 (Ephesus Church Rd)	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Excluded Accidents
103542356

Fiche Roads

Name	Code
US 15	20000015
US 501	20000501
SR 1742	40001742
EPHESUS CHURCH	50009826
FORDHAM	50010799

Intersection Road Combinations

Name	Code	Code	Name
US 15	20000015	40001742	SR 1742
US 15	20000015	50009826	EPHESUS CHURCH
US 501	20000501	40001742	SR 1742
US 501	20000501	50009826	EPHESUS CHURCH
FORDHAM	50010799	40001742	SR 1742
FORDHAM	50010799	50009826	EPHESUS CHURCH

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	103109502	03/02/2011 19:05	REAR END, SLOW OR STOP	\$ 13000	0	0	0	2	1	5	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
10	103123612	03/24/2011 06:33	RIGHT TURN, DIFFERENT ROADWAYS	\$ 9800	0	0	0	0	1	5	2	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
11	103190604	06/10/2011 07:58	REAR END, SLOW OR STOP	\$ 5000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
12	103211868	07/14/2011 13:37	SIDESWIPE, SAME DIRECTION	\$ 4500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 6	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
13	103239547	08/24/2011 10:55	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
14	103240330	08/28/2011 13:13	RIGHT TURN, DIFFERENT ROADWAYS	\$ 4400	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: SE	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:			55				
15	103248698	09/03/2011 21:38	ANGLE	\$ 4300	0	0	0	0	1	5	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 31	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							
16	103303819	10/27/2011 15:30	REAR END, SLOW OR STOP	\$ 400	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1				Obj Strk:							
17	103314370	11/06/2011 13:09	RAN OFF ROAD - LEFT	\$ 3250	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: NW	Veh Mnvr / Ped Actn: 8				Obj Strk:			18				

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	103385595	02/02/2012 09:32	RIGHT TURN, SAME ROADWAY	\$ 3000	0	0	0	4	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
19	103386175	02/03/2012 08:20	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	1	1	1	1	12	3	1
Unit	1 : 3	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
20	103423574	03/28/2012 17:24	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 11				Obj Strk:							
21	103430366	04/02/2012 11:57	ANGLE	\$ 3500	0	0	1	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: NW	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
22	103503958	07/08/2012 18:25	REAR END, SLOW OR STOP	\$ 13500	0	0	0	3	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	4 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	5 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
23	103508835	07/22/2012 20:33	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	2	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	3 : 32	Alchl/Drgs: 7	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
24	103527029	08/16/2012 12:59	REAR END, SLOW OR STOP	\$ 4000	0	0	0	2	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
25	103588683	10/25/2012 16:48	REAR END, SLOW OR STOP	\$ 22000	0	0	0	2	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
26	103589007	10/29/2012 04:45	RAN OFF ROAD - RIGHT	\$ 10000	0	0	0	0	2	5	3	1	0	0	
Unit	1 : 14	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4					Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4					Obj Strk:						
27	103632675	12/03/2012 18:03	REAR END, SLOW OR STOP	\$ 1000	0	0	0	1	1	6	1	1	0		1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1					Obj Strk:						
Unit	2 : 5	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn: 11					Obj Strk:						
28	103690210	02/16/2013 17:06	REAR END, SLOW OR STOP	\$ 1300	0	0	0	2	2	1	4	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1					Obj Strk:						
Unit	2 : 3	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 4					Obj Strk:						
29	103718489	03/28/2013 17:31	LEFT TURN, SAME ROADWAY	\$ 1000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 7					Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 7					Obj Strk:						
30	103739130	04/24/2013 07:35	OTHER COLLISION WITH VEHICLE	\$ 5000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4					Obj Strk: 42						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn: 7					Obj Strk:						
31	103754766	05/13/2013 15:49	REAR END, SLOW OR STOP	\$ 1200	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: SE	Veh Mnvr / Ped Actn: 12					Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: SE	Veh Mnvr / Ped Actn: 1					Obj Strk:						

Legend for Report Details:

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	31	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	12	38.71
Total Injury Crashes	12	38.71
Property Damage Only Crashes	19	61.29
Night Crashes	8	25.81
Wet Crashes	4	12.90
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	31	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	1	3.23
Class C Crashes	11	35.48
Property Damage Only Crashes	19	61.29

Vehicle Exposure Statistics

Annual ADT = 38500

Total Vehicle Exposure = 42.2 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	73.47
Fatal Crash Rate	0.00
Non Fatal Crash Rate	28.44
Night Crash Rate	18.96
Wet Crash Rate	9.48
EPDO Rate	283.91

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.86
EPDO Crash Index =	119.80
Estimated Property Damage Total = \$	146150.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	3	9.68
LEFT TURN, SAME ROADWAY	2	6.45
OTHER COLLISION WITH VEHICLE	1	3.23
RAN OFF ROAD - LEFT	1	3.23
RAN OFF ROAD - RIGHT	1	3.23
REAR END, SLOW OR STOP	16	51.61
REAR END, TURN	1	3.23
RIGHT TURN, DIFFERENT ROADWAYS	2	6.45
RIGHT TURN, SAME ROADWAY	1	3.23
SIDESWIPE, SAME DIRECTION	3	9.68

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	1	4.76
Class C Injuries	20	95.24
Total Non-Fatal Injuries	21	100.00
Total Injuries	21	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	0	0.00
Feb	4	12.90
Mar	4	12.90
Apr	2	6.45
May	1	3.23
Jun	2	6.45
Jul	3	9.68
Aug	5	16.13
Sep	3	9.68
Oct	3	9.68
Nov	3	9.68
Dec	1	3.23

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	4	12.90
Tue	0	0.00
Wed	4	12.90
Thu	9	29.03
Fri	6	19.35
Sat	3	9.68
Sun	5	16.13

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	1	3.23
0500-0559	0	0.00
0600-0659	1	3.23
0700-0759	2	6.45
0800-0859	1	3.23
0900-0959	2	6.45
1000-1059	1	3.23
1100-1159	1	3.23
1200-1259	1	3.23
1300-1359	3	9.68
1400-1459	2	6.45
1500-1559	3	9.68
1600-1659	1	3.23
1700-1759	4	12.90
1800-1859	3	9.68
1900-1959	1	3.23
2000-2059	1	3.23
2100-2159	3	9.68
2200-2259	0	0.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	20	2	0	22
Dark	6	2	0	8
Other	1	0	0	1
Total	27	4	0	31

Object Struck Summary

Object Type	Times Struck	Percent of Total
GUARDRAIL FACE ON SHOULDER	1	33.33
MOVABLE OBJECT	1	33.33
TRAFFIC ISLAND CURB OR MEDIAN	1	33.33

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
COMMERCIAL BUS	1	1.49
LIGHT TRUCK (MINI-VAN, PANEL)	2	2.99
PASSENGER CAR	46	68.66
PICKUP	2	2.99
POLICE	1	1.49
SPORT UTILITY	12	17.91
TRACTOR/SEMI-TRAILER	1	1.49
UNKNOWN	1	1.49
VAN	1	1.49

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	7	0	1	6
2011	10	0	3	7
2012	10	0	6	4
2013	4	0	2	2
Total	31	0	12	19

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	1
2011	0	4
2012	0	13
2013	0	3
Total	0	21

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 21800	14.40
2011	\$ 49350	32.20
2012	\$ 66500	54.40
2013	\$ 8500	18.80
Total	\$ 146150	119.80

Type of Accident Totals

Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2010	1	0	4	0	1	1	0
2011	0	2	4	1	1	2	0
2012	0	1	7	1	1	0	0
2013	1	0	2	0	0	0	1
Total	2	3	17	2	3	3	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025892	41000025892			76.8	8.4	38500	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
ORANGE	67	7	All and Rural		150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of US 15_501 and SR 1750 (Estate/Estes Dr).	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Excluded Accidents
103062765
103150692
103173372
103395029

Fiche Roads

Name	Code
US 15	20000015
US 501	20000501
FORDHAM	50010799
SR 1750	40001750
ESTES	50009903
ESTES HILLS	50009904

Intersection Road Combinations

Name	Code	Code	Name
US 501	20000501	50009904	ESTES HILLS
US 501	20000501	50009903	ESTES
US 501	20000501	40001750	SR 1750
US 15	20000015	50009904	ESTES HILLS
US 15	20000015	50009903	ESTES
US 15	20000015	40001750	SR 1750
FORDHAM	50010799	50009904	ESTES HILLS
FORDHAM	50010799	50009903	ESTES
FORDHAM	50010799	40001750	SR 1750

Study Criteria Summary

County:	ORANGE	City:	All and Rural
Date:	06/01/2010 to 05/31/2013	Study:	MW41000025983
Location:	Crash analysis at intersection of US 15-501 and SR 1853 (Cleland Rd)		

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	103058679	12/20/2010 11:07	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	1	0	1	
Unit	1 : 3	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 3	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
2	103072844	01/07/2011 11:38	REAR END, SLOW OR STOP	\$ 3800	0	0	0	0	1	1	2	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
3	103240328	08/28/2011 13:49	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
4	103295540	10/21/2011 16:57	RIGHT TURN, DIFFERENT ROADWAYS	\$ 11600	0	0	0	2	1	1	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
5	103444561	05/01/2012 15:43	LEFT TURN, SAME ROADWAY	\$ 9500	0	0	0	3	1	1	1	3	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
6	103638419	12/16/2012 16:56	LEFT TURN, DIFFERENT ROADWAYS	\$ 7000	0	0	0	1	2	2	3	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:				8	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op

Legend for
Report Details:
 Acc No - Accident Number
 Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
 Condition: R - Road Surface, L - Ambient Light, W - Weather
 Rd Ch - Road Character
 Rd Ci - Roadway Contributing Circumstances
 Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
 Alchl/Drgs - Alcohol Drugs Suspected
 Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
 Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	6	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	3	50.00
Total Injury Crashes	3	50.00
Property Damage Only Crashes	3	50.00
Night Crashes	0	0.00
Wet Crashes	1	16.67
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	6	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	3	50.00
Property Damage Only Crashes	3	50.00

Vehicle Exposure Statistics

Annual ADT = 38000

Total Vehicle Exposure = 41.65 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	14.41
Fatal Crash Rate	0.00
Non Fatal Crash Rate	7.20
Night Crash Rate	0.00
Wet Crash Rate	2.40
EPDO Rate	67.71

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	4.70
EPDO Crash Index =	28.20
Estimated Property Damage Total = \$	36900.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
LEFT TURN, DIFFERENT ROADWAYS	1	16.67
LEFT TURN, SAME ROADWAY	1	16.67
REAR END, SLOW OR STOP	3	50.00
RIGHT TURN, DIFFERENT ROADWAYS	1	16.67

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	6	100.00
Total Non-Fatal Injuries	6	100.00
Total Injuries	6	100.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	1	16.67
Feb	0	0.00
Mar	0	0.00
Apr	0	0.00
May	1	16.67
Jun	0	0.00
Jul	0	0.00
Aug	1	16.67
Sep	0	0.00
Oct	1	16.67
Nov	0	0.00
Dec	2	33.33

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	1	16.67
Tue	1	16.67
Wed	0	0.00
Thu	0	0.00
Fri	2	33.33
Sat	0	0.00
Sun	2	33.33

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	0	0.00
1000-1059	0	0.00
1100-1159	2	33.33
1200-1259	0	0.00
1300-1359	1	16.67
1400-1459	0	0.00
1500-1559	1	16.67
1600-1659	2	33.33
1700-1759	0	0.00
1800-1859	0	0.00
1900-1959	0	0.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	5	0	0	5
Dark	0	0	0	0
Other	0	1	0	1
Total	5	1	0	6

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	2	15.38
PASSENGER CAR	10	76.92
PICKUP	1	7.69

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	1	0	0	1
2011	3	0	1	2
2012	2	0	2	0
2013	0	0	0	0
Total	6	0	3	3

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	0
2011	0	2
2012	0	4
2013	0	0
Total	0	6

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 3500	1.00
2011	\$ 16900	10.40
2012	\$ 16500	16.80
2013	\$ 0	0.00
Total	\$ 36900	28.20

Type of Accident Totals

Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2010	0	0	1	0	0	0	0
2011	0	1	2	0	0	0	0
2012	2	0	0	0	0	0	0
2013	0	0	0	0	0	0	0
Total	2	1	3	0	0	0	0

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025983	41000025983			76.8	8.4	38000	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
ORANGE	67	7	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of US 15-501 and SR 1853 (Cleland Rd)	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Fiche Roads

Name	Code
US 15	20000015
US 501	20000501
SR 1853	40001853
FORDHAM	50010799
CLELAND	50006273

Intersection Road Combinations

Name	Code	Code	Name
US 15	20000015	40001853	SR 1853
US 15	20000015	50006273	CLELAND
US 501	20000501	40001853	SR 1853
US 501	20000501	50006273	CLELAND
FORDHAM	50010799	40001853	SR 1853
FORDHAM	50010799	50006273	CLELAND

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025915
Location: Crash analysis at intersection of US 15-501/NC 54 Bypass (Fordham Blvd) and SR 1900 (Old Mason Farm Rd)

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102986286	10/08/2010 11:32	REAR END, SLOW OR STOP	\$ 2200	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
2	103029957	11/23/2010 19:36	ANIMAL	\$ 1500	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk: 17									
3	103142237	04/14/2011 17:30	REAR END, SLOW OR STOP	\$ 1400	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 11		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 11		Obj Strk:									
Unit	3 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
4	103148937	04/21/2011 15:18	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn: 11		Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn: 4		Obj Strk:									
5	103219316	07/28/2011 17:37	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn: 11		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn: 5		Obj Strk:									
6	103235538	08/19/2011 14:29	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: SW	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: SW	Veh Mnvr / Ped Actn: 4		Obj Strk:									
7	103293451	10/19/2011 17:10	REAR END, SLOW OR STOP	\$ 1800	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1		Obj Strk:									
8	103324626	11/18/2011 11:04	REAR END, SLOW OR STOP	\$ 1600	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn: 12		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1		Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	103360225	12/30/2011 10:19	MOVABLE OBJECT	\$ 1100	0	0	0	1	1	1	1	1	0		2
Unit	1 : 10	Alchl/Drgs: 7	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 10	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	3 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk: 18					
10	103361127	01/03/2012 16:46	REAR END, SLOW OR STOP	\$ 2100	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:					1	Obj Strk:					
11	103390969	02/13/2012 18:28	REAR END, SLOW OR STOP	\$ 1400	0	0	0	0	1	4	1	1	0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					
12	103395035	02/18/2012 14:08	REAR END, SLOW OR STOP	\$ 1600	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 10	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:					1	Obj Strk:					
13	103412064	03/15/2012 18:18	REAR END, SLOW OR STOP	\$ 1700	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					
14	103412781	03/19/2012 17:50	REAR END, SLOW OR STOP	\$ 5300	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	4 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					11	Obj Strk:					
15	103422608	03/26/2012 15:00	REAR END, SLOW OR STOP	\$ 100	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
16	103424964	03/29/2012 17:18	REAR END, SLOW OR STOP	\$ 3500	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:					11	Obj Strk:					
17	103422998	04/08/2012 20:24	REAR END, SLOW OR STOP	\$ 3700	0	0	0	0	1	4	1	1	0	0	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					1	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	3 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn:					11	Obj Strk:					
18	103480261	06/14/2012 11:52	SIDESWIPE, SAME DIRECTION	\$ 1100	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	2 : 14	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
19	103544578	09/08/2012 13:43	SIDESWIPE, SAME DIRECTION	\$ 3200	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:					5	Obj Strk:					
20	103574030	10/10/2012 16:05	REAR END, SLOW OR STOP	\$ 4150	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					1	Obj Strk:					
21	103581120	10/12/2012 15:37	REAR END, SLOW OR STOP	\$ 8800	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	3 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					
22	103613440	11/09/2012 21:34	REAR END, SLOW OR STOP	\$ 1900	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: NE	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: NE	Veh Mnvr / Ped Actn:					11	Obj Strk:					
23	103675618	01/26/2013 11:59	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	2	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	2 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
24	103690208	02/18/2013 12:35	REAR END, SLOW OR STOP	\$ 1800	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	2 : 5	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:					4	Obj Strk:					
25	103704009	03/09/2013 10:11	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	3	
Unit	1 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:					1	Obj Strk:					
Unit	2 : 5	Alchl/Drgs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
26	103750610	05/02/2013 10:37	REAR END, SLOW OR STOP	\$ 7000	0	0	1	1	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: NE	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 1				Obj Strk:							

**Legend for
Report Details:**

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	26	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	4	15.38
Total Injury Crashes	4	15.38
Property Damage Only Crashes	22	84.62
Night Crashes	4	15.38
Wet Crashes	1	3.85
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	26	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	1	3.85
Class C Crashes	3	11.54
Property Damage Only Crashes	22	84.62

Vehicle Exposure Statistics

Annual ADT = 6400

Total Vehicle Exposure = 7.01 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	370.67
Fatal Crash Rate	0.00
Non Fatal Crash Rate	57.03
Night Crash Rate	57.03
Wet Crash Rate	14.26
EPDO Rate	792.66

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	2.14
EPDO Crash Index =	55.60
Estimated Property Damage Total = \$	73950.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANIMAL	1	3.85
MOVABLE OBJECT	1	3.85
REAR END, SLOW OR STOP	22	84.62
SIDESWIPE, SAME DIRECTION	2	7.69

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	1	20.00
Class C Injuries	4	80.00
Total Non-Fatal Injuries	5	100.00
Total Injuries	5	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	2	7.69
Feb	3	11.54
Mar	5	19.23
Apr	3	11.54
May	1	3.85
Jun	1	3.85
Jul	1	3.85
Aug	1	3.85
Sep	1	3.85
Oct	4	15.38
Nov	3	11.54
Dec	1	3.85

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	4	15.38
Tue	2	7.69
Wed	2	7.69
Thu	7	26.92
Fri	6	23.08
Sat	4	15.38
Sun	1	3.85

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	0	0.00
1000-1059	3	11.54
1100-1159	4	15.38
1200-1259	1	3.85
1300-1359	1	3.85
1400-1459	2	7.69
1500-1559	3	11.54
1600-1659	2	7.69
1700-1759	5	19.23
1800-1859	2	7.69
1900-1959	1	3.85
2000-2059	1	3.85
2100-2159	1	3.85
2200-2259	0	0.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	21	1	0	22
Dark	4	0	0	4
Other	0	0	0	0
Total	25	1	0	26

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	1	50.00
MOVABLE OBJECT	1	50.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	36	62.07
PICKUP	3	5.17
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	3	5.17
SPORT UTILITY	11	18.97
TRACTOR/SEMI-TRAILER	1	1.72
VAN	4	6.90

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	2	0	0	2
2011	7	0	1	6
2012	13	0	2	11
2013	4	0	1	3
Total	26	0	4	22

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	0
2011	0	1
2012	0	2
2013	0	2
Total	0	5

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 3700	2.00
2011	\$ 17900	14.40
2012	\$ 38550	27.80
2013	\$ 13800	11.40
Total	\$ 73950	55.60

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	0	1	0	0	0	1
2011	0	0	6	0	0	0	1
2012	0	0	11	0	0	2	0
2013	0	0	4	0	0	0	0
Total	0	0	22	0	0	2	2

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025915	41000025915			76.8	8.4	6400	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
ORANGE	67	7	All and Rural		150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of US 15-501/NC 54 Bypass (Fordham Blvd) and SR 1900 (Old Mason Farm Rd)	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Excluded Accidents
103452213
103733659

Fiche Roads

Name	Code
FORDHAM	50010799
NC 54	30000054
OLD MASON FARM	50022364
SR 1900	40001900
US 15	20000015
US 501	20000501

Intersection Road Combinations

Name	Code	Code	Name
US 15	20000015	40001900	SR 1900
US 15	20000015	50022364	OLD MASON FARM
US 501	20000501	40001900	SR 1900
US 501	20000501	50022364	OLD MASON FARM
NC 54	30000054	40001900	SR 1900
NC 54	30000054	50022364	OLD MASON FARM
FORDHAM	50010799	40001900	SR 1900
FORDHAM	50010799	50022364	OLD MASON FARM

Study Criteria Summary

County:	ORANGE	City:	All and Rural
Date:	06/01/2010 to 05/31/2013	Study:	MW41000025985
Location:	Crash analysis at intersection of US 15-501 and SR 1902 (Manning Dr)		

Report Details

Acc No	Crash ID	Date	Accident Type					Total Damage	Injuries				Condition			Road		Trfc Ctl	
									F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102932874	07/30/2010 15:21	SIDESWIPE, SAME DIRECTION					\$ 1750	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed:	20 MPH	Dir:	N	Veh Mnvr / Ped Actn:				5	Obj Strk:						
Unit	2 : 1	Alchl/Drugs:	0	Speed:	20 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
2	102940014	08/06/2010 10:54	SIDESWIPE, SAME DIRECTION					\$ 4000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed:	15 MPH	Dir:	N	Veh Mnvr / Ped Actn:				5	Obj Strk:						
Unit	2 : 1	Alchl/Drugs:	0	Speed:	15 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
3	102953474	08/30/2010 20:05	SIDESWIPE, SAME DIRECTION					\$ 1700	0	0	0	0	1	2	1	1	0		
Unit	1 : 1	Alchl/Drugs:	0	Speed:	40 MPH	Dir:	W	Veh Mnvr / Ped Actn:				5	Obj Strk:						
Unit	2 : 2	Alchl/Drugs:	0	Speed:	40 MPH	Dir:	E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
4	102988003	09/26/2010 16:51	SIDESWIPE, OPPOSITE DIRECTION					\$ 2300	0	0	0	0	2	1	3	3	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed:	0 MPH	Dir:	W	Veh Mnvr / Ped Actn:				16	Obj Strk:						
Unit	2 : 5	Alchl/Drugs:	0	Speed:	0 MPH	Dir:	W	Veh Mnvr / Ped Actn:				16	Obj Strk:						
Unit	3 : 2	Alchl/Drugs:	0	Speed:	8 MPH	Dir:	E	Veh Mnvr / Ped Actn:				16	Obj Strk:						
5	102986451	10/10/2010 17:53	REAR END, SLOW OR STOP					\$ 3000	0	0	0	1	1	1	1	4	0	3	1
Unit	1 : 1	Alchl/Drugs:	0	Speed:	0 MPH	Dir:	N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drugs:	0	Speed:	30 MPH	Dir:	S	Veh Mnvr / Ped Actn:				11	Obj Strk:						
6	103037395	11/17/2010 09:13	REAR END, SLOW OR STOP					\$ 1000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 2	Alchl/Drugs:	0	Speed:	3 MPH	Dir:	E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drugs:	0	Speed:	3 MPH	Dir:	E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
7	103077806	01/15/2011 15:04	ANIMAL					\$ 1800	0	0	0	0	1	1	1	3	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed:	35 MPH	Dir:	SW	Veh Mnvr / Ped Actn:				4	Obj Strk:				17		
8	103108441	03/01/2011 17:05	REAR END, SLOW OR STOP					\$ 1400	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drugs:	0	Speed:	20 MPH	Dir:	S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drugs:	0	Speed:	25 MPH	Dir:	S	Veh Mnvr / Ped Actn:				11	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	103179185	05/28/2011 15:30	REAR END, SLOW OR STOP	\$ 11500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 3	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
10	103217114	07/22/2011 16:00	REAR END, SLOW OR STOP	\$ 9500	0	0	0	1	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
11	103219010	07/24/2011 08:19	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	2	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
12	103250114	09/06/2011 09:20	REAR END, SLOW OR STOP	\$ 11600	0	0	0	1	2	1	3	1	0		
Unit	1 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
13	103251310	09/08/2011 14:29	SIDESWIPE, SAME DIRECTION	\$ 8000	0	0	0	1	1	1	1	3	0	3	1
Unit	1 : 10	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				5	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk: 33						
14	103279107	10/09/2011 13:49	REAR END, SLOW OR STOP	\$ 1200	0	0	0	1	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
15	103310530	11/03/2011 05:56	REAR END, SLOW OR STOP	\$ 2200	0	0	0	0	1	4	1	1	0		
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 5	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				7	Obj Strk:						
16	103310660	11/04/2011 12:28	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	2	1	3	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
17	103350412	12/15/2011 14:20	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	103351456	12/18/2011 16:11	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	2	1	3	11	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
19	103381967	01/27/2012 16:50	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
20	103383086	01/29/2012 10:59	REAR END, SLOW OR STOP	\$ 1250	0	0	0	0	1	1	1	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
21	103383084	01/29/2012 11:48	REAR END, SLOW OR STOP	\$ 1250	0	0	0	0	1	1	1	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
22	103390788	02/12/2012 03:20	REAR END, SLOW OR STOP	\$ 1400	0	0	0	0	1	5	1	3	0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 50 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
23	103457477	05/18/2012 09:26	REAR END, SLOW OR STOP	\$ 200	0	0	0	1	1	1	1	3	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn:				12	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
24	103462732	05/27/2012 13:56	REAR END, SLOW OR STOP	\$ 7150	0	0	0	0	1	1	2	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: NE	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 2	Alchl/Drgs: 0	Speed: 45 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
25	103471819	06/05/2012 07:49	REAR END, SLOW OR STOP	\$ 2200	0	0	0	0	1	1	2	3	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
26	103481374	06/18/2012 14:40	REAR END, SLOW OR STOP	\$ 1100	0	0	0	1	1	1	1		0	2	2
Unit	1 : 5	Alchl/Drgs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
27	103489752	06/22/2012 19:44	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	2	1	3	3	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 32	Alchl/Drgs: 7	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
28	103510025	07/19/2012 18:25	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	2	1	3	3	0	12	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
29	103519450	08/06/2012 22:52	REAR END, SLOW OR STOP	\$ 4500	0	0	0	1	2	4	3	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
30	103548405	09/11/2012 17:13	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	1	1	0	0	2
Unit	1 : 2	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
31	103573100	09/28/2012 19:32	REAR END, SLOW OR STOP	\$ 1000	0	0	0	1	2	4	3	4	0	0	2
Unit	1 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
32	103622768	11/23/2012 13:48	REAR END, SLOW OR STOP	\$ 1250	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: E	Veh Mnvr / Ped Actn:				11	Obj Strk:						
33	103665914	01/09/2013 10:42	REAR END, SLOW OR STOP	\$ 1600	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
34	103665891	01/19/2013 12:40	REAR END, SLOW OR STOP	\$ 2700	0	0	0	2	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
35	103684146	01/28/2013 22:47	REAR END, SLOW OR STOP	\$ 3500	0	0	0	2	1	4	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
36	103685429	02/06/2013 16:53	REAR END, TURN	\$ 700	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 3 MPH Dir: NE	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	3 : 32	Alchl/Drgs: 7	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				16	Obj Strk:						

37	103708187	03/02/2013 13:54	REAR END, SLOW OR STOP	\$ 18000	0	0	0	1	1	1	2	4	0	3	1
Unit	1 : 10	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 12	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				16	Obj Strk:						

38	103704988	03/06/2013 19:56	REAR END, SLOW OR STOP	\$ 6500	0	0	0	1	1	4	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						

39	103746219	05/01/2013 12:16	REAR END, SLOW OR STOP	\$ 6000	0	0	0	2	1	1	2	3	0	0	
Unit	1 : 5	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 5	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				5	Obj Strk:						

40	103751446	05/09/2013 16:57	REAR END, SLOW OR STOP	\$ 2600	0	0	0	0	1	7	1	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						

41	103766680	05/28/2013 10:31	REAR END, SLOW OR STOP	\$ 9500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 10	Alchl/Drgs: 0	Speed: 40 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	41	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	14	34.15
Total Injury Crashes	14	34.15
Property Damage Only Crashes	27	65.85
Night Crashes	6	14.63
Wet Crashes	7	17.07
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	41	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	14	34.15
Property Damage Only Crashes	27	65.85

Vehicle Exposure Statistics

Annual ADT = 52600

Total Vehicle Exposure = 57.65 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	71.12
Fatal Crash Rate	0.00
Non Fatal Crash Rate	24.28
Night Crash Rate	10.41
Wet Crash Rate	12.14
EPDO Rate	250.83

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.53
EPDO Crash Index =	144.60
Estimated Property Damage Total = \$	149850.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANIMAL	1	2.44
REAR END, SLOW OR STOP	34	82.93
REAR END, TURN	1	2.44
SIDESWIPE, OPPOSITE DIRECTION	1	2.44
SIDESWIPE, SAME DIRECTION	4	9.76

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	17	100.00
Total Non-Fatal Injuries	17	100.00
Total Injuries	17	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	7	17.07
Feb	2	4.88
Mar	3	7.32
Apr	0	0.00
May	6	14.63
Jun	3	7.32
Jul	4	9.76
Aug	3	7.32
Sep	5	12.20
Oct	2	4.88
Nov	4	9.76
Dec	2	4.88

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	4	9.76
Tue	5	12.20
Wed	5	12.20
Thu	5	12.20
Fri	9	21.95
Sat	4	9.76
Sun	9	21.95

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	1	2.44
0400-0459	0	0.00
0500-0559	1	2.44
0600-0659	0	0.00
0700-0759	1	2.44
0800-0859	1	2.44
0900-0959	3	7.32
1000-1059	4	9.76
1100-1159	1	2.44
1200-1259	3	7.32
1300-1359	4	9.76
1400-1459	3	7.32
1500-1559	3	7.32
1600-1659	6	14.63
1700-1759	3	7.32
1800-1859	1	2.44
1900-1959	3	7.32
2000-2059	1	2.44
2100-2159	0	0.00
2200-2259	2	4.88
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	27	5	0	32
Dark	4	2	0	6
Other	3	0	0	3
Total	34	7	0	41

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	1	50.00
TREE	1	50.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	1.19
PASSENGER CAR	53	63.10
PICKUP	9	10.71
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	3	3.57
SPORT UTILITY	8	9.52
TRUCK/TRAILER	1	1.19
UNKNOWN	2	2.38
VAN	7	8.33

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	6	0	1	5
2011	12	0	4	8
2012	14	0	4	10
2013	9	0	5	4
Total	41	0	14	27

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	1
2011	0	4
2012	0	4
2013	0	8
Total	0	17

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 13750	13.40
2011	\$ 55700	41.60
2012	\$ 29300	43.60
2013	\$ 51100	46.00
Total	\$ 149850	144.60

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	0	2	0	0	4	0
2011	0	0	10	0	0	1	1
2012	0	0	14	0	0	0	0
2013	0	0	9	0	0	0	0
Total	0	0	35	0	0	5	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025985	41000025985			76.8	8.4	52600	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
ORANGE	67	7	All and Rural		150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of US 15-501 and SR 1902 (Manning Dr)	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Included Accidents
103077806

Excluded Accidents
103103686
102996454

Fiche Roads

Name	Code
US 15	20000015
US 501	20000501
FORDHAM	50010799
SR 1902	40001902
MANNING	50018780

Intersection Road Combinations

Name	Code	Code	Name
US 15	20000015	40001902	SR 1902
US 15	20000015	50018780	MANNING
US 501	20000501	40001902	SR 1902
US 501	20000501	50018780	MANNING
FORDHAM	50010799	40001902	SR 1902
FORDHAM	50010799	50018780	MANNING

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000026007
Location: Crash analysis at intersection of US 15-501 and Willow Dr.

Report Details

Acc No	Crash ID	Date	Accident Type				Total Damage	Injuries				Condition			Road		Trfc Ctl	
								F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	102913642	07/01/2010 12:06	REAR END, SLOW OR STOP				\$ 6500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	35 MPH	Dir:	S	Veh Mnvr / Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	S	Veh Mnvr / Ped Actn:				1	Obj Strk:					
2	102913871	07/05/2010 16:59	REAR END, SLOW OR STOP				\$ 2500	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	10 MPH	Dir:	E	Veh Mnvr / Ped Actn:				12	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	E	Veh Mnvr / Ped Actn:				1	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	E	Veh Mnvr / Ped Actn:				1	Obj Strk:					
3	102940029	08/07/2010 23:15	LEFT TURN, SAME ROADWAY				\$ 2600	0	0	0	1	1	5	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs:	1	Speed:	15 MPH	Dir:	N	Veh Mnvr / Ped Actn:				9	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed:	45 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:					
4	102941488	08/10/2010 16:08	REAR END, SLOW OR STOP				\$ 1350	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	E	Veh Mnvr / Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	5 MPH	Dir:	E	Veh Mnvr / Ped Actn:				4	Obj Strk:					
5	102945224	08/12/2010 13:22	ANGLE				\$ 4000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	30 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed:	40 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:					
6	102945538	08/15/2010 13:31	ANGLE				\$ 3800	0	0	0	2	1	1	1	3	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	E	Veh Mnvr / Ped Actn:				8	Obj Strk:					
7	102978137	09/24/2010 06:42	SIDESWIPE, OPPOSITE DIRECTION				\$ 3000	0	0	0	0	1	3	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	0 MPH	Dir:	S	Veh Mnvr / Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	20 MPH	Dir:	N	Veh Mnvr / Ped Actn:				8	Obj Strk:					
8	103036586	12/01/2010 13:01	LEFT TURN, SAME ROADWAY				\$ 9000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 20	Alchl/Drgs:	4	Speed:	45 MPH	Dir:	N	Veh Mnvr / Ped Actn:				4	Obj Strk:					

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: SE	Veh Mnvr / Ped Actn: 8	Obj Strk:										
9	103062765	12/23/2010 16:05	REAR END, SLOW OR STOP	\$ 2500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn: 4	Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn: 1	Obj Strk:										
10	103074136	01/05/2011 07:47	OTHER COLLISION WITH VEHICLE	\$ 8000	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 5	Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 4	Obj Strk:										
11	103072851	01/10/2011 17:09	SIDESWIPE, SAME DIRECTION	\$ 8000	0	0	0	0	2	2	4	3	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1	Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 5	Obj Strk:										
12	103088526	02/03/2011 17:23	PEDESTRIAN	\$ 50	0	0	1	0	1	2	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4	Obj Strk: 14										
Unit	2 : 24	Alchl/Drgs: 0	Speed: 0 MPH Dir:	Veh Mnvr / Ped Actn:	Obj Strk: 14										
13	103119503	03/19/2011 13:31	LEFT TURN, DIFFERENT ROADWAYS	\$ 9200	0	0	1	0	1	1	1	3	0	3	1
Unit	1 : 20	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 4	Obj Strk:										
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 8	Obj Strk:										
14	103123100	03/23/2011 07:25	LEFT TURN, SAME ROADWAY	\$ 11000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4	Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn: 8	Obj Strk:										
15	103142193	04/14/2011 17:34	REAR END, SLOW OR STOP	\$ 1400	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 2	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 4	Obj Strk:										
Unit	2 : 5	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 11	Obj Strk:										
16	103182983	06/01/2011 17:37	REAR END, SLOW OR STOP	\$ 16500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1	Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1	Obj Strk:										
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 4	Obj Strk:										
17	103186269	06/06/2011 15:08	LEFT TURN, DIFFERENT ROADWAYS	\$ 11500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: SW	Veh Mnvr / Ped Actn: 4	Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn: 8	Obj Strk:										

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	103186381	06/07/2011 11:06	SIDESWIPE, SAME DIRECTION	\$ 4000	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 5	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				5	Obj Strk:						
19	103193008	06/10/2011 13:39	REAR END, SLOW OR STOP	\$ 10500	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
20	103218900	07/20/2011 13:26	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
21	103230590	08/11/2011 12:10	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	3	12	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
22	103257745	09/14/2011 03:14	ANGLE	\$ 9300	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 40 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	3 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				8	Obj Strk:						
23	103260951	09/14/2011 14:48	REAR END, SLOW OR STOP	\$ 14000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: NE	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	3 : 5	Alchl/Drgs: 0	Speed: 35 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	4 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: NE	Veh Mnvr / Ped Actn:				4	Obj Strk:						
24	103293373	10/18/2011 14:13	ANGLE	\$ 19775	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk: 55						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk: 18						
25	103321203	11/11/2011 13:30	REAR END, SLOW OR STOP	\$ 1700	0	0	0	3	1	1	1	1	0	3	1
Unit	1 : 3	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
26	103335764	11/30/2011 18:52	REAR END, SLOW OR STOP	\$ 1800	0	0	0	0	1	6	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn:				11	Obj Strk:						
27	103336179	12/02/2011 17:19	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	2	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
28	103366914	01/11/2012 19:56	ANGLE	\$ 5500	0	0	0	0	2	4	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: NW	Veh Mnvr / Ped Actn:				8	Obj Strk:						
29	103424975	03/29/2012 17:25	REAR END, SLOW OR STOP	\$ 1950	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
30	103428698	04/04/2012 17:00	LEFT TURN, DIFFERENT ROADWAYS	\$ 1900	0	0	0	0	2	7	3	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: NW	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
31	103435065	04/13/2012 13:00	REAR END, TURN	\$ 0	0	0	0	1	1	1	1	1	0		2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:				8	Obj Strk:						
32	103557105	09/23/2012 10:50	LEFT TURN, SAME ROADWAY	\$ 750	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 23	Alchl/Drgs: 0	Speed: 0 MPH Dir:	Veh Mnvr / Ped Actn:					Obj Strk:						
33	103630204	12/06/2012 06:34	SIDESWIPE, OPPOSITE DIRECTION	\$ 2030	0	0	0	2	1	3	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn:				4	Obj Strk:						
34	103638411	12/15/2012 13:23	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
35	103651912	12/21/2012 15:52	ANGLE	\$ 1750	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
36	103665904	01/09/2013 08:33	BACKING UP	\$ 3100	0	0	0	1	1	1	1	1	0		
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 10		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1		Obj Strk:									
37	103684345	02/03/2013 02:40	RAN OFF ROAD - RIGHT	\$ 12000	0	0	1	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 5	Speed: 50 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk: 36									
38	103678928	02/06/2013 12:59	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 32	Alchl/Drgs: 7	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
39	103679302	02/07/2013 13:23	ANGLE	\$ 5000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
40	103694886	02/25/2013 21:52	SIDESWIPE, SAME DIRECTION	\$ 2000	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn: 7		Obj Strk:									
Unit	2 : 32	Alchl/Drgs: 7	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
41	103698340	02/28/2013 18:55	ANGLE	\$ 14000	0	0	0	1	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4		Obj Strk:									
42	103711964	03/16/2013 21:50	LEFT TURN, DIFFERENT ROADWAYS	\$ 0	0	0	0	1	1	4	1	3	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: NE	Veh Mnvr / Ped Actn: 8		Obj Strk:									
43	103726590	04/02/2013 16:15	PEDALCYCLIST	\$ 0	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 8		Obj Strk: 15									
Unit	2 : 23	Alchl/Drgs: 0	Speed: 0 MPH Dir:	Veh Mnvr / Ped Actn:		Obj Strk: 15									
44	103735633	04/22/2013 20:14	ANGLE	\$ 9000	0	0	1	0	1	4	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn: 8		Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					
45	103761846	05/22/2013 10:51	REAR END, SLOW OR STOP	\$ 2700	0	0	0	1	1	1	2	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn:					11	Obj Strk:					
Unit	2 : 4	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn:					4	Obj Strk:					

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	45	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	18	40.00
Total Injury Crashes	18	40.00
Property Damage Only Crashes	27	60.00
Night Crashes	8	17.78
Wet Crashes	3	6.67
Alcohol/Drugs Involvement Crashes	2	4.44

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	45	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	4	8.89
Class C Crashes	14	31.11
Property Damage Only Crashes	27	60.00

Vehicle Exposure Statistics

Annual ADT = 29200

Total Vehicle Exposure = 32 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	140.61
Fatal Crash Rate	0.00
Non Fatal Crash Rate	56.24
Night Crash Rate	25.00
Wet Crash Rate	9.37
EPDO Rate	556.82

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.96
EPDO Crash Index =	178.20
Estimated Property Damage Total = \$	236655.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	9	20.00
BACKING UP	1	2.22
LEFT TURN, DIFFERENT ROADWAYS	4	8.89
LEFT TURN, SAME ROADWAY	4	8.89
OTHER COLLISION WITH VEHICLE	1	2.22
PEDALCYCLIST	1	2.22
PEDESTRIAN	1	2.22
RAN OFF ROAD - RIGHT	1	2.22
REAR END, SLOW OR STOP	17	37.78
REAR END, TURN	1	2.22
SIDESWIPE, OPPOSITE DIRECTION	2	4.44
SIDESWIPE, SAME DIRECTION	3	6.67

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	4	18.18
Class C Injuries	18	81.82
Total Non-Fatal Injuries	22	100.00
Total Injuries	22	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	4	8.89
Feb	6	13.33
Mar	4	8.89
Apr	5	11.11
May	1	2.22
Jun	4	8.89
Jul	3	6.67
Aug	5	11.11
Sep	4	8.89
Oct	1	2.22
Nov	2	4.44
Dec	6	13.33

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	5	11.11
Tue	4	8.89
Wed	13	28.89
Thu	10	22.22
Fri	6	13.33
Sat	4	8.89
Sun	3	6.67

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	1	2.22
0300-0359	1	2.22
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	2	4.44
0700-0759	2	4.44
0800-0859	1	2.22
0900-0959	0	0.00
1000-1059	2	4.44
1100-1159	1	2.22
1200-1259	3	6.67
1300-1359	10	22.22
1400-1459	2	4.44
1500-1559	2	4.44
1600-1659	4	8.89
1700-1759	7	15.56
1800-1859	2	4.44
1900-1959	1	2.22
2000-2059	1	2.22
2100-2159	2	4.44
2200-2259	0	0.00
2300-2359	1	2.22

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	31	0	0	31
Dark	7	1	0	8
Other	4	2	0	6
Total	42	3	0	45

Object Struck Summary

Object Type	Times Struck	Percent of Total
LUMINAIRE POLE BREAKAWAY	1	14.29
MOVABLE OBJECT	1	14.29
PEDALCYCLIST	2	28.57
PEDESTRIAN	2	28.57
TRAFFIC ISLAND CURB OR MEDIAN	1	14.29

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	1.01
MOTORCYCLE	2	2.02
PASSENGER CAR	65	65.66
PEDALCYCLE	2	2.02
PEDESTRIAN	1	1.01
PICKUP	4	4.04
SPORT UTILITY	17	17.17
UNKNOWN	2	2.02
VAN	5	5.05

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	9	0	5	4
2011	18	0	4	14
2012	8	0	3	5
2013	10	0	6	4
Total	45	0	18	27

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	6
2011	0	6
2012	0	4
2013	0	6
Total	0	22

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 35250	46.00
2011	\$ 134225	47.60
2012	\$ 17380	30.20
2013	\$ 49800	54.40
Total	\$ 236655	178.20

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	2	0	4	0	2	1	0
2011	3	0	9	0	2	2	2
2012	2	0	3	0	2	1	0
2013	1	0	2	1	3	1	2
Total	8	0	18	1	9	5	4

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000026007	41000026007			76.8	8.4	29200	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
08/08/2013		828 265 4706		919-546 9421

County			Municipality			Y-Line Ft.	Begin Date	End Date	Years
Name	Code	Div.	Name	Code					
ORANGE	67	7	All and Rural			150	06/01/2010	05/31/2013	3.00

Location Text	Requestor
Crash analysis at intersection of US 15-501 and Willow Dr.	Mr. Craig Scheffler, PE HNTB North Carolina, PC 343 E Six Forks

Included Accidents
103062765

Excluded Accidents
102898973

Fiche Roads

Name	Code
US 15	20000015
US 501	20000501
FORDHAM	50010799
WILLOW	50033137

Intersection Road Combinations

Name	Code	Code	Name
US 15	20000015	50033137	WILLOW
US 501	20000501	50033137	WILLOW
FORDHAM	50010799	50033137	WILLOW

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Study Criteria Summary

County: ORANGE **City:** All and Rural
Date: 06/01/2010 to 05/31/2013 **Study:** MW41000025916A
Location: Crash analysis on US 15-501 (Fordham Blvd) from SR 1900 (Old Mason Farm Rd) to Cleland Rd.

Report Details

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	103390969	4.339	02/13/2012 18:28	REAR END, SLOW OR STOP	\$ 1400	0	0	0	0	1	4	1	1	0	3	2
Unit	1 : 1	Alchl/Drgs:	0	Speed: 35 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 35 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
2	103412064	4.339	03/15/2012 18:18	REAR END, SLOW OR STOP	\$ 1700	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 10 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
3	103412781	4.339	03/19/2012 17:50	REAR END, SLOW OR STOP	\$ 5300	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 20 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	4 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					
4	103424964	4.339	03/29/2012 17:18	REAR END, SLOW OR STOP	\$ 3500	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed: 35 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				11	Obj Strk:					
5	103422998	4.339	04/08/2012 20:24	REAR END, SLOW OR STOP	\$ 3700	0	0	0	0	1	4	1	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 15 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed: 20 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					
6	103704009	4.339	03/09/2013 10:11	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	3	
Unit	1 : 5	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 5	Alchl/Drgs:	0	Speed: 15 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
7	103581120	4.344	10/12/2012 15:37	REAR END, SLOW OR STOP	\$ 8800	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed: 30 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
8	103235538	4.348	08/19/2011 14:29	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 0 MPH	Dir: SW	Veh Mnvr/Ped Actn: 1		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 20 MPH	Dir: SW	Veh Mnvr/Ped Actn: 4		Obj Strk:									
9	103675618	4.348	01/26/2013 11:59	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	2	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 11		Obj Strk:									
Unit	2 : 4	Alchl/Drugs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4		Obj Strk:									
10	103324626	4.352	11/18/2011 11:04	REAR END, SLOW OR STOP	\$ 1600	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 5 MPH	Dir: S	Veh Mnvr/Ped Actn: 12		Obj Strk:									
Unit	2 : 4	Alchl/Drugs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1		Obj Strk:									
11	102946673	4.369	08/16/2010 02:35	REAR END, SLOW OR STOP	\$ 5300	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 11	Alchl/Drugs: 0	Speed: 2 MPH	Dir: S	Veh Mnvr/Ped Actn: 1		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 7	Speed: 45 MPH	Dir: S	Veh Mnvr/Ped Actn: 4		Obj Strk:									
12	103291320	4.386	10/16/2011 12:48	REAR END, SLOW OR STOP	\$ 11000	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 3	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4		Obj Strk:									
13	103452213	4.389	05/12/2012 08:36	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	1	0		
Unit	1 : 1	Alchl/Drugs: 0	Speed: 5 MPH	Dir: N	Veh Mnvr/Ped Actn: 11		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 30 MPH	Dir: N	Veh Mnvr/Ped Actn: 4		Obj Strk:									
14	103309382	4.391	11/02/2011 15:49	REAR END, SLOW OR STOP	\$ 1100	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 11		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 35 MPH	Dir: N	Veh Mnvr/Ped Actn: 4		Obj Strk:								58	
15	103585927	4.396	10/17/2012 15:37	REAR END, SLOW OR STOP	\$ 14800	0	0	0	0	1	1	1	3	0	3	1
Unit	1 : 3	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 1		Obj Strk:									
Unit	3 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 11		Obj Strk:									
Unit	4 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N	Veh Mnvr/Ped Actn: 4		Obj Strk:									
16	103733659	4.396	04/19/2013 13:47	REAR END, SLOW OR STOP	\$ 1250	0	0	0	0	1	1	2	1	0	0	3
Unit	1 : 1	Alchl/Drugs: 0	Speed: 10 MPH	Dir: S	Veh Mnvr/Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1		Obj Strk:									
Unit	3 : 4	Alchl/Drugs: 0	Speed: 0 MPH	Dir: S	Veh Mnvr/Ped Actn: 1		Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
17	103107526	4.439	02/27/2011 16:39	REAR END, SLOW OR STOP	\$ 7000	0	0	0	3	1	1	2	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 35 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
18	103296079	4.439	10/21/2011 17:03	REAR END, SLOW OR STOP	\$ 13500	0	0	2	0	1	1	1	1	0		
Unit	1 : 1	Alchl/Drgs:	0	Speed: 50 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	4 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
19	103654151	4.439	12/21/2012 14:06	REAR END, SLOW OR STOP	\$ 10000	0	0	1	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 45 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 30 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed: 25 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					
20	103320072	4.489	11/09/2011 07:42	REAR END, SLOW OR STOP	\$ 4300	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 3	Alchl/Drgs:	0	Speed: 35 MPH Dir: N		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed: 35 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
21	103557054	4.539	09/22/2012 20:20	REAR END, SLOW OR STOP	\$ 1700	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed: 20 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
22	103666934	4.539	01/11/2013 07:48	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	2	1	3	1	0		2
Unit	1 : 5	Alchl/Drgs:	0	Speed: 30 MPH Dir: N		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
23	103671737	4.539	01/11/2013 07:48	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	2	1	3	1	0		2
Unit	1 : 32	Alchl/Drgs:	7	Speed: 30 MPH Dir: N		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	3 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
24	102984790	4.639	10/07/2010 08:43	SIDESWIPE, SAME DIRECTION	\$ 3000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 2	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 43 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
25	103345021	4.689	12/14/2011 07:34	ANIMAL	\$ 1200	0	0	0	0	1	1	2	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:	17		
26	103542352	4.689	09/01/2012 00:45	RAN OFF ROAD - RIGHT	\$ 15000	0	0	0	1	1	5	1	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 45 MPH Dir: S		Veh Mnvr/Ped Actn:				4			Obj Strk:	18		
27	102956692	4.698	09/01/2010 17:13	REAR END, SLOW OR STOP	\$ 2400	0	0	0	0	1	1	1	1	0		
Unit	1 : 1	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				16			Obj Strk:			
Unit	2 : 1	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				16			Obj Strk:			
28	103757585	4.739	05/15/2013 17:09	REAR END, SLOW OR STOP	\$ 2300	0	0	0	0	1	1	1	3	0		
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1			Obj Strk:			
Unit	2 : 1	Alchl/Drgs:	0	Speed: 15 MPH Dir: S		Veh Mnvr/Ped Actn:				4			Obj Strk:			
Unit	3 : 32	Alchl/Drgs:	7	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1			Obj Strk:			
29	102926890	4.802	07/23/2010 12:25	REAR END, SLOW OR STOP	\$ 1025	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				11			Obj Strk:			
Unit	2 : 1	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				11			Obj Strk:			
30	102947651	4.839	08/20/2010 18:59	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 20 MPH Dir: S		Veh Mnvr/Ped Actn:				11			Obj Strk:			
Unit	2 : 1	Alchl/Drgs:	0	Speed: 30 MPH Dir: S		Veh Mnvr/Ped Actn:				11			Obj Strk:			
31	102984787	4.839	10/07/2010 17:41	REAR END, SLOW OR STOP	\$ 500	0	0	0	1	1	1	1	1	0		
Unit	1 : 4	Alchl/Drgs:	0	Speed: 10 MPH Dir: S		Veh Mnvr/Ped Actn:				4			Obj Strk:			
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1			Obj Strk:			
32	103098351	4.839	02/07/2011 09:52	RAN OFF ROAD - LEFT	\$ 13000	0	0	0	2	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 55 MPH Dir: S		Veh Mnvr/Ped Actn:				4			Obj Strk:	33		
Unit	2 : 2	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
Unit	3 : 9	Alchl/Drgs:	0	Speed: 40 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
33	103142229	4.839	04/14/2011 14:06	REAR END, SLOW OR STOP	\$ 5500	0	0	0	1	1	1	1	1	0		
Unit	1 : 1	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
Unit	2 : 1	Alchl/Drgs:	0	Speed: 35 MPH Dir: N		Veh Mnvr/Ped Actn:				11			Obj Strk:			
Unit	3 : 1	Alchl/Drgs:	0	Speed: 30 MPH Dir: N		Veh Mnvr/Ped Actn:				11			Obj Strk:			

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
34	103365795	4.839	01/07/2012 17:24	REAR END, SLOW OR STOP	\$ 6500	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drugs: 0	Speed: 25 MPH	Dir: N		Veh Mnvr/Ped Actn: 11				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 50 MPH	Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						
35	103584176	4.839	10/18/2012 12:18	REAR END, SLOW OR STOP	\$ 2800	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 45 MPH	Dir: S		Veh Mnvr/Ped Actn: 11				Obj Strk:						
Unit	2 : 4	Alchl/Drugs: 0	Speed: 45 MPH	Dir: S		Veh Mnvr/Ped Actn: 4				Obj Strk:						
36	102970774	4.844	09/18/2010 16:28	REAR END, SLOW OR STOP	\$ 13000	0	0	1	0	1	1	1	1	0	0	
Unit	1 : 5	Alchl/Drugs: 0	Speed: 35 MPH	Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 4	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N		Veh Mnvr/Ped Actn: 1				Obj Strk:						
37	103363197	4.844	10/29/2011 16:04	ANGLE	\$ 850	0	0	0	0	1	1	2	1	0	1	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 45 MPH	Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 7	Speed: 25 MPH	Dir: W		Veh Mnvr/Ped Actn: 4				Obj Strk:						
38	103001580	4.863	10/27/2010 19:00	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	5	2	1	0	0	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 45 MPH	Dir: S		Veh Mnvr/Ped Actn: 11				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 45 MPH	Dir: S		Veh Mnvr/Ped Actn: 4				Obj Strk:						
39	102984788	4.889	10/07/2010 14:57	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 25 MPH	Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 20 MPH	Dir: N		Veh Mnvr/Ped Actn: 11				Obj Strk:						
40	103319602	4.889	11/08/2011 14:12	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: SW		Veh Mnvr/Ped Actn: 1				Obj Strk:						
Unit	2 : 4	Alchl/Drugs: 0	Speed: 35 MPH	Dir: SW		Veh Mnvr/Ped Actn: 4				Obj Strk:						
41	103427748	4.890	04/02/2012 08:59	REAR END, SLOW OR STOP	\$ 1800	0	0	0	0	1	1	1	3	0	0	
Unit	1 : 4	Alchl/Drugs: 0	Speed: 0 MPH	Dir: S		Veh Mnvr/Ped Actn: 1				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 20 MPH	Dir: S		Veh Mnvr/Ped Actn: 4				Obj Strk:						
42	103098360	4.902	02/09/2011 07:52	REAR END, SLOW OR STOP	\$ 6500	0	0	0	1	1	1	1	3	0		2
Unit	1 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N		Veh Mnvr/Ped Actn: 1				Obj Strk:						
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N		Veh Mnvr/Ped Actn: 1				Obj Strk:						
Unit	3 : 1	Alchl/Drugs: 0	Speed: 0 MPH	Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
43	103579899	4.911	10/17/2012 17:20	REAR END, SLOW OR STOP	\$ 23300	0	0	0	1	1	1	1	1	0	0	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed: 15 MPH Dir: N		Veh Mnvr/Ped Actn:				11	Obj Strk:					
44	103637550	4.915	12/12/2012 18:46	REAR END, SLOW OR STOP	\$ 5000	0	0	0	1	2	5	3	1	0	0	
Unit	1 : 2	Alchl/Drgs:	0	Speed: 40 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed: 40 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					
45	103615561	4.930	11/20/2012 17:22	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	4	1	1	0		2
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	7	Speed: 40 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
46	103675225	4.930	02/01/2013 16:40	SIDESWIPE, SAME DIRECTION	\$ 1200	0	0	0	1	1	1	1	1	0		
Unit	1 : 2	Alchl/Drgs:	0	Speed: 25 MPH Dir: S		Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 25 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
47	103735632	4.930	04/22/2013 11:19	REAR END, SLOW OR STOP	\$ 1500	0	0	0	1	1	1	1	7	0		2
Unit	1 : 1	Alchl/Drgs:	0	Speed: 5 MPH Dir: E		Veh Mnvr/Ped Actn:				12	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				11	Obj Strk:					
48	103573882	4.939	10/10/2012 09:09	SIDESWIPE, SAME DIRECTION	\$ 1100	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 15 MPH Dir: N		Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed: 40 MPH Dir: N		Veh Mnvr/Ped Actn:				5	Obj Strk:					
49	103029951	4.943	11/22/2010 12:58	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 25 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
50	103534008	4.948	08/23/2012 16:50	REAR END, SLOW OR STOP	\$ 16200	0	0	0	3	1	1	1	1	0		
Unit	1 : 2	Alchl/Drgs:	0	Speed: 45 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	3 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	4 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	5 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
51	103563181	4.948	10/01/2012 08:54	REAR END, SLOW OR STOP	\$ 3100	0	0	0	0	2	1	3	1	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 5	Alchl/Drgs:	0	Speed: 30 MPH Dir: S		Veh Mnvr/Ped Actn:				11	Obj Strk:					
52	103283824	4.967	10/10/2011 15:54	REAR END, SLOW OR STOP	\$ 1100	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 8 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
53	103172370	4.977	05/16/2011 13:14	PEDESTRIAN	\$ 0	0	0	0	1	1	1	1	1	0		3
Unit	1 : 23	Alchl/Drgs:	0	Speed: 0 MPH Dir:		Veh Mnvr/Ped Actn:					Obj Strk: 15					
Unit	2 : 32	Alchl/Drgs:	7	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk: 15					
54	103122476	4.980	03/22/2011 15:59	ANIMAL	\$ 1200	0	0	0	0	1	1	1	2	0		
Unit	1 : 1	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk: 17					
55	103077619	4.986	01/14/2011 13:00	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	3	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 10 MPH Dir: E		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				1	Obj Strk:					
56	103667739	4.989	01/23/2012 09:15	REAR END, SLOW OR STOP	\$ 3200	0	0	0	0	1	1	1	1	0		
Unit	1 : 14	Alchl/Drgs:	0	Speed: 15 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: S		Veh Mnvr/Ped Actn:				1	Obj Strk:					
57	102970791	5.037	09/20/2010 12:52	RIGHT TURN, DIFFERENT ROADWAYS	\$ 7800	0	0	0	0	1	1	1	6	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 45 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk: 33					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 10 MPH Dir: S		Veh Mnvr/Ped Actn:				7	Obj Strk:					
58	103036320	5.037	12/03/2010 20:50	REAR END, TURN	\$ 2300	0	0	0	0	1	6	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: W		Veh Mnvr/Ped Actn:				16	Obj Strk:					
Unit	2 : 17	Alchl/Drgs:	0	Speed: 45 MPH Dir: W		Veh Mnvr/Ped Actn:				7	Obj Strk:					
59	103248433	5.037	09/02/2011 18:24	ANGLE	\$ 20600	0	0	0	0	1	1	1	6	0	3	2
Unit	1 : 1	Alchl/Drgs:	0	Speed: 30 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed: 30 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
60	103015140	5.139	11/07/2010 01:04	RAN OFF ROAD - RIGHT	\$ 7000	0	0	0	0	2	4	2	1	0		
Unit	1 : 4	Alchl/Drgs:	1	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				5	Obj Strk: 33					

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
61	103126992	5.359	03/26/2011 12:16	REAR END, SLOW OR STOP	\$ 2500	0	0	0	0	1	1	2	1	0	0	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr/Ped Actn: 11			Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr/Ped Actn: 11			Obj Strk:									
62	103734638	5.370	04/20/2013 17:35	RAN OFF ROAD - LEFT	\$ 4200	0	0	0	0	1	1	1	1	0	0	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr/Ped Actn: 4			Obj Strk: 55									
63	103130847	5.389	04/02/2011 17:06	ANGLE	\$ 3000	0	0	0	1	1	1	1	1	0		
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: E	Veh Mnvr/Ped Actn: 8			Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr/Ped Actn: 4			Obj Strk:									
64	103721151	5.391	03/27/2013 20:06	LEFT TURN, SAME ROADWAY	\$ 10700	0	0	0	0	1	1	1	3	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 50 MPH Dir: N	Veh Mnvr/Ped Actn: 4			Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: SE	Veh Mnvr/Ped Actn: 8			Obj Strk:									
Unit	3 : 3	Alchl/Drgs: 0	Speed: 25 MPH Dir: W	Veh Mnvr/Ped Actn: 1			Obj Strk:									
65	103343811	5.392	12/12/2011 15:33	RIGHT TURN, DIFFERENT ROADWAYS	\$ 4000	0	0	0	0	1	1	2	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: NW	Veh Mnvr/Ped Actn: 7			Obj Strk:									
Unit	2 : 5	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr/Ped Actn: 4			Obj Strk:									
66	103527011	5.408	08/16/2012 13:52	REAR END, SLOW OR STOP	\$ 9000	0	0	1	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr/Ped Actn: 4			Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr/Ped Actn: 1			Obj Strk:									
67	103039412	5.419	11/29/2010 00:12	RAN OFF ROAD - RIGHT	\$ 12000	0	0	0	0	1	6	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: NE	Veh Mnvr/Ped Actn: 4			Obj Strk: 58									
68	103216411	5.419	07/23/2011 09:32	ANGLE	\$ 14000	0	0	0	1	1	1	1	3	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr/Ped Actn: 4			Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr/Ped Actn: 4			Obj Strk:									
69	103308521	5.419	11/01/2011 15:06	ANIMAL	\$ 1000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr/Ped Actn: 4			Obj Strk: 17									
70	103615899	5.419	11/17/2012 13:22	ANIMAL	\$ 1200	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr/Ped Actn: 4			Obj Strk: 17									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
71	102967919	5.439	09/17/2010 17:14	ANIMAL	\$ 2000	0	0	0	0	1	1	2	1	0		
Unit	1 : 1	Alchl/Drugs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:		17	
72	103343698	5.689	12/11/2011 05:24	RAN OFF ROAD - LEFT	\$ 10000	0	0	0	0	1	5	1	1	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed: 50 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:		38	
73	103058679	5.771	12/20/2010 11:07	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	1	0	1	
Unit	1 : 3	Alchl/Drugs:	0	Speed: 5 MPH Dir: N		Veh Mnvr/Ped Actn:				11			Obj Strk:			
Unit	2 : 3	Alchl/Drugs:	0	Speed: 15 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
74	103072844	5.776	01/07/2011 11:38	REAR END, SLOW OR STOP	\$ 3800	0	0	0	0	1	1	2	1	0		
Unit	1 : 1	Alchl/Drugs:	0	Speed: 25 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
Unit	2 : 2	Alchl/Drugs:	0	Speed: 25 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
75	103295540	5.780	10/21/2011 16:57	RIGHT TURN, DIFFERENT ROADWAYS	\$ 11600	0	0	0	2	1	1	1	1	0	1	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
Unit	2 : 1	Alchl/Drugs:	0	Speed: 0 MPH Dir: E		Veh Mnvr/Ped Actn:				4			Obj Strk:			
Unit	3 : 1	Alchl/Drugs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
76	103444561	5.780	05/01/2012 15:43	LEFT TURN, SAME ROADWAY	\$ 9500	0	0	0	3	1	1	1	3	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed: 15 MPH Dir: W		Veh Mnvr/Ped Actn:				8			Obj Strk:			
Unit	2 : 1	Alchl/Drugs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
77	103638419	5.780	12/16/2012 16:56	LEFT TURN, DIFFERENT ROADWAYS	\$ 7000	0	0	0	1	2	2	3	1	0		
Unit	1 : 1	Alchl/Drugs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:			
Unit	2 : 1	Alchl/Drugs:	0	Speed: 10 MPH Dir: S		Veh Mnvr/Ped Actn:				8			Obj Strk:			

**Legend for
Report Details:**

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drugs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	77	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	22	28.57
Total Injury Crashes	22	28.57
Property Damage Only Crashes	55	71.43
Night Crashes	11	14.29
Wet Crashes	7	9.09
Alcohol/Drugs Involvement Crashes	1	1.30

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	77	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	4	5.19
Class C Crashes	18	23.38
Property Damage Only Crashes	55	71.43

Vehicle Exposure Statistics

Annual ADT = 43700

Total Length = 1.441 (Miles) 2.319 (Kilometers)

Total Vehicle Exposure = 69.02 (MVMT) 111.07 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	111.57	69.32
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	31.88	19.81
Night Crash Rate	15.94	9.90
Wet Crash Rate	10.14	6.30
EPDO Rate	347.45	215.90

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Miscellaneous Statistics

Severity Index =	3.11
EPDO Crash Index =	239.80
Estimated Property Damage Total = \$	420925.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	4	5.19
ANIMAL	5	6.49
LEFT TURN, DIFFERENT ROADWAYS	1	1.30
LEFT TURN, SAME ROADWAY	2	2.60
PEDESTRIAN	1	1.30
RAN OFF ROAD - LEFT	3	3.90
RAN OFF ROAD - RIGHT	3	3.90
REAR END, SLOW OR STOP	51	66.23
REAR END, TURN	1	1.30
RIGHT TURN, DIFFERENT ROADWAYS	3	3.90
SIDESWIPE, SAME DIRECTION	3	3.90

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	5	16.13
Class C Injuries	26	83.87
Total Non-Fatal Injuries	31	100.00
Total Injuries	31	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	7	9.09
Feb	5	6.49
Mar	7	9.09
Apr	7	9.09
May	4	5.19
Jun	0	0.00
Jul	2	2.60
Aug	5	6.49
Sep	7	9.09
Oct	15	19.48
Nov	10	12.99
Dec	8	10.39

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	15	19.48
Tue	5	6.49
Wed	12	15.58
Thu	9	11.69
Fri	17	22.08
Sat	13	16.88
Sun	6	7.79

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	2	2.60
0100-0159	1	1.30
0200-0259	1	1.30
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	1	1.30
0600-0659	0	0.00
0700-0759	5	6.49
0800-0859	4	5.19
0900-0959	4	5.19
1000-1059	1	1.30
1100-1159	5	6.49
1200-1259	6	7.79
1300-1359	5	6.49
1400-1459	5	6.49
1500-1559	8	10.39
1600-1659	7	9.09
1700-1759	12	15.58
1800-1859	5	6.49
1900-1959	1	1.30
2000-2059	4	5.19
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	61	4	0	65
Dark	9	2	0	11
Other	0	1	0	1
Total	70	7	0	77

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	5	33.33
DITCH	2	13.33
MOVABLE OBJECT	1	6.67
OFFICIAL HIGHWAY SIGN BREAKAWAY	1	6.67
PEDALCYCLIST	2	13.33
TRAFFIC ISLAND CURB OR MEDIAN	1	6.67
TREE	3	20.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	6	3.64
OTHER BUS	1	0.61
PASSENGER CAR	104	63.03
PEDALCYCLE	1	0.61
PICKUP	13	7.88
SINGLE UNIT TRUCK (3 OR MORE AXLES)	1	0.61
SPORT UTILITY	28	16.97
TAXICAB	1	0.61
TRACTOR/SEMI-TRAILER	1	0.61
UNKNOWN	3	1.82
VAN	6	3.64

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2010	16	0	2	14
2011	26	0	9	17
2012	25	0	9	16
2013	10	0	2	8
Total	77	0	22	55

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2010	0	2
2011	0	14
2012	0	13
2013	0	2
Total	0	31

Miscellaneous Totals

Year	Property Damage	EPDO Index
2010	\$ 76325	30.80
2011	\$ 148350	92.60
2012	\$ 161100	91.60
2013	\$ 35150	24.80
Total	\$ 420925	239.80

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2010	0	1	11	2	0	1	1
2011	0	2	14	2	4	0	4
2012	2	0	20	1	0	1	1
2013	1	0	7	1	0	1	0
Total	3	3	52	6	4	3	6

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Strip Diagram

Features			Milepost	Crash IDs
BEGIN	SR 1900	OLD MASON FARM	4.34	103390969 103412064 103412781 103424964 103422998 103704009 103581120
			4.35	103235538 103675618 103324626
			4.36	
			4.37	102946673
			4.38	
			4.39	103291320 103452213 103309382
			4.40	103585927 103733659
			4.41	
			4.42	
			4.43	
			4.44	103107526 103296079 103654151
			4.45	
			4.46	
			4.47	
			4.48	
			4.49	103320072
			4.50	
			4.51	
			4.52	
			4.53	
			4.54	103557054 103666934 103671737
			4.55	
			4.56	
			4.57	
			4.58	
			4.59	
			4.60	
			4.61	
			4.62	
			4.63	
			4.64	102984790
			4.65	
			4.66	
			4.67	
			4.68	
			4.69	103345021 103542352
			4.70	102956692
			4.71	
			4.72	
NC 54 EB ON RAMP			4.73	
			4.74	103757585
			4.75	

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Features	Milepost	Crash IDs
	4.76	
	4.77	
	4.78	
	4.79	
	4.80	102926890
	4.81	
	4.82	
	4.83	
	4.84	102947651 102984787 103098351 103142229 103365795 103584176 102970774 103363197
	4.85	
NC 54 EB OFF RAMP	4.86	103001580
	4.87	
	4.88	
	4.89	102984788 103319602 103427748
	4.90	103098360
	4.91	103579899 103637550
	4.92	
	4.93	103615561 103675225 103735632
NC 54	4.94	103573882 103029951
SR 2048 RALEIGH NC 54 WB COUPLET	4.95	103534008 103563181
	4.96	
	4.97	103283824
	4.98	103172370 103122476
	4.99	103077619 103667739
	5.00	
	5.01	
	5.02	
	5.03	
NC 54 EB OFF RAMP	5.04	102970791 103036320 103248433
	5.05	
	5.06	
	5.07	
	5.08	
	5.09	
	5.10	
	5.11	
	5.12	
	5.13	
	5.14	103015140
	5.15	
	5.16	
	5.17	
	5.18	
	5.19	

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Features	Milepost	Crash IDs
	5.20	
	5.21	
	5.22	
	5.23	
	5.24	
	5.25	
	5.26	
	5.27	
	5.28	
	5.29	
	5.30	
	5.31	
	5.32	
	5.33	
	5.34	
	5.35	
	5.36	103126992
	5.37	103734638
	5.38	
BRANDON	5.39	103130847 103721151 103343811
	5.40	
	5.41	103527011
	5.42	103039412 103216411 103308521 103615899
	5.43	
	5.44	102967919
	5.45	
	5.46	
	5.47	
	5.48	
	5.49	
	5.50	
	5.51	
	5.52	
	5.53	
	5.54	
	5.55	
	5.56	
	5.57	
	5.58	
	5.59	
	5.60	
	5.61	
	5.62	
	5.63	
	5.64	
	5.65	

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Features	Milepost	Crash IDs
	5.66	
	5.67	
	5.68	
	5.69	103343698
	5.70	
	5.71	
	5.72	
	5.73	
	5.74	
	5.75	
	5.76	
	5.77	103058679
END SR 1799 SR 1853 CLELAND	5.78	103072844 103295540 103444561 103638419

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

Study Criteria

Study Name		Log No.		PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MW41000025916A		41000025916				76.8	8.4	43700	
Request Date		Courier Service		Phone No.	Ext.	Fax No.			
08/08/2013				828 265 4706		919-546	9421		
County			Municipality						
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years	
ORANGE	67	7	All and Rural		0	06/01/2010	05/31/2013	3.00	
Location Text					Requestor				
Crash analysis on US 15-501 (Fordham Blvd) from SR 1900 (Old Mason Farm Rd) to Cleland Rd.					Mr. Craig Scheffler, PE HNTB North Caroilina, PC 343 E Six Forks				

Included Accidents	Old MP	New MP	Type
103757585		4.739	I
103733659	4.339	4.396	R
103675225		4.93	I
103654151		4.439	I
103615899	5.389	5.419	R
103584176		4.839	I
103579899		4.911	I
103563181		4.948	I
103542352		4.689	I
103452213	4.339	4.389	R
103427748	3.839	4.89	I
103363197		4.844	I
103345021		4.689	I
103319602		4.889	I
103308521	5.389	5.419	R
103283824		4.967	I
103248433		5.037	I
103216411	5.389	5.419	R
103172370		4.977	I
103142229		4.839	I
103126992	5.389	5.359	R
103122476		4.98	I
103107526		4.439	I
103098360	999.999	4.902	I
103098351		4.839	I
103039412	5.389	5.419	R

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report**

103036320		5.037	I
103001580		4.863	I
102984790		4.639	I
102984788		4.889	I
102984787		4.839	I
102970791	4.939	5.037	R
102970774		4.844	I
102967919		5.439	I
102956692		4.698	I
102947651		4.839	I
102946673		4.369	I
102926890		4.802	I

Excluded Accidents

103240328
103219186
102977473
103111914
103145578
103665896
103142237
103361127
103690208

Fiche Roads

Name	Code
US 15	20000015
NC 54	30000054
FORDHAM	50010799
US 501	20000501

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
US 15	20000015	4.339	5.780	1.441	2.319