Capital Area MPO
Intersection Feasibility & Impact Analyses

City of Creedmoor Intersections

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1.0 Introduction

The Capital Area Metropolitan Planning Organization (CAMPO) identified the need to conduct an intersection feasibility and impact analysis for NC 56/NC 50/US 15 in the City of Creedmoor, NC. CAMPO contracted with HDR Engineering of the Carolinas (HDR) to complete this work. This report outlines the major findings and recommendations of the Creedmoor Intersection Feasibility and Impact Analysis.

1.1 Project Background and Objectives

The Capital Area MPO initiated the Creedmoor Intersection Feasibility and Impact Analysis in an attempt to identify operational and safety improvements for four intersections located along NC 56, NC 50, and US 15 in the City of Creedmoor, NC.

With the development of the region's Comprehensive Transportation Plan (CTP), the unconstrained component of the 2040 Long Range Transportation Plan (LRTP), the City of Creedmoor was selected for additional study for future transportation improvements. The major findings and recommendations developed from this study will serve as the basis for CTP elements in the LRTP.

Truck traffic along Lake Rd.

Several ongoing and recently completed efforts aim to improve transportation operations and safety in the City of Creedmoor. The NC 50 Corridor Study, stretching along NC 50 from Interstate 540 in Raleigh to NC 56 in Downtown Creedmoor, identifies both short and long-term mobility and safety enhancements that attempt to mitigate the expected growth in traffic congestion resulting from forecasted population growth in the region. Relevant to the current study and specific to Downtown Creedmoor, the NC 50 Corridor Study recommends a context-sensitive approach emphasizing pedestrian scale development including increased sidewalk connectivity and smaller block lengths. The upcoming Creedmoor Pedestrian Plan will continue these efforts by detailing specific short and long-term recommendations to enhance pedestrian mobility and safety in Downtown Creedmoor. These may include construction of additional sidewalks, greenways, crosswalks or other pedestrian enhancements.

An additional concern related to future transportation operations and safety in Downtown Creedmoor is truck traffic. Population growth in the Triangle region has increased the demand for goods and services, which in turn has led to increased truck traffic volumes on NC roadways. Of particular concern for Downtown Creedmoor, truck traffic volumes have increased along NC 50 between I-85 and the City of Raleigh. The Creedmoor Connector (See **Figure 1-2**), proposed by the City of Creedmoor, would attempt to alleviate this issue by diverting regional truck traffic away from Downtown.

The Creedmoor Connector is a proposed bypass consisting of a four lane divided facility from NC 56 (near Butner) to NC 50 (south of Creedmoor) and a two-lane divided facility from NC 50 to Brassfield Road (SR 1700). The project seeks to divert truck traffic away from Downtown Creedmoor and is based on the region's commitment towards long-term transportation mobility and safety enhancements.

The purpose of the Creedmoor Intersection Feasibility and Impact Analysis is to:

- Document existing roadway conditions, land use, and built environment characteristics in the area immediately surrounding NC 56, NC 50, and US 15 in Creedmoor.
- Identify environmental, cultural, and historical concerns within the study area.
- Identify possible roadway safety issues based on historical crash data.
- Analyze existing and future traffic volumes within the study area in order to determine capacity deficiencies
- Evaluate access along NC 56, NC 50, and US 15 and provide applicable recommendations that improve future access management and safety within the study area.
- Identify short and long-term innovative roadway design strategies that enhance mobility and safety for motorists using the four intersections within the study area.

1.2 Study Area Description

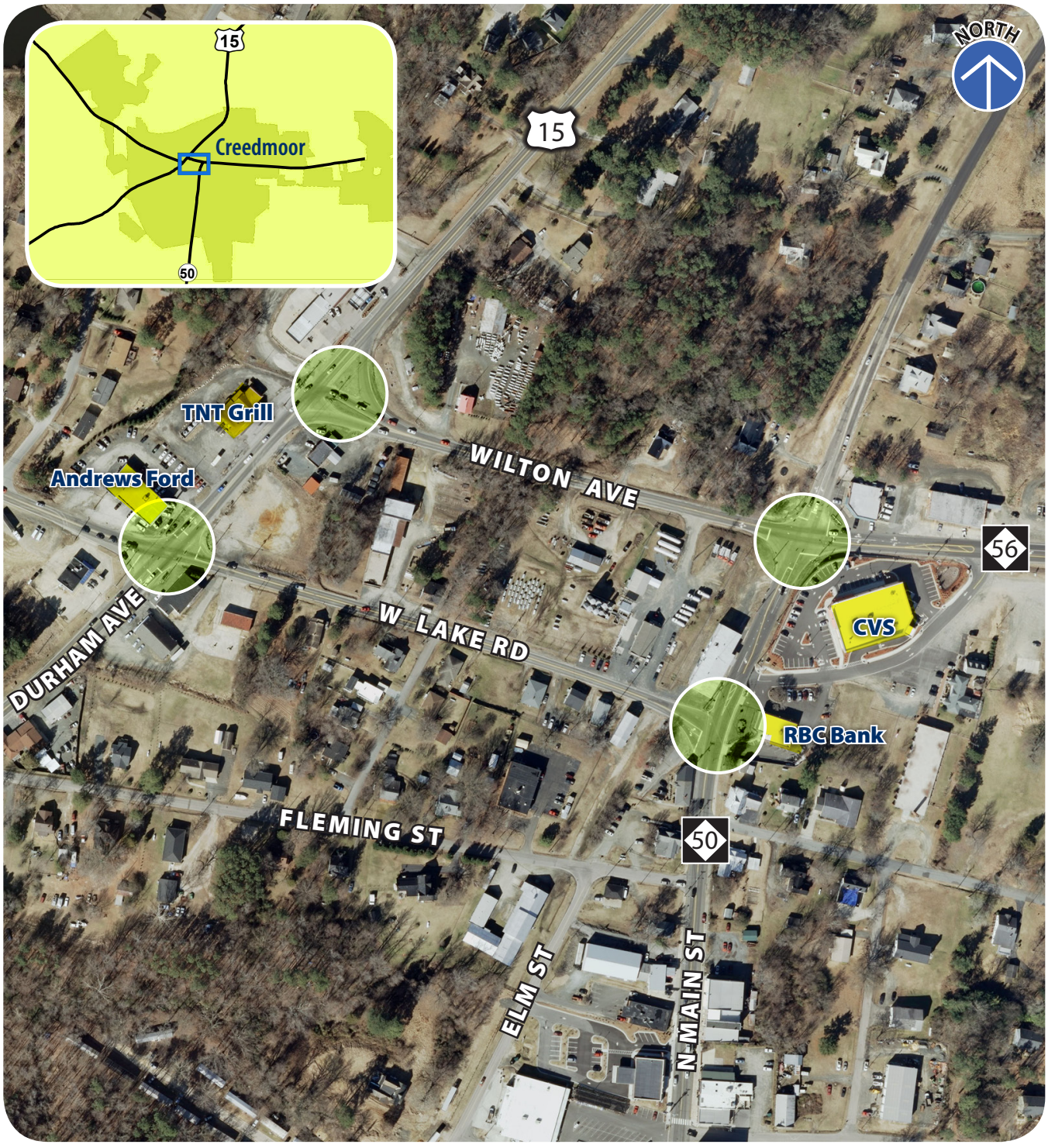
According to the 2010 U.S. Census, the City of Creedmoor has a total population of 4,124 persons. The City is located in the southern portion of Granville County, approximately 25 miles north of Raleigh, NC. The primary study area for the Creedmoor Intersection Feasibility and Impact Analysis encompasses four intersections in Downtown Creedmoor (See **Figure 1-1**):

- N. Main St. (NC 50) at Lake Rd.
- N. Main St. (NC 50) at Wilton Ave. (NC 56)
- N. Durham Ave. (US 15) at Wilton Ave. (NC 56)
- N. Durham Ave. (US 15) at Lake Rd. (NC 56)

1.2.1 Existing Roadway Conditions

Four primary travel corridors are within the study area: N. Main St. (NC 50), Wilton Ave. (NC 56), N. Durham Ave. (US 15), and Lake Rd (NC 56). Site observations revealed high volumes of truck traffic traveling through the study area. The observed truck traffic travel patterns revealed that many of these trucks appeared to be using Downtown Creedmoor as a means to travel between areas to the south in Wake County and areas to the north along the I-85 corridor. Observed vehicular travel patterns indicated that the study corridors functioned similar to a City block. **Table 1-1** summarizes the existing physical characteristics of the study area corridors.

Figure 1-1 | Creedmoor Study Area



Legend: Study Intersection

Figure 1-2 | Proposed Creedmoor Connector

Source: City of Creedmoor Thoroughfare Plan. Prepared by the NCDOT Transportation Planning Branch, July 27, 2004.

Legend:

- Project Limits
- Major Thoroughfare
- Minor Thoroughfare
- Proposed Major Thoroughfare
- Proposed Minor Thoroughfare
- Grade Separation
- Proposed Interchange

Existing Corridor Conditions:

Table 1-1 | Existing Conditions

CORRIDOR NAME	ROUTE #	FROM	TO	LENGTH (FT)	RIGHT-OF-WAY (FT)	SPEED LIMIT (MPH)	SHOULDERS (FT)	SIDEWALKS	LANES	LANE WIDTH (FT)
N. Main Street	NC 50	Lake	Wilton	390	60	20	none	none	2	11
Wilton Avenue	NC 56	Durham	east of Main	1,560	60	35	none	none	2	10
Durham Avenue	US 15	Lake	Wilton	390	80	35	none	none	2	10
Lake Road	NC 56 (west of Durham Ave.)	Durham	Main	1,060	30	35	none	none	2	10

Other characteristics of the study area:

- N. Main St. has an 11 ft. wide turn lane for both the access road between RBC and CVS and Wilton Ave. that generally forms a continuous third lane between these intersections and has a small section of sidewalk located along the eastern portion of the roadway in front of the RBC Bank.
- Durham Ave. contains several commercial establishments, located along the southern and northern portions of the roadway, and also contain poorly marked and unpaved site access driveways that present numerous potential conflict points for roadway users along Durham Ave.
- Large power utility lines and poles are also located within the ROW on each corridor

1.2.2 Existing and Future Land Uses

A variety of commercial, industrial, and residential land uses surround the study area. The majority of land uses are commercial along Main St. and Durham Ave., including an RBC bank, CVS pharmacy, TNT Grill, and the Andrews Ford dealership (See **Figure 1-1**). Other commercial establishments include several gas stations and auto repair facilities. The most prominent industrial land use found within the study area is Creedmoor Fuel Services, located west of N. Main St. between Lake Rd. and Wilton Ave. Single-family residential units are located within the study area just south of Lake Rd.

Andrews Ford Dealership along Durham Ave.

The City of Creedmoor has drafted a downtown future land use plan. The plan will enhance the economic and social vitality of Creedmoor's downtown core. The plan assumes incorporation of the recommendations found in the NC 50 Corridor Study and the Creedmoor Pedestrian Plan. As a whole, the plan concentrates commercial mixed-use development along the Main St. corridor. Additional mixed-use and high-density residential development is designated west of the Main St.

corridor along Elm St. Similarly, additional residential and open space land is designated for development to the east of Main St. Within the study area, the southwest corner of Lake Rd. and Main St. is designated for commercial mixed-use development and the southeastern corner of Lake Rd. and Main St. is designated for additional commercial office and residential development. This type of commercial mixed-use development will most likely surround the intersections in the study area as the next ring out from the Downtown core.

1.2.3 Future Water and Sewer Infrastructure

The location of future utility infrastructure will play a role in design aspects of possible improvements to the roadway network. In order to develop feasible solutions to improving the operation and safety of Downtown Creedmoor's four study area intersections, considerations must be made for existing and future underground water and sewer lines.

Several components of the future water and sewer infrastructure network impact the study area. According to data released by the City of Creedmoor, future water lines will run along the southern portion of Wilton Ave. east of Main St., extend to the southern portion of the CVS pharmacy property line, cross Main St. running briefly along the western portion of the street, and finally run the northern portion of Lake Rd. before briefly running along the eastern portion of Durham Ave. and continuing along the southern portion of Lake Rd. (See **Figure 1-3**). The future water line on Lake Rd. will replace an old 2 inch water line in the center of the pavement. Future sewer lines will run along the northern portion of Lake Rd. west of Durham Ave. before continuing north along the western portion of Durham Ave. (See **Figure 1-3**).

Future water and sewer locations are very important to potential design of any improvements within the study area. The location of the utilities may influence the design as the utilities need to be maintained and accessible with any new roadway improvements. Whether this means that the utilities are located in a utility strip or in the center of any new roadway will be left up to the designer at the time of the creation of construction drawings.

Figure 1-3 | Future Water and Sewer Infrastructure

2.0 Environmental and Cultural Resources Review

An environmental and cultural resources review provides a holistic overview of the study area. Undertaking a comprehensive inventory of potential environmental and cultural features of sensitivity ensures that potential negative impacts are identified and resulting sound operational and safety recommendations are offered for the study area intersections that avoid negative impacts to cultural and environmental resources.

2.1 Environmental Review

From an analysis perspective, no major direct environmental impacts are anticipated from the proposed project. The environmental review was done via a desktop analysis utilizing current GIS layers for environmental features such as wetlands, streams, floodways, etc.

2.1.1 Water Resources/Watershed Classification

The proposed project falls within the northern area of Falls Lake Watershed (a.k.a "Upper Falls") in the Upper Neuse River Basin (See **Figure 2-1**). This watershed is classified as a WS-IV (water supply); and is also designated as Nutrient Sensitive Waters (NSW). As defined by DENR (Department of Environment and Natural Resources), Class WS-IV waters are used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I, II or III classification is not feasible. These waters are also protected for Class C uses. WS-IV waters are generally in moderately to highly developed watersheds or Protected Areas. NSW is a supplemental classification intended for waters needing additional nutrient management due to being subject to excessive growth of microscopic or macroscopic vegetation.

According to the National Wetlands Inventory (NWI) there are no wetlands within approximately 500 feet of the project area. From the USGS streams inventory, an unnamed tributary to Ledge Creek is located 250 feet due west of the intersection of Lake Rd. and Durham Ave.; the closest named stream is Whitaker Branch and is located over ½ mile away to the east and south of Lake Rd. We anticipate no additional requirements above the NCDOT standards related to erosion control measures and typical construction best management practices.

2.1.2 Regulated Floodplains

No FEMA regulated floodplains are located within a ¼ mile of the proposed project (See **Figure 2-1**).

2.1.3 Federally Protected Species

According to the latest NC Natural Heritage Program database, no federally protected species were recorded within 1 mile of the study area. The closest natural area of concern is Butner-Falls of Neuse Game Land, owned by the USACE, and located 1 mile southwest of the subject intersections. This area will not be affected by the proposed project.

Figure 2-1 | Environmental Features

Legend:

- Municipal Boundaries
- Project Area
- National Wetland Directory
- 100 YR Flooding - has BFE's (AE)

2.1.4 Hazardous Waste Sites

According to the NC Hazardous Substance Disposal Sites GIS layer, no hazardous substance disposal sites exist within 1 mile of the proposed project (See **Figure 2-1**). The EPA's Office of Environmental Information (OEI) listed two facilities subject to environmental regulations in its online Facility Registry System (FRS): Pete's Body Shop at 504 Durham Ave. and (formerly) Red Front Grocery at 602 Durham Ave. Pete's Body Shop is a Conditionally Exempt Small Quantity Generator of Hazardous Waste according to the EPA and Red Front Grocery is listed by EPA as part of the State's UST Program. It is anticipated that neither location poses any issues with the future proposed projects.

2.2 Cultural Resources Review

The purpose of the cultural review is the identification of historic resources that may be affected by the proposed improvements within the study area. Results from the cultural review indicate no locally designated historic landmarks or districts in or near the study area. The cultural resources review was completed by CIRCA, Inc. on June 15, 2011.

2.2.1 Defined

For the purposes of this report, "historic properties" are those resources that are listed in the National Register of Historic Places (National Register), eligible for listing in the National Register (through a federal determination of eligibility or by placement on the North Carolina Study List), or designated as a historic landmark or district by local ordinance per NC General Statute 160A-400.1-400.14. The historic status of "surveyed properties" (shown on **Table 2-1**) is unknown; they have been entered into the State Historic Preservation Office's (HPO) statewide architectural inventory and have either been determined ineligible for the National Register or have not been evaluated for it.

2.2.2 Findings

The results from the cultural review indicate no locally designated historic landmarks or districts in or near the project limits; though several historically significant properties are located in the surrounding area. **Table 2-1** provides a listing of these properties. It is important to note that while not directly affected, these properties may face temporary impacts from the project such as the instance of temporary detours occurring during construction. Also please note the existence and/or condition of the properties listed below has not been confirmed in the field.

Table 2-1 | Historically Significant Properties

SITE #	NAME	STATUS
GV552	First National Bank	National Register
GV672	Creedmoor Historic District	NC Study List
GV519	Sion H. Rogers House	NC Study List
GV514	RH Flemming House	surveyed
GV563	Perry and Curl Buildings	surveyed
GV515	Lyon Family House	surveyed
GV517	Chappell Mule Dealership	surveyed
GV516	Badge Rogers House	surveyed
GV518	MP Davis House	surveyed
GV512	RH Rogers House	surveyed
GV511	Landis Davis House	surveyed

**Note: the existence and/or condition of properties listed above have not been confirmed by field observation*

Given the concentration of historic buildings in Creedmoor and the city's origins as a late-nineteenth and early-twentieth century commercial center for bright leaf tobacco farmers in southern Granville County, it is possible an as yet unidentified National Register-eligible historic district exists along South Main Street. Granville County has not established a county-wide historic preservation commission, nor has the City of Creedmoor. Therefore there are no locally designated historic landmarks or districts in or near the project area. A preliminary review of aerial photographs in Google Earth did not reveal any other potentially historic resources other than those noted above.

3.0 Crash Analysis

The North Carolina Department of Transportation provided crash data for each of the four study area intersections between January 2008 and December 2010. Crash diagrams, included in Appendix A, provide visual illustrations of each crash type at the study area intersections. Several trends emerge related to the types of crashes observed at each intersection:

Durham Ave. (US 15) and Lake Rd. (NC 56):

A total of 6 crashes were documented at the intersection of Durham Ave. and Lake Rd. Four crashes involved vehicles who were rear-ended, which included incidents of vehicles traveling eastbound on Lake Rd., southbound on Durham Ave., and northbound on Durham Ave. Two crashes involved side swiping, which included an incident involving a vehicle turning out of the Andrews Ford driveway heading southbound on Durham Ave. and an incident with a vehicle traveling northbound on Durham Ave.

Table 3-1 | Summary of Crashes at Durham Ave. and Lake Rd.

CRASH NUMBER	TIME	ROAD SURFACE CONDITION	WEATHER CONDITION	INJURY?	FATALITY?
1	7:30am	Dry	Clear	No	No
2	7:30am	Dry	Clear	No	No
3	3:16pm	Dry	Clear	No	No
4	10:30pm	Dry	Cloudy	Yes (Type C)	No
5	12:00pm	Dry	Clear	No	No
6	6:52pm	Dry	Clear	No	No

Durham Ave. (US 15) and Wilton Ave. (NC 56):

Two crashes were documented at the intersection of Durham Ave. and Wilton Ave. Both crashes involved vehicles traveling westbound on Wilton Ave. attempting to make a left-hand turn to travel southbound on Durham Ave. In the first documented crash, the motorist collided with a vehicle traveling southbound on Durham Ave. attempting to make a left-hand turn onto eastbound Wilton Ave. In the second documented crash, the motorist collided with a vehicle traveling northbound on Durham Ave.

Table 3-2 | Summary of Crashes at Durham Ave. and Wilton Ave.

CRASH NUMBER	TIME	ROAD SURFACE CONDITION	WEATHER CONDITION	INJURY?	FATALITY?
7	7:10am	Dry	Clear	No	No
8	8:17am	Wet	Rain	No	No

Main St. (NC 50) and Lake Rd.:

Four crashes were documented at the intersection of Main St. and Lake Rd. All four crashes involved vehicles traveling eastbound on Lake Rd. attempting to make a right-hand turn onto southbound Main St. Three of the crashes were caused by motorists traveling eastbound on Lake Rd. who either side swiped or rear-ended motorists attempting to make the right-hand turn onto southbound Main St. The other reported crash involved a collision between the motorist making the right-hand turn onto southbound Main St. and a vehicle traveling southbound on Main St.

Table 3-3 | Summary of Crashes at Main St. and Lake Rd.

CRASH NUMBER	TIME	ROAD SURFACE CONDITION	WEATHER CONDITION	INJURY?	FATALITY?
9	5:50pm	Dry	Clear	Yes (Type C)	No
10	10:24am	Dry	Cloudy	No	No
11	4:54pm	Snow	Cloudy	No	No
12	2:01pm	Dry	Clear	No	No

Main St. (NC 50) and Wilton Ave. (NC 56):

Three crashes were documented at the intersection of Main St. and Wilton Ave. All crashes involved vehicles traveling either eastbound or westbound on Wilton Ave. Two crashes involved rear-end collisions, one with vehicles traveling eastbound and one with vehicles traveling westbound on Wilton Ave. A third crash involved a side swiping incident among vehicles traveling eastbound on Wilton Ave.

Table 3-4 | Summary of Crashes at Main St. and Wilton Ave.

CRASH NUMBER	TIME	ROAD SURFACE CONDITION	WEATHER CONDITION	INJURY?	FATALITY?
13	2:43pm	Dry	Clear	Yes (Type C)	No
14	7:37am	Dry	Clear	Yes (Type C)	No
15	8:46am	Dry	Clear	No	No

4.0 Capacity Analysis

One of the major components of the Creedmoor Intersection Feasibility and Impact Analysis is the capacity analysis for all four intersections within the study area. All support information for this section is included in Appendix B (Traffic Counts) and Appendix C (Capacity Analyses). This section includes:

- Traffic Counts and Projections
- Analysis of Existing (2011) Conditions
- Alternatives for Analysis
- Analysis of Alternatives with Design Year (2040) Traffic
- Comparison of Alternatives
- Conclusion

4.1 Traffic Counts

Traffic counts were taken at all four intersections in the study area. The counts were performed by GreenLight Traffic Services on Tuesday, May 24, 2011. Counts were collected during the AM Peak Period (7am-9am), the Mid-Day Peak Period (11am-1pm) and the PM Peak Period (4pm-6pm). Heavy vehicle and pedestrian movement counts were also collected during these time periods. All of the traffic counts data is located in Appendix B.

Figure 4-2 on the next page shows the existing turning volumes within the study area. **Figure 4-3** on the following page shows the existing laneage within the study area.

The following **Figure 4-1** is a snapshot from the 2009 daily volumes collected by NCDOT. Both the volumes collected by NCDOT and GreenLight Traffic Services for this study show a fair amount of traffic along Lake Rd. between Main St. and Durham Ave.

Figure 4-1 | 2009 NCDOT Collected AADT Counts

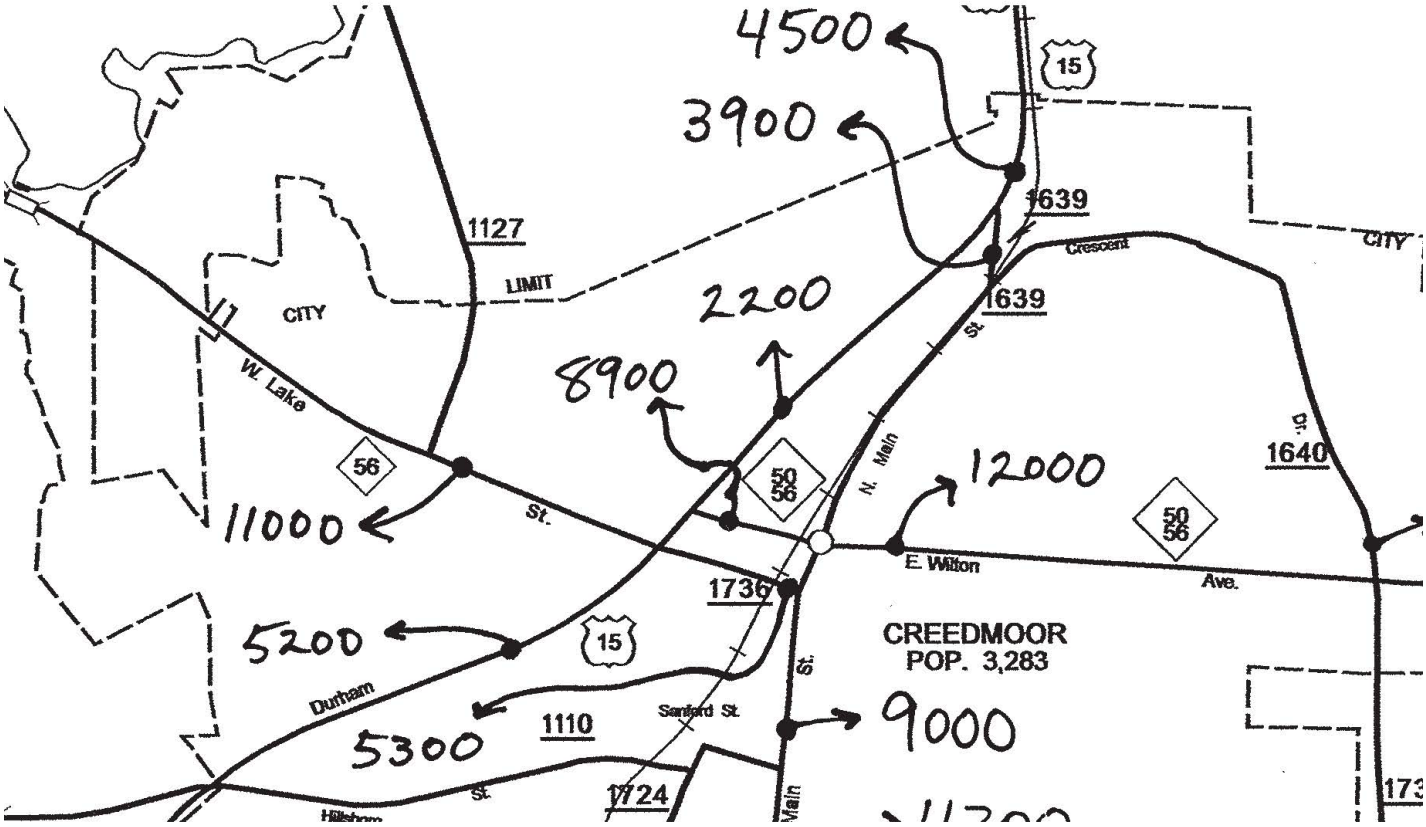


Figure 4-2 | Existing (2011) Volumes

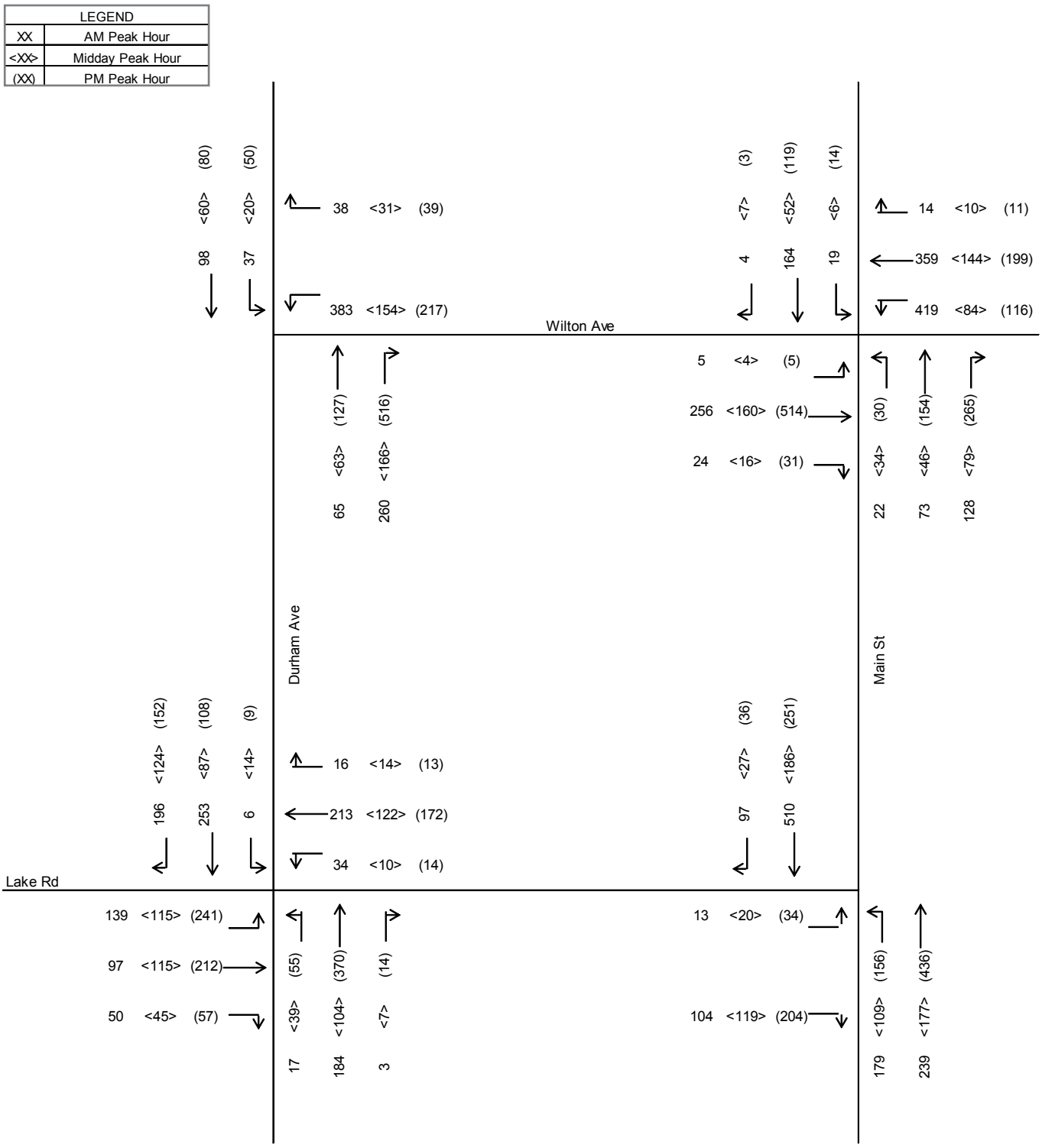
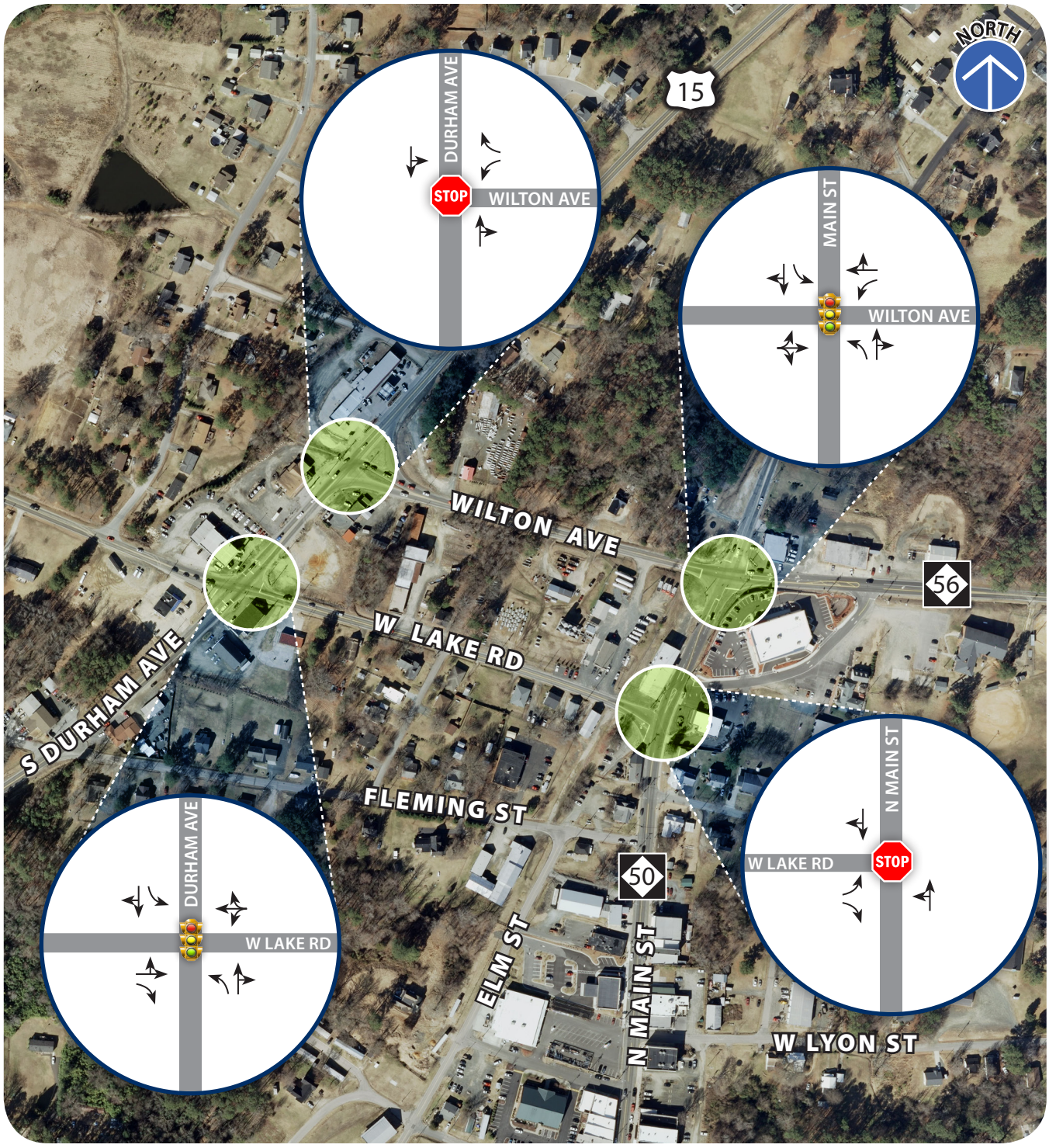


Figure 4-3 | Existing (2011) Laneage in the Study Area



Legend:

- Existing Laneage
- Proposed Laneage
- Signalized Intersection
- Unsignalized Intersection

4.2 Existing (2011) Conditions

Existing volumes, traffic flow characteristics, and intersection geometrics collected during field visits were used to determine the level of service. The level of service (LOS) is a measurement of average delay incurred at an intersection for a particular movement. LOS is defined by the Transportation Research Board's Highway Capacity Manual (HCM). The following tables give the HCM criteria for both signalized (**HCM Exhibit 18-4**) and unsignalized intersections (**HCM Exhibit 19-1**).

HCM EXHIBIT 18-4	
Signalized Level of Service	Average delay per Vehicle (sec)
A	<10
B	> 10 and < 20
C	> 20 and < 35
D	> 35 and < 55
E	> 55 and < 80
F	> 80

HCM EXHIBIT 19-1	
Unsignalized Level of Service	Average delay per Vehicle (sec)
A	<10
B	> 10 and < 15
C	> 15 and < 25
D	> 25 and < 35
E	> 35 and < 50
F	> 50

The LOS analysis was completed through the use of Synchro, Version 7. The software package categorizes the LOS based on HCM methodology and criteria. According to industry standards, any signalized intersection or any approach of an unsignalized intersection is considered acceptable if average delay is at LOS D or better with the LOS A representing little or no delay. Any signalized intersection or approach with a LOS of E or F is considered substandard and may need improvements to improve the operational performance.

The following table (**Table 4-1**) shows the results for the existing traffic conditions analysis during all three time periods (AM, Mid-Day, and PM) when traffic counts were taken:

Table 4-1 | Existing (2011) Conditions: Level of Service

INTERSECTION	AM PEAK HOUR		MIDDAY PEAK HOUR		PM PEAK HOUR	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56)*	22.9	C	11.3	B	19.9	C
Lake Road (NC 56) & Durham Avenue (US 15/NC 56)	157.0	F	131.0	F	525.1	F
Wilton Avenue (NC 56) & Main Street (NC 50)	18.1	B	11.4	A	36.3	C
Lake Road & Main Street (NC 50)*	16.7	C	10.8	B	14.2	B

** - Designates Unsignalized intersection. Delay Represents the Highest Delayed Movement for the Intersection*

As shown in **Table 4-1,** three of the four intersections were determined to be operating at acceptable levels of service during all time periods. At the signalized intersection of Lake Rd. and Durham Ave. the level of service was worse than D during all three time periods. It was determined through this analysis that the main cause of the delay at this intersection involved the split phasing of the signal timing, based on the lane configuration. Split phasing is used at this signal because the eastbound approach has a shared left-through lane. This lane assignment will not allow for eastbound and westbound lefts to be completed during the same phase of the signal cycle, as the through movement would create a conflict with the opposing left turns. This causes the green time at the intersection for the eastbound and westbound through movements to be split into different phases. The eastbound through and left movements are shared in part because of geometry at the intersection and the proximity of existing buildings to this intersection on the northwest and southeast corners.

4.3 Existing (2011) Conditions With Potential Improvements

Due to the deficiencies at the Lake Rd. and Durham Ave. intersection, potential improvements were studied to determine if conditions could be improved. The first improvement scenario included the rearranging of lane assignments on the east bound approach at the intersection. If the eastbound left turn was separated from the through movement, the green time could be reassigned and would improve the intersection operation. In order for this to work, the geometry at the intersection would need to change to align the through movements.

The second improvement scenario was the installation of roundabouts at both the Wilton Ave. & Durham Ave. and Lake Rd. & Durham Ave. intersections. The inclusion of a roundabout would have many benefits, especially for the three-legged intersection at Wilton Ave. and Durham Ave. A roundabout would create a gateway type feature for the City of Creedmoor from the north on Durham Ave. (US 15), a route used by many to enter the City. A roundabout would also potentially reduce delay and related emissions by allowing vehicles to proceed at a slower yield condition than at a stopped condition. This would also act as a traffic calming device for vehicles entering the downtown area as well as a way to assist pedestrian movements. This analysis was completed by using Sidra Intersection, Version 5, which is the preferred software package of NCDOT for roundabout analyses. The HCM criteria for level of service for roundabouts is the same as the criteria for an unsignalized intersection and is found as Exhibit 21-1 in the HCM.

Table 4-2 illustrates the findings for the two improvement scenarios for the 2011 Existing With Improvements Conditions. **Table 4-2** shows the operational improvement associated with the proposed modifications (lane additions or roundabouts). The potential improvements would bring the intersection at Lake Rd. and Durham Ave. to a satisfactory level of service, with the roundabouts offering the greatest operational improvement and the least delay.

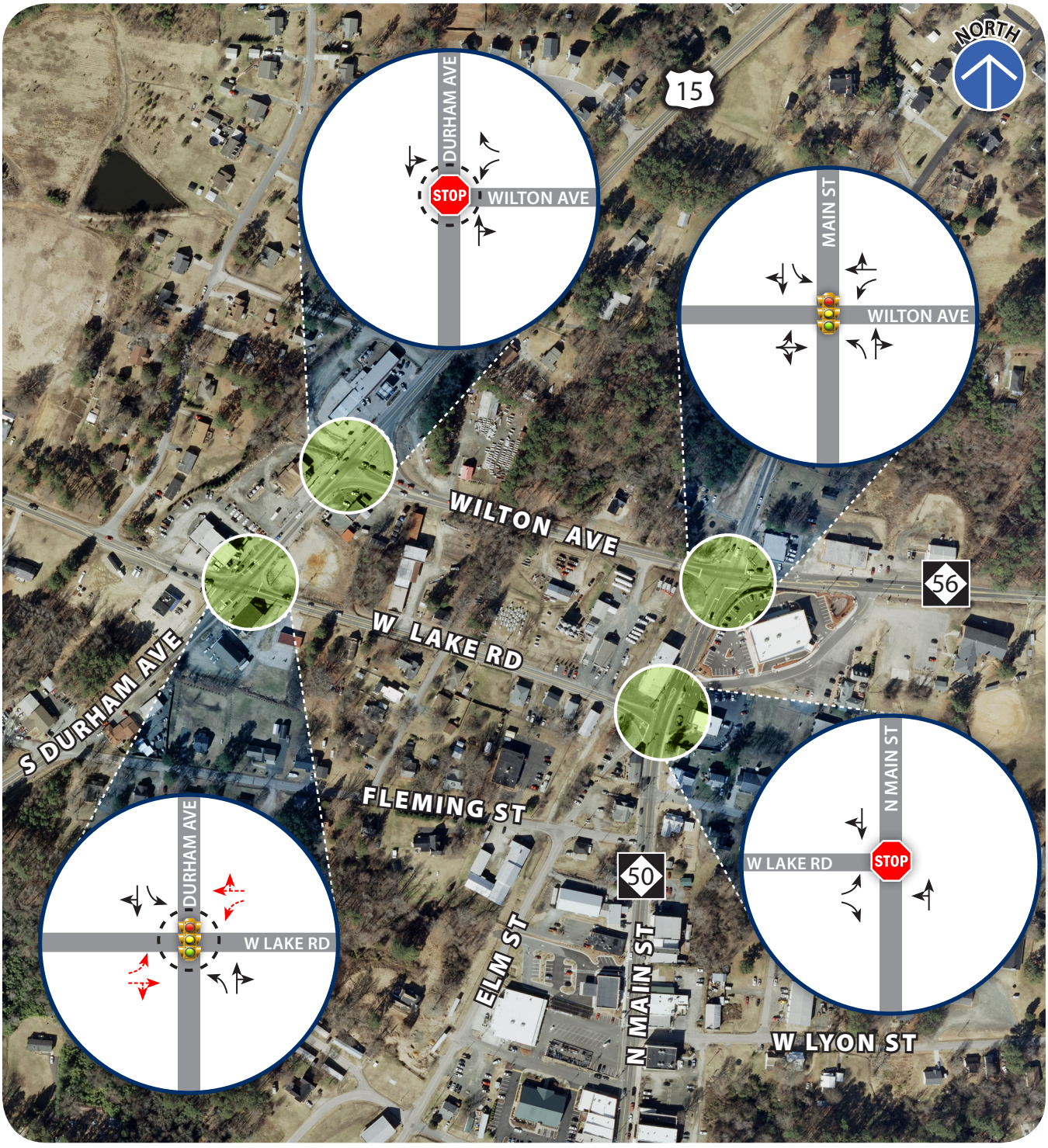
Table 4-2 | Existing (2011) Conditions With Potential Improvements: Level of Service

INTERSECTION	AM PEAK HOUR		MIDDAY PEAK HOUR		PM PEAK HOUR	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Lake Road (NC 56) & Durham Avenue (US 15/NC 56) – **Improved by change in lane arrangement and removal of split phasing**	29.3	C	17.1	B	26.7	C
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56)* – **Single Lane Roundabout**	10.1	B	9.1	A	8.9	A
Lake Road (NC 56) & Durham Avenue (US 15/NC 56)* – **Single Lane Roundabout**	7.7	A	7.8	A	9.5	A

** - Designates Unsignalized intersection. Delay Represents the Highest Delayed Movement for the Intersection*

Figure 4-4 on the following page illustrates the proposed laneage to bring the study area up to a satisfactory level of service:

Figure 4-4 | Improvement Scenario 1 / Scenario 2 Laneage



Legend:

- Existing Laneage
- Proposed Laneage
- Signalized Intersection
- Unsignalized Intersection
- Location for Potential Roundabouts

4.4 Existing (2011) Conditions With Potential Improvements - One-Way Pair Scenario

Besides the use of roundabouts, the project team evaluated an innovative solution that would not only enhance the operations of the intersections within the study area, but would also have other benefits such as space within the right-of-way for future utilities, greenways, and bike lanes. The solution that was developed included converting the east-west roadways in the study area to a one-way pair.

The one-way pair scenario would convert both Wilton Ave. and Lake Rd. into one-way streets in the study area, effectively creating a City block. The traffic patterns, as observed in the field, indicate this type of behavior by the drivers using these roadways already exists. Main St. and Durham Ave. would stay at a two-way operations, while Lake Rd. would run one-way eastbound and Wilton Ave. would run one-way westbound. **Table 3-3** illustrates the results for the 2011 one-way pair scenario analysis.

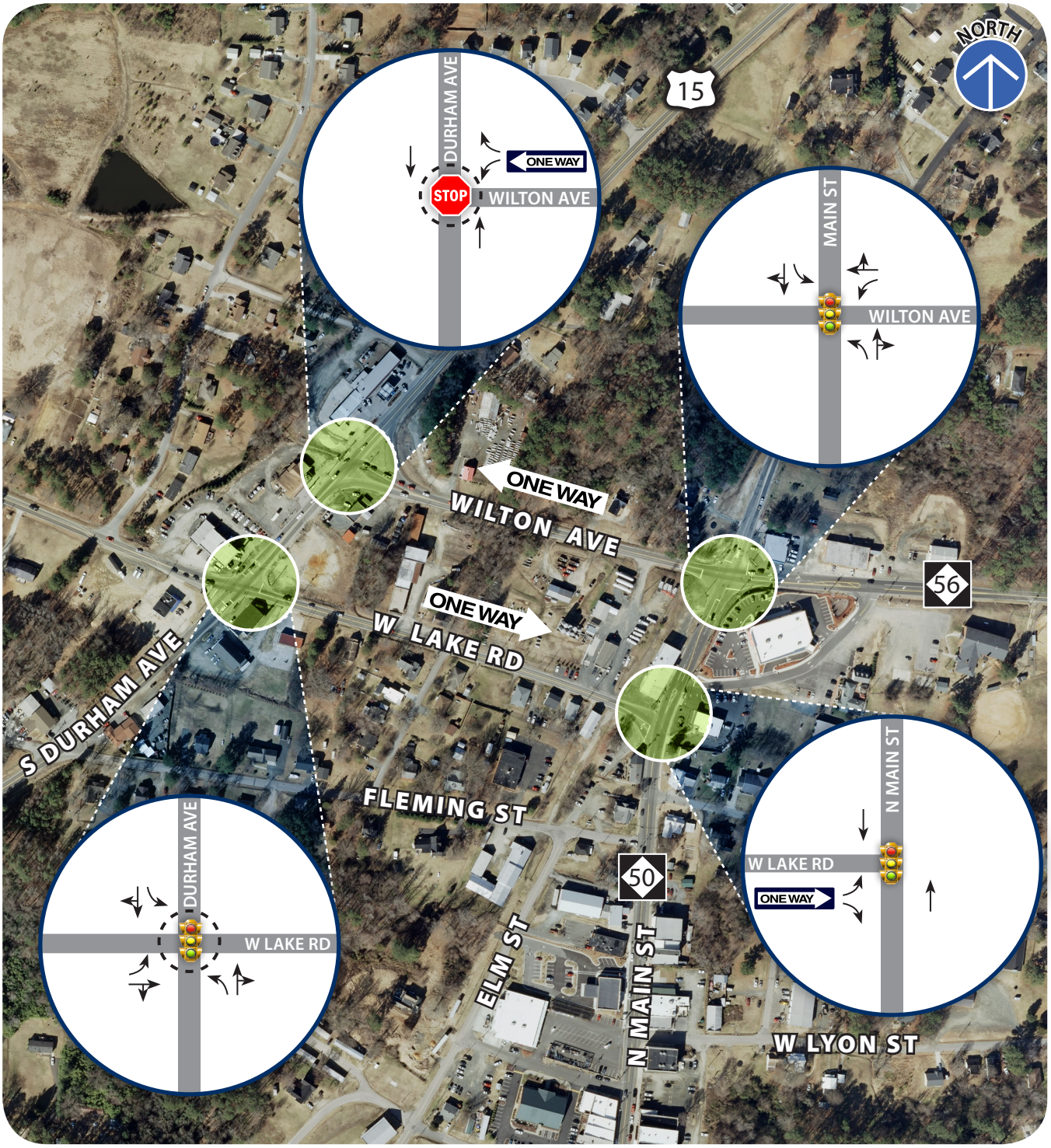
Table 4-3 | Existing (2011) Conditions With Potential Improvements – One-Way Pair Scenario: Level of Service

INTERSECTION	AM PEAK HOUR		MIDDAY PEAK HOUR		PM PEAK HOUR	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56)*	39.1	E	11.6	B	17.6	C
Lake Road (NC 56) & Durham Avenue (US 15/NC 56)	15.9	B	11.5	B	16.8	B
Wilton Avenue (NC 56) & Main Street (NC 50)	20.3	C	11.4	B	21.6	C
Lake Road & Main Street (NC 50)*	270.6	F	13.6	B	657.0	F
Lake Road & Main Street (NC 50) – **Signalized**	13.0	B	8.6	A	25.9	C
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56)* – **Single Lane Roundabout**	12.0	B	10.7	B	11.1	B

** - Designates Unsignalized intersection. Delay Represents the Highest Delayed Movement for the Intersection*

The two locations where there are deficiencies within this scenario include the intersections of Wilton Ave. and Durham Ave. as well as Lake Rd. and Main St., both unsignalized intersections. Further analysis shows that placing a signal at Lake Rd. And Main St. will immensely help the operation as well as also help sight distance issues and pedestrian movements. At Wilton Ave. and Durham Ave., while a LOS of E is less than standard, it is often common at unsignalized intersections. However, inclusion of a roundabout at this intersection will improve the operation as well as have the benefits discussed in the previous section. This scenario would provide improvement at Durham Ave. and Lake Rd. as the existing laneage would not need to be revised due to the existing split phase signalization. **Figure 4-5** illustrates the proposed laneage in the study area for the 2011 One-Way Pair Scenario.

Figure 4-5 | Existing (2011) Conditions With Potential Improvements Laneage (One-Way Pair Scenario)



Legend:

- Existing Laneage
- Proposed Laneage
- Signalized Intersection
- Unsignalized Intersection (STOP)
- Location for Potential Roundabouts
- One-Way Street (ONE WAY)

4.5 Design Year (2040) No-Build Conditions

Since this report is leading to the 2040 Long Range Transportation Plan, the project team developed scenarios for the 2040 design year within the study area. Traffic projections were needed for the turning movements for the intersections. After discussions with the Planners at CAMPO and reviewing the Capital Area Regional Model, the project team decided that a straight line annual growth of 3% would be used to develop 2040 traffic projections. The 3% growth is in line with the standard being used in the CAMPO area as well as represents the growth within Creedmoor itself.

Table 4-4 shows the results of 2040 future no-build analyses (using existing roadway conditions):

Table 4-4 | Design Year (2040) No-Build Conditions: Level of Service

INTERSECTION	AM PEAK HOUR		MIDDAY PEAK HOUR		PM PEAK HOUR	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56)*	Err	F	50.3	F	Err	F
Lake Road (NC 56) & Durham Avenue (US 15/NC 56)	685.5	F	606.7	F	1648.9	F
Wilton Avenue (NC 56) & Main Street (NC 50)	251.2	F	20.9	C	431.9	F
Lake Road & Main Street (NC 50)*	Err	F	30.1	D	Err	F

** - Designates Unsignalized intersection. Delay Represents the Highest Delayed Movement for the Intersection*

Err – Output from Synchro: Demand exceeds capacity, delay cannot be calculated.

As evident in **Table 4-4**, the existing laneage (no-build) will not be able to handle the projected 2040 traffic and maintain an acceptable level of service. Delay at Lake Rd. and Wilton Ave. will exceed 27 minutes in the AM & PM peak hours, and all intersections will fail operationally in the AM & PM peak hours.

4.6 Design Year (2040) Conditions With Potential Improvements

The improvements necessary to bring all of the intersections to an acceptable LOS of D or better are included on **Figure 4-6** and the level of service results are located in **Table 4-5**. The potential improvements include:

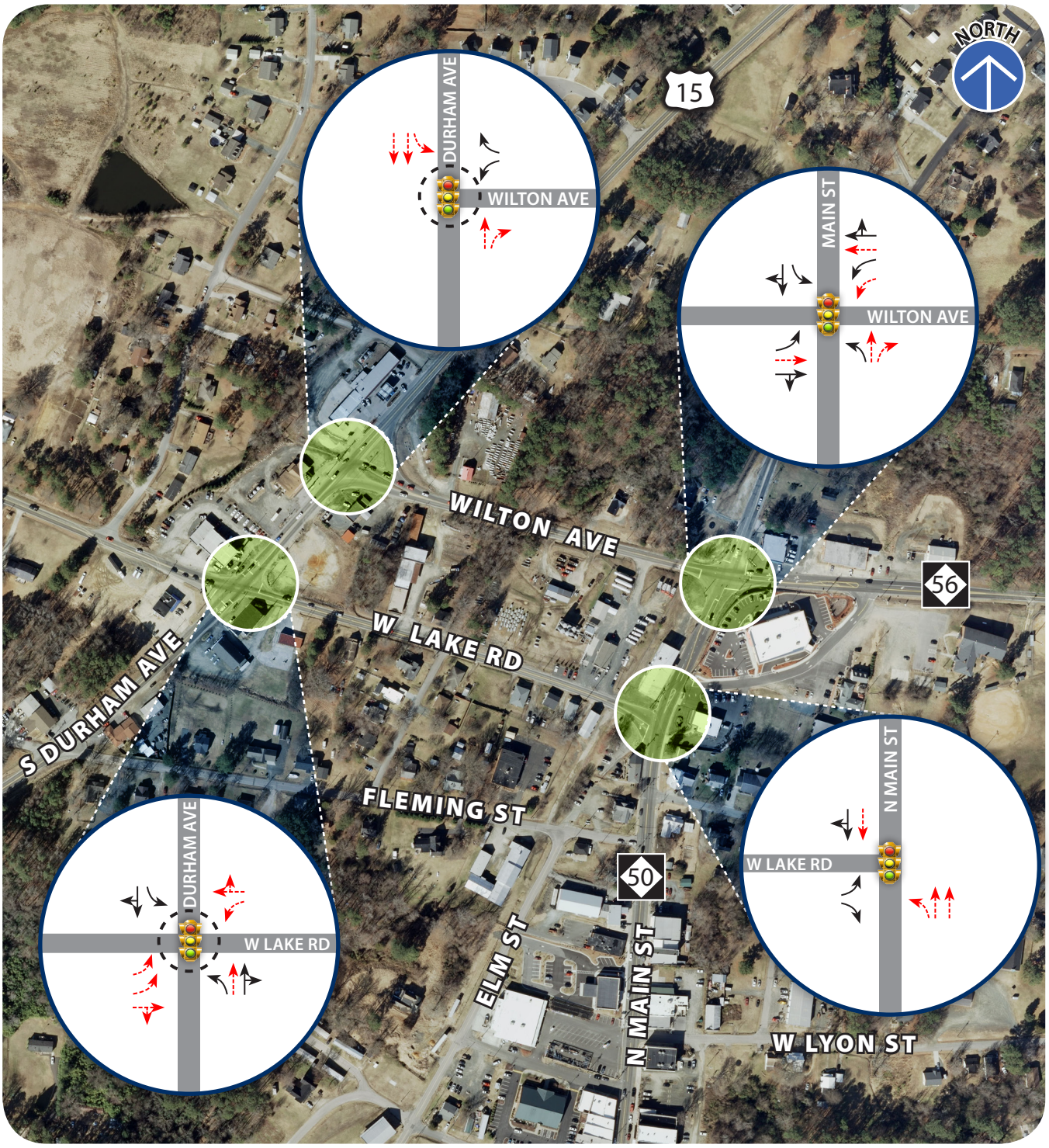
- Wilton Ave. and Durham Ave.
    - Signalize the intersection
    - Northbound Durham Ave.: exclusive right-turn lane
    - Southbound Durham Ave.: exclusive left-turn lane and an additional through lane
    - **OR** single-lane roundabout (no signal and no other laneage improvements)
- Lake Rd. and Durham Ave.
    - Northbound Durham Ave.: Additional through lane
    - Eastbound Lake Rd.: Exclusive Dual-left turn lanes and combine the through and right turns into a lane
    - Westbound Lake Rd.: Exclusive left-turn lane
    - **OR** Double-Lane Roundabout (would include 2 through lanes on Durham Ave., a 2 lane approach on eastbound Lake Rd., and removal of the signal)
- Wilton Ave. and Main St.
    - Northbound Main St.: Exclusive through lane and exclusive right-turn lane
    - Eastbound Wilton Ave.: Exclusive through lane
    - Westbound Wilton Ave.: Exclusive through lane and an additional exclusive left-turn lane to create dual-left lanes
- Lake Rd. and Main St.
    - Signalize the intersection
    - Northbound Main St.: Exclusive left-turn lane and 2 through lanes
    - Southbound Main St.: Exclusive through lane

The effect of dual roundabouts along Durham Ave. was also analyzed similarly to the 2011 scenario 2. The dual roundabouts show a marked improvement over the no-build scenario as well as necessary improvements to achieve the acceptable levels of service.

Table 4-5 | Design Year (2040) Conditions with Potential Improvements: Level Of Service

INTERSECTION	AM PEAK HOUR		MIDDAY PEAK HOUR		PM PEAK HOUR	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56) – **Improved**	29.8	C	17.1	B	22.5	C
Lake Road (NC 56) & Durham Avenue (US 15/NC 56) – **Improved**	52.1	D	29.1	C	39.5	D
Wilton Avenue (NC 56) & Main Street (NC 50) – **Improved**	44.9	D	28.1	C	38.3	D
Lake Road & Main Street (NC 50) – **Improved**	45.9	D	28.0	C	29.8	C
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56) – **Single Lane Roundabout**	42.4	D	7.7	A	9.8	A
Lake Road (NC 56) & Durham Avenue (US 15/NC 56) – **Double Lane Roundabout**	13.8	B	10.0	B	53.0	D

Figure 4-6 | Existing (2011) Conditions with Potential Improvements Laneage



Legend:

- Existing Laneage
- Proposed Laneage
- Signalized Intersection
- Unsignalized Intersection
- Location for Potential Roundabouts

Figure 4-6 shows that improvements are necessary at all 4 intersections in the study area by 2040. While the projections show a large increase in traffic within the study area, it does not show any effect from the proposed Creedmoor Connector project (NC 56 By-Pass). The project team anticipates the Creedmoor Connector will impact the future traffic travelling through this area by diverting some traffic to the new corridor.

4.7 Design Year (2040) One-Way Pair Scenario

The project team analyzed the effect of installing the one-way pair scenario (similar to the 2011 Existing Analysis scenario 3) with the 2040 traffic projections. **Table 4-6** summarizes the results of this analysis:

Table 4-6 | Design Year (2040) One Way Pair Scenario: Level of Service

INTERSECTION	AM PEAK HOUR		MIDDAY PEAK HOUR		PM PEAK HOUR	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56)*	Err	F	157.2	F	787.7	F
Lake Road (NC 56) & Durham Avenue (US 15/NC 56)	188.3	F	35.0	C	177.5	F
Wilton Avenue (NC 56) & Main Street (NC 50)	247.3	F	22.2	C	385.8	F
Lake Road & Main Street (NC 50)*	Err	F	931.0	F	Err	F

** - Designates Unsignalized intersection. Delay Represents the Highest Delayed Movement for the Intersection*
Err – Output from Synchro: Demand exceeds capacity, delay cannot be calculated.

Table 4-6 displays much of the same deficiencies in the study area as with the 2040 no-build. For the intersections to achieve an acceptable level of service, additional improvements would be necessary. Those improvements include:

- Wilton Ave. and Durham Ave.
  - Signalize the intersection
  - Westbound Wilton Ave.: Additional Exclusive left-turn lane to create dual-left lanes
  - **OR** double-lane roundabout (no signal)
- Lake Rd. and Durham Ave.
  - Northbound Durham Ave.: Exclusive right-turn lane
  - Southbound Durham Ave.: Exclusive right-turn lane
  - Eastbound Lake Rd.: Exclusive left turn lane and an exclusive through lane
- Wilton Ave. and Main St.
  - Northbound Main St.: An additional left-turn lane to create dual-left lanes and an additional right-turn lane to create dual-right lanes

- Westbound Wilton Ave.: Exclusive through lane and an additional exclusive left-turn lane to create dual-left lanes

- Lake Rd. and Main St.
  - Signalize the intersection
  - Northbound Main St.: An additional through lane to create 2 through lanes
  - Southbound Main St.: An additional through lane to create 2 through lanes
  - Eastbound Lake Rd.: An additional left-turn lane to create dual-left lanes

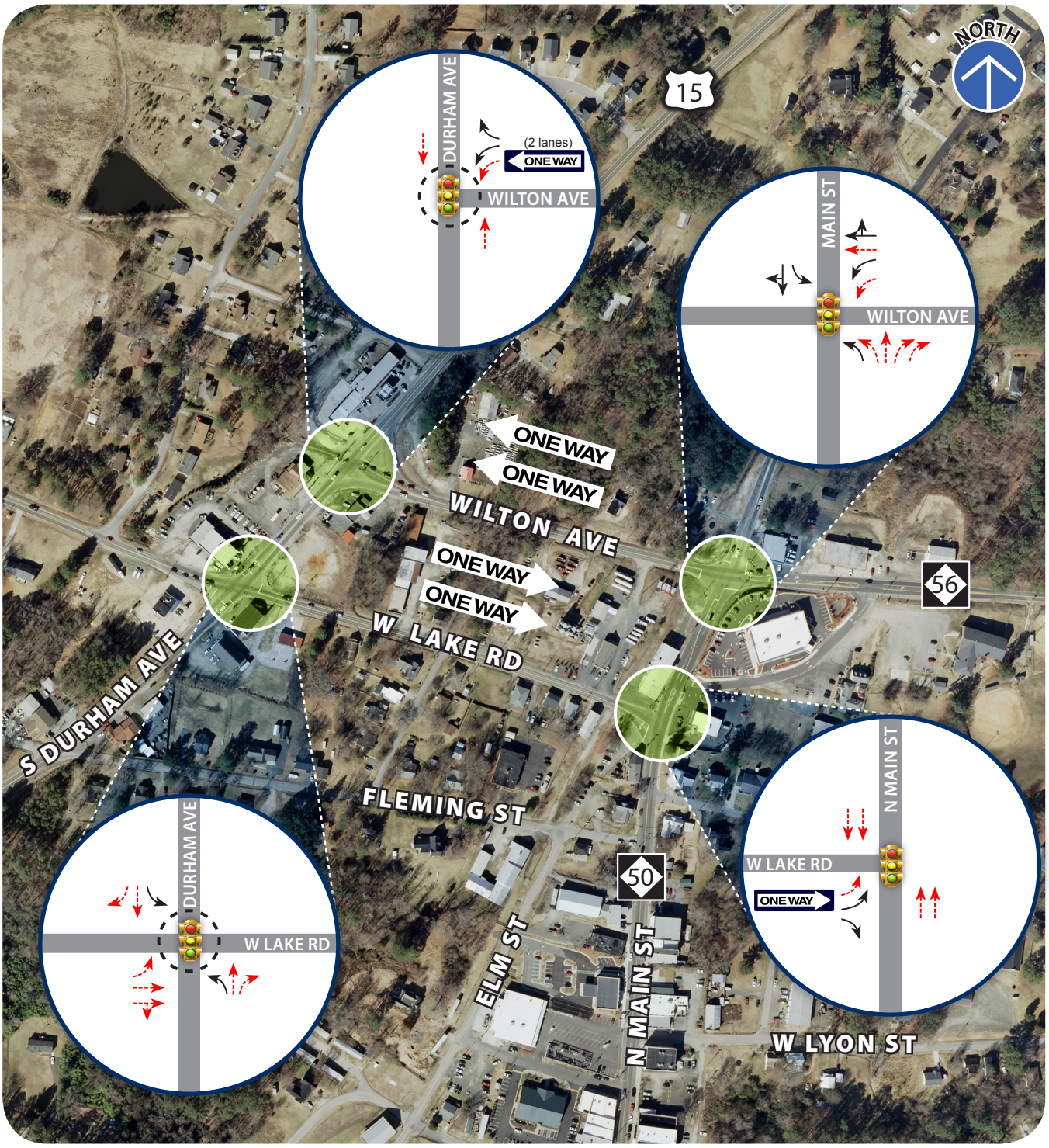
A roundabout at Wilton Ave. and Durham Ave. was included in the analysis, which shows it can be still used in tandem with the one-way pair scenario. **Table 4-7** shows the results from the analysis when all of the improvements in **Figure 4-7** are installed.

Table 4-7 | Design Year (2040) One Way Pair Scenario With Potential Improvements: Level of Service

INTERSECTION	AM PEAK HOUR		MIDDAY PEAK HOUR		PM PEAK HOUR	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56) – **Improved**	18.4	B	16.7	B	17.0	B
Lake Road (NC 56) & Durham Avenue (US 15/NC 56) – **Improved**	30.1	C	17.9	B	46.6	D
Wilton Avenue (NC 56) & Main Street (NC 50) – **Improved**	34.4	C	25.8	C	22.0	C
Lake Road & Main Street (NC 50) – **Improved**	13.2	B	22.8	C	37.0	D
Wilton Avenue (NC 50/NC 56) & Durham Avenue (US 15/NC 56) – **Double Lane Roundabout**	29.1	C	11.5	B	14.1	B

As shown in **Figure 4-7**, the one-way pair scenario will work with 2040 projected traffic if the one-way pairs are both 2 lanes. This is caused by the long storage areas for turn lanes at the signalized intersections as well as receiving lanes for dual movements. This also does not show the effect of the possible Creedmoor Connector, which will impact the future traffic travelling through this area by diverting some traffic to the new corridor.

Figure 4-7 | Design Year (2040) One Way Pair Scenario With Potential Improvements Laneage



Legend:

- Existing Laneage
- Proposed Laneage
- Signalized Intersection
- Unsignalized Intersection
- Location for Potential Roundabouts

4.8 Capacity Analysis Conclusion

The project team completed the following capacity analyses:

Vehicles traveling eastbound along Wilton Ave. With the installation of one-way pairs, traffic would only travel westbound on this section of roadway.

1. Existing (2011) Conditions (with existing laneage)
2. Existing (2011) With Potential Improvements
    a. Improvements at Durham Ave. and Lake Rd. intersection
    b. Dual Single-Lane Roundabouts: Roundabouts at the two intersections along Durham Ave.
3. Existing (2011) Conditions With One-Way Pairs
    a. Conversion of Lake Rd. (eastbound) and Wilton Ave. (westbound) to one-way pairs
    b. Including a single-lane roundabout at Durham Ave. and Wilton Ave.
4. Design Year (2040) No-Build Conditions
5. Design Year (2040) Conditions With Potential Improvements
    a. Improvements at all intersections
    b. Dual Roundabouts: Single-Lane Roundabout at Durham Ave. and Wilton Ave. and a Double-Lane Roundabout at Durham Ave. and Lake Rd.
6. Design Year (2040) Conditions With One-Way Pairs
    a. Conversion of Lake Rd. (eastbound) and Wilton Ave. (westbound) to 2 lane one-way pairs
    b. Including a double-lane roundabout at Durham Ave. and Wilton Ave.

The Existing (2011) Analysis shows that there is currently one deficiency in the study area. The intersection of Durham Ave. (US 15) and Lake Rd. (NC 56) is currently operating at a level of service F during all periods analyzed. The deficiency is primarily caused by the necessity of a shared through-left lane on the eastbound approach due to geometric issues at the intersection. The shared lane causes the signal to operate as a split phase signal where instead of east and west through movements sharing green time, the eastbound through chares green with the eastbound left, while the westbound through is held at red. This causes longer red times for all movements and creates additional delay from an operational standpoint.

Two scenarios (Existing (2011) With Potential Improvements) were analyzed to address this deficiency. The first scenario involved improving the geometry of the intersection to create a stand alone eastbound left-turn lane. This would remove the split phase from the signal and make it more efficient. This would include major improvements at the intersection to make the geometry work, and may involve widening of Lake Road and or purchasing right of way at this intersection, where the buildings are close to the road.

The installation of one-way pairs for the east-west roadways was also analyzed. This would include the conversion of Lake Rd. to east only traffic (from Durham to Main) and Wilton Ave. to west only traffic (from Main to Durham). The conversion to one-way pairs will improve the operations within the study area, and eliminate the need for an additional turn lanes at the intersection of Durham Ave. and Lake Rd. and the associated potential need for additional right of way. The one-way pairs would each have one lane which would provide right-of-way to be used for utilities, greenways, and bike lanes. The one-way pair can also be used in tandem with a roundabout at Durham Ave. and Wilton Ave. to further reduce delay and improve operations. A signal will need to be added at Main St. and Lake Rd. for some additional costs, but a signal at this intersection will also improve sight distance issues and pedestrian movements. Whether or not the one-way pair is used, using dual roundabouts, as evidenced in the capacity analysis, is an option with a second roundabout located at Durham Ave. and Lake Rd. A roundabout at this location, contrary to the roundabout at Durham Ave. and Wilton Ave. will most likely involve right-of-way acquisition as part of the construction.

Since this report is leading to development of the 2040 LRTP, the project team also looked at scenarios using traffic projections to 2040. The traffic projections were determined by using a straight line growth rate for the study area of 3%, as discussed and agreed to by CAMPO. The increase in traffic for the 2040 design year showed deficiencies at all 4 intersections. Major improvements would be needed as well as signalization at each of the four analyzed intersections to keep up with the proposed traffic growth. The traffic projections are conservative as they do not take into account the effect of the proposed Creedmoor Connector (NC 56 By-Pass) project, which may impact the levels of traffic in 2040 by diverting traffic to the new corridor.

In conclusion, the conversion of the east-west streets within the study area to one-way pairs will operate at acceptable levels of service at the present time without needing to change geometry at any intersection. The one-way pairs will also create opportunities of the inclusion of other modes to produce complete streets within the study area. The inclusion of a roundabout at Durham and Wilton to the one-way pairs will benefit the City as both a gateway to the City and as a centerpiece to future development. It is recommended that as part of the development of the Creedmoor Connector, that these intersections are reviewed again if and when that corridor is constructed.

5.0 Access Management

Ensuring proper access management serves as a critical component in roadway operation and safety improvements. Access management entails the provision of safe and efficient access points between adjacent land uses and the roadway network. Techniques applied in access management include the construction of site driveways, reconfiguration or consolidation of existing driveways, construction of median break locations, and improvements made to site frontages including planter strips that provide separation between pedestrians and roadway traffic.

TNT Grill frontage on Durham Ave. (US 15)

Access management facilitates linkages between the land use and transportation system, which provides several benefits. These include improved roadway safety, reduced congestion, improved air quality, and enhanced aesthetic appeal of roadway corridors. Improvements to access management also provide benefits to surrounding businesses, which can include increases in site visibility as well as enhanced curbside appeal.

5.1 Access Management Recommendations

Improvements made in access management play a vital role in the operational and safety recommendations for the four intersections in the study area. The proposed recommendations in access management were crafted following consultation with existing NCDOT access management policies and practices.

Following an evaluation of access across the study area, two areas for proposed recommendations were identified. These included the western portion of Durham Ave. between Lake Rd. and Wilton Ave. as well as the northern portion of Wilton Ave. east of Main St.

5.1.1 Durham Ave.

Access management improvements are proposed for the southern portion of Durham Ave. between Lake Rd. and Wilton Ave. (See **Figure 5-1**). An evaluation of existing conditions revealed generally poor access management practices. These included poor sight visibility from the Andrews Ford driveway, existing crash data revealing accidents occurring at the Andrews Ford driveway site, and an absence of site frontage that creates no delineation between the roadway and parking area for the TNT Grill.

Figure 5-1 | Access Management on Durham Ave.

Legend:

- Planting Strip
- Controlled Access Location

These existing access management deficiencies present numerous operational and safety challenges along Durham Ave. The following recommendations aim not only to improve access management along Durham Ave. but also improve the operation and safety of the Durham Ave and Wilton Ave. and Durham Ave. and Lake Rd. intersections (See **Figure 5-1**):

- Construction of a planting strip in front of the Andrews Ford and TNT Grill complexes in order to improve the delineation between the roadway and site frontages.
- Provision of enhanced landscaping, such as street trees, along the planting strip that complement planned investments in sidewalk infrastructure and improve area walkability.
- Consolidation of existing driveways in order to promote shared access points between the Andrews Ford and TNT Grill.

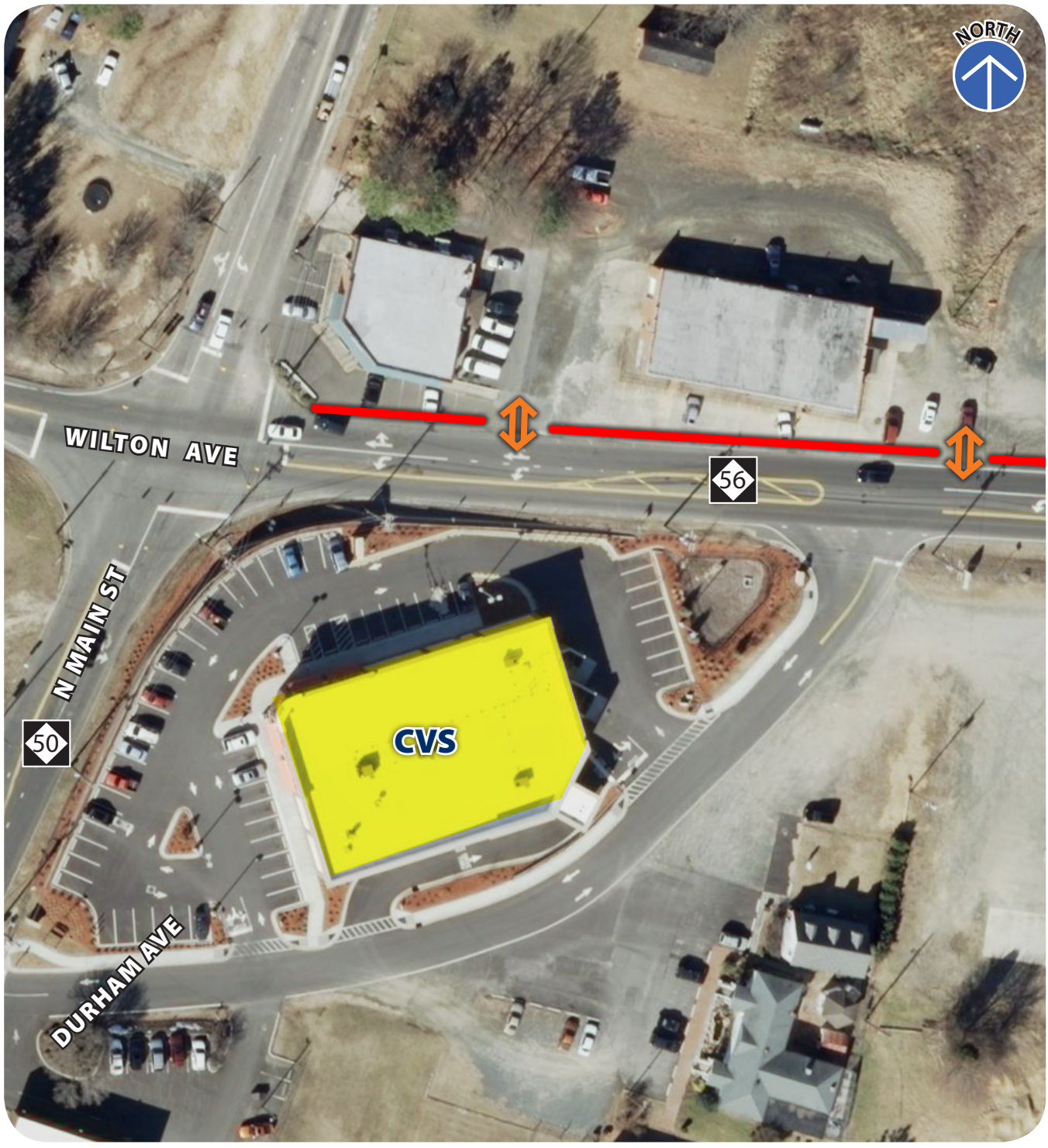
5.1.2 Wilton Ave.

Improvements in access management are also proposed for the northern portion of Wilton Ave. east of Main St. (See **Figure 5-2**). Existing conditions along the northern portion of Wilton Ave. reveal generally poor access management practices. An absence of site frontage along Wilton Ave. creates no delineation between the roadway and parking area for the two commercial strip shopping centers. In addition, current parking practices allow vehicles to park immediately perpendicular to the roadway. Both conditions create potential roadway hazards by increasing the number of conflict points with vehicles traveling along Wilton Ave.

Such deficiencies in access management present numerous operational and safety challenges along Wilton Ave. The following recommendations aim to improve access management along Wilton Ave., and also improve the operation and safety of the Main St. and Wilton Ave. intersection (See **Figure 5-2**):

- Construction of a planting strip along Wilton Ave. in order to improve the delineation between the roadway and the site frontages of the two commercial strip shopping centers.
- Provision of enhanced landscaping, such as street trees, along the planting strip that complement planned investments in sidewalk infrastructure and improve area walkability.
- Consolidation of existing driveways in order to promote shared access points between the two commercial strip shopping centers.
- Replacement of perpendicular parking practices with creation of on-street parking facilities along Wilton Ave. and moving on-site parking to the side or rear of the buildings.
- Complement on-street parking, planting strip, and sidewalk additions with a reduction in the speed limit along Wilton Ave. from 35 MPH to 20 MPH.

Figure 5-2 | Access Management on Wilton Ave.



Legend:

- Planting Strip
- Controlled Access Location

6.0 Recommendations

The information gathered from each component of the Creedmoor Intersection Feasibility and Impact Analysis, including existing and future traffic conditions, environmental and cultural impacts, crash data analyses, and access management assessments aided in identifying a wide range of innovative solutions for the four intersections. These solutions include both low-cost near term options as well as future higher cost options encompassing the study area. Based on these considerations, the following recommendations are made:

6.1 Near-Term Intersection Improvements

Durham Ave. (US 15) and Lake Rd. (NC 56):

- When sidewalks are added to the cross streets, provide ADA compliant pedestrian crossings and amenities, such as timed signal crossings and clearly marked crosswalks, in an effort to slow vehicular speed along Durham Ave.
- Improve the sight distance along the western portion of Durham Ave. especially for vehicles traveling east along Lake Rd. Field observations revealed roadway signage, utility poles, and vehicles parked in front of the Andrews Ford site as potential obstructions. The additional right-of-way required for the planned construction of sidewalks, as well as the implementation of access management improvements shown in **Figure 5-1**, should be used as mechanisms to improve the sight distance for drivers along Lake Rd.

Durham Ave. and Lake Rd.

Durham Ave. (US 15) and Wilton Ave. (NC 56):

- When sidewalks are added to the cross streets, provide ADA compliant pedestrian crossings and amenities, such as clearly marked crosswalks, in an effort to slow vehicular speed along Durham Ave. and provide complete streets.
- Improve pavement markings along Durham Ave. and Wilton Ave. as well as signage. Some of the NC 50 and NC 56 signs do not have cardinal directions included on the sign. Include those directions on the sign.

Main St. (NC 50) and Lake Rd.:

- When sidewalks are added to the cross streets, provide ADA compliant pedestrian crossings and amenities including timed signal crossings (if a signal is installed) and clearly marked crosswalks.
- Reduce speed limits along Lake Rd. from 35 MPH to 20 MPH.
- Add reflective sheeting to increase visibility of the eastbound Lake Rd. stop sign.

- Improve pavement markings on the Lake Rd. approach at Main St. to create a perpendicular intersection. Add a small median of about 50 feet along Lake Rd. at the intersection to delineate two-way movement and create a pedestrian refuge within the crosswalk. Since this leg of the intersection is fairly wide, consider moving the curb in for a smaller cross-section.

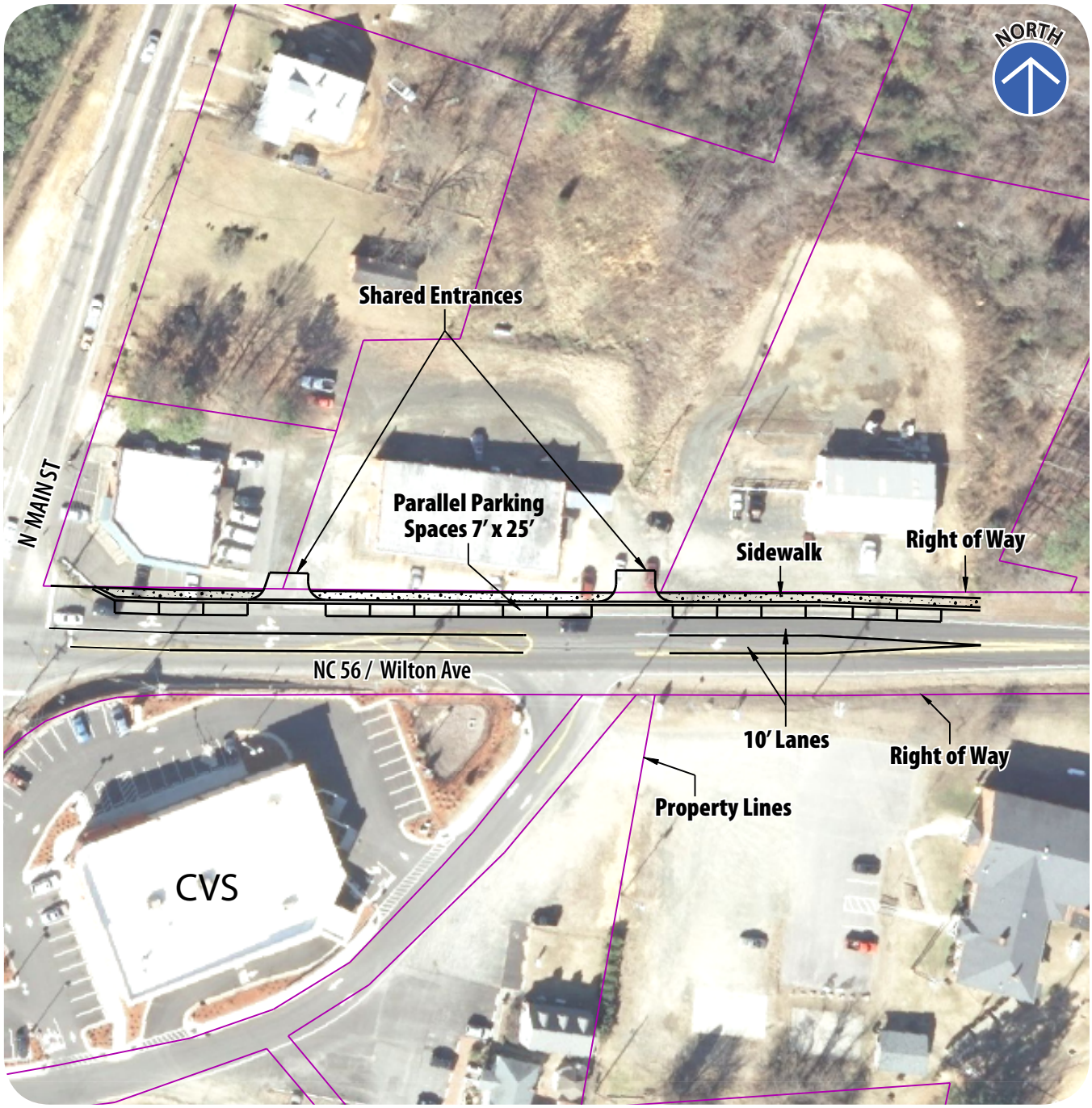
Main St. and Lake Rd.

Main St. (NC 50) and Wilton Ave. (NC 56):

- When sidewalks are added to the cross streets, provide ADA compliant pedestrian crossings and amenities including timed signal crossings and clearly marked crosswalks.
- Reduce speed limits along Wilton Ave. from 35 MPH to 20 MPH. Include on-street parking and sidewalk. Improve access management by doing the following: (See **Figure 6-1**)
    - Reduce the number of entrances and encourage shared entrances
    - Remove the perpendicular parking in front of the businesses along Wilton Ave. east of Main St. and encourage parking in the side or rear of the businesses
    - Provide on-street parallel parking (this involves narrowing the westbound through and left turn lanes to 10 feet)
    - Provide sidewalk along the frontage next to the parallel parking spaces
- Field observations revealed potential sight obstructions, due to above-grade landscaping features and highway signage, at the northwest corner of the intersection. These observed sight obstructions impact vehicles attempting a westbound right onto Main St. Potential solutions include implementation of the one-way pair scenario or restricting both eastbound and westbound rights during red signal phases.
- Signage improvements would include the ending/beginning of NC 50 at this intersection. It is confusing to the driver that NC 50 makes a turn onto Wilton Ave. and then ends. Ending NC 50 at NC 56 would give NC 50 a logical ending/starting point for motorists.

Main St. and Wilton Ave.

Figure 6-1 | Access Management on Wilton Ave. (Including On-Street Parking and Sidewalk)



6.2 Near-Term Roadway Improvements for the Study Area

One-way pair scenario for Wilton Ave. and Lake Rd.:

The project team recommends construction of a one-way pair for Wilton Ave. and Lake Rd. Construction of the one-way pair would involve converting Wilton Ave. and Lake Rd. into one-way streets consisting of one lane each. Based on travel pattern observations made in the field, implementation of a one-way pair scenario would effectively create a City block among the four intersections. Several benefits would result with construction of the one-way pair. These include alleviating capacity concerns as well as improving general traffic flow throughout the study area. Furthermore, a one-way pair would provide additional right-of-way space, which could be used for the construction of greenways/sidewalks/bike lanes to facilitate bicycle and pedestrian movements.

Roundabout construction for the Durham Ave. and Wilton Ave. intersection:

The project team recommends construction of a roundabout for the Durham Ave. and Wilton Ave. intersection. Construction of a roundabout would provide numerous benefits for the study area as well as the City of Creedmoor. A roundabout at Durham Ave. and Wilton Ave. would improve traffic flow and circulation across the study area. In addition, since Durham Ave. is a major travel corridor into the City, the roundabout could serve a placemaking purpose and act as a gateway into the City of Creedmoor. The capacity analysis also showed that using this in tandem with either the one-way pair scenario or a possible roundabout at Durham Ave. and Lake Rd. will also improve the operation significantly. The inclusion of dual roundabouts sets up a centerpiece or showcase for the City for new development much like it has done in other places such as Davidson, NC.

See **Figure 6-2** for Preliminary Roundabout Design at Durham Ave. and Wilton Ave. The figure shows a two-lane roundabout for future expansion.

6.3 Long-Term Improvements for the Study Area

A straight line growth of 3% was used to create traffic projections for 2040 design year. The 2040 capacity analysis shows that even with the creation of one-way pairs, there are still many deficiencies. The one-way streets will need to be improved from one lane to two lanes and many other operational and geometric improvements will need to be included. Also, the roundabout at Durham Ave. and Wilton Ave. will need to be converted to a two-lane roundabout. While all of these improvements may be necessary, the analysis was conservative because it did not include the effect of the proposed Creedmoor Connector project (NC 56 By-Pass).

Figure 6-2 | Roundabout at Durham/Wilton

6.4 Potential Network Improvements

In addition to the 2040 improvements, the project team suggests other possible routes for NC 56 (See **Figure 6-3**) to improve network conditions. At the moment, to stay on NC 56 from either direction, the traveler must make two turns. These network improvements would make the transition through the City on NC 56 much smoother as well as create a single thoroughfare. Note that any of these improvements will also work with the one-way pair scenario.

These 2 options suggested for the NC 56 routes have been discussed throughout the history of NC 56 and have been shown on previous Transportation Improvement Programs. Option 1 is believed to be the original plan for NC 56. Option 3 would include moving Lake Rd. to the north to match up with the existing roadway behind the CVS for a transition to the east.

6.5 Funding Sources

The recommendations include combinations of roadway, bicycle, and pedestrian facility upgrades aimed at improving the operations and safety of the four intersections. Implementing these recommendations will require consideration of federal, state, and local transportation funding sources. Each potential project may be included in North Carolina's Transportation Improvement Program (TIP) or could be funded via the City of Creedmoor.

Similar small scale projects across North Carolina have utilized combinations of Federal, State, and local transportation funding sources:

6.5.1 Federal funding sources

Several potential sources of federal funding are authorized under the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Though the act expired in 2009, SAFETEA-LU has since been extended through September 2011 and is currently awaiting reauthorization by Congress.

- ***Surface Transportation Program (STP) funds***:
  The Surface Transportation Program includes STP-DA (direct-attributable) funds that could be used for both the construction and non-construction (pamphlets, brochures, etc.) of roadway (construction, maintenance, and widening) and non-roadway (bicycle and pedestrian) projects. Similarly, STP funds designated for Transportation Enhancements (TE) activities would provide another source of funding however these funds would be restricted to the proposed bicycle and pedestrian improvement recommendations for the study area (http://www.fhwa.dot.gov).

- ***Congestion Mitigation and Air Quality (CMAQ) funds***:
  CMAQ funds provide a source of transportation funding for projects that demonstrate quantifiable improvements to regional air quality through reductions in vehicle miles traveled (VMT). This source of funding would be restricted to the proposed bicycle and pedestrian improvement recommendations for the study area (http://www.fhwa.dot.gov).

Figure 6-3 | Potential Network Improvements for NC 56

Legend:

- Study Intersection
- Optional Connections

- ***Safe Routes to School Program (SR2S)***:
  The Safe Routes to School (SR2S) program promotes the health and wellness of school children by encouraging them to walk and bicycle to school. The program provides transportation funding for projects that improve walking and bicycling corridors to school locations. With Creedmoor Elementary School located along NC 56 just east of the Main St./Wilton Ave. intersection, this corridor could be eligible for pedestrian and bicycle improvements through the SR2S program.
  http://www.saferoutesinfo.org/

- ***Recreational Trails Program***:
  The Recreational Trails Program provides funding for the development of motorized and non-motorized trails. This source of funding could be used for the proposed greenway paths within the study area.
  http://www.fhwa.dot.gov/environment/rectrails/

- ***Highway Safety Improvement Program (HSIP)***:
  The Highway Safety Improvement Program (HSIP) provides funding for traffic calming, pedestrian, and bicycle improvements. This source of funding could also be used for the installation and improvement of crossing signage.
  http://safety.fhwa.dot.gov/hsip/

- ***Land and Water Conservation Fund (LWCF)***:
  The Land and Water Conservation Fund (LWCF) provide federal funding for wildlife, park, and open space land acquisition. LWCF grants are often used by municipalities in the construction of park and recreation facilities, which includes funding the construction of adjacent greenway paths. This source of funding could be utilized in the construction of the proposed greenways along Wilton Ave. and Lake Rd.
  http://www.nps.gov/lwcf/

6.5.2 State funding sources

State transportation funding involves a coordinated effort between NCDOT, regional MPO's, and local municipalities. State transportation revenue sources for roadway and non-roadway transportation improvements originate from the Highway Fund, Highway Trust Fund, and assorted federal funds. Highway Fund and Highway Trust Fund revenue streams are derived from statewide motor fuel taxes (~55%), DMV fees (~30%), and highway use taxes (~15%). Allocating funds to various transportation projects is completed through a cost/benefit prioritization process of all roadway and non-roadway projects as governed by the parameters of the TIP.

Several sources of state transportation funding could provide the necessary support for the proposed roadway, bicycle, and pedestrian improvements for the study area. For the roadway improvements on U.S. or NC Highways, NCDOT Highway

Fund and Highway Trust Fund revenues as allocated by the TIP process could be used to fund the necessary construction, maintenance, and widening costs. For roadway improvements on locally maintained streets, specifically Lake Rd., Powell Bill funds would provide coverage of these costs.

For the proposed bicycle and pedestrian recommendations, numerous statewide grant program opportunities exist that could provide additional funding for these improvements. The NCDOT Division of Pedestrian and Bicycle Transportation serves as the largest source for bicycle and pedestrian grant opportunities to support both construction and non-construction project costs. Other grant opportunities include the NCDOT Bicycle and Pedestrian Planning Grant Initiative (http://www.ncdot.org/bikeped/planning), North Carolina Safe Routes to School Program, North Carolina Recreational Trails Program, North Carolina Adopt-A-Trail Grant Program (http://www.ncparks.gov) , Small Cities Community Development Block Grants (http://portal.hud.gov), and the North Carolina Health and Wellness Trust Fund (http://www.healthwellnc.com).

6.5.3 Local funding sources

Several local funding options exist that could aid in generating matching funds following the successful pursuit of federal and state revenue sources for the recommended roadway, bicycle, and pedestrian improvements. Often, local governments generate the necessary revenue to fund capital improvements through a variety of sources such as taxes, fees, bonds, and loans. Other innovative funding strategies also exist that have gained in popularity among local governments in North Carolina. These include the formation of public-private partnerships and utilizing grants from private foundations. The City of Creedmoor could pursue partnerships with local businesses and developers in order to market the potential economic, environmental, and social benefits the recommended improvements could have for their businesses and the City of Creedmoor as a whole. Seeking grants from private foundations, such as The Conservation Fund (http://www.conservationfund.org), could also provide additional sources of revenue to fund the recommended improvements.

6.6 Cost Estimates

The following **Table 6-1** contains cost estimates for the recommended improvements in the study area. These figures are based on preliminary designs and should be revisited at the functional design stage. The costs also assume that the costs of any utility relocation will be born by the owner.

Table 6-1 | Creedmoor Feasibility Study - Cost Estimates for Recommended Improvements

DESCRIPTION	LENGTH (FT)	ESTIMATED COST OF PLANNED IMPROVEMENTS (2011 DOLLARS)
Near-term improvements by intersection		
Durham Ave. and Lake Rd.		
• Pedestrian/Bicycle facility upgrades		$15,000
Durham Ave. and Wilton Ave.		
• Pedestrian/bicycle facility upgrades		$10,000
• Signage/pavement marking improvements – addition of on-street parking and sidewalk	500	$150,000
Main St. and Lake Rd.		
• Pedestrian/bicycle facility upgrades		$10,000
• Signage/pavement marking/curb and gutter improvements	100	$30,000
Main St. and Wilton Ave.		
• Pedestrian/bicycle facility upgrades		$10,000
Near-term improvements for the study area		
One-way pair		
• Wilton Ave. (includes signal improvements at Main St.)	930	$500,000
• Lake Rd. (includes signal at Main St. and signal improvements at Durham Ave.)	1,020	$600,000
Roundabout		
• Durham Ave. and Wilton Ave.		$300,000
Long-term improvements for the study area		
Lane additions to One-Way Pairs		
• Wilton Ave.	930	$500,000
• Lake Rd.	1,020	$750,000
Roundabouts		
• Durham Ave. and Wilton Ave. – lane add		$50,000
• Durham Ave. and Lake Rd. (including right-of-way taking)		$600,000

7.0 Conclusion

This report provides an intersection and feasibility impact analysis for NC 56/NC 50/US 15 intersections in the City of Creedmoor, NC. Both near-term and long-term improvement solutions were crafted following an in-depth investigation of existing and future traffic conditions, environmental and cultural impacts, crash data analyses, and access management assessments.

The outlined recommendations provide a foundation for the City of Creedmoor in assessing existing and future transportation conditions. These efforts will provide the City with additional insight in advance of the 2040 CTP and LRTP planning efforts. Furthermore, pursuing these recommendations will aid the City of Creedmoor's pursuit of enhancing community liveability, expanding economic development opportunity, and improving environmental quality and health.

[ITEMS TO BE INCLUDED]

Appendix A: Crash Diagrams

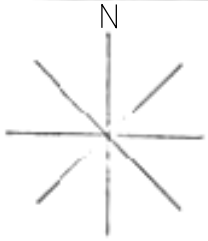
Appendix B: Traffic Counts

Appendix C: Capacity Analysis

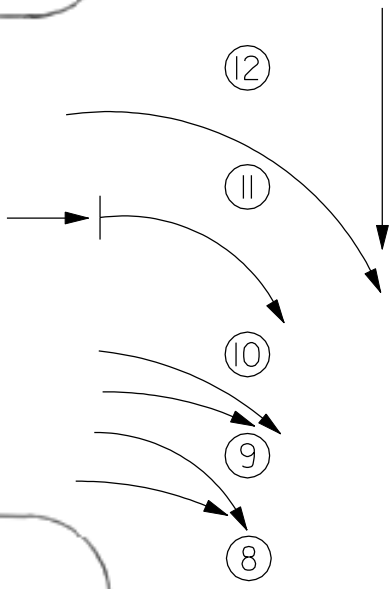
APPENDIX A:

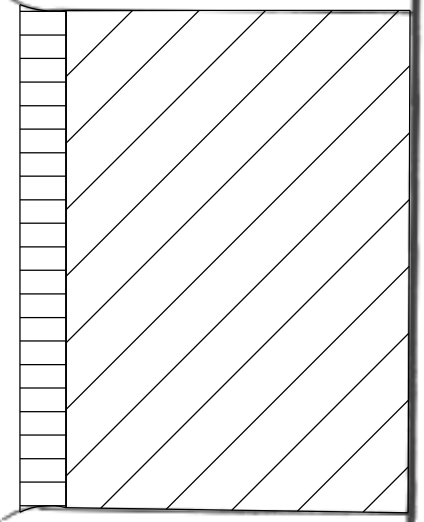
CRASH DIAGRAMS

COLLISION DIAGRAM



Indicate North by Arrow





LAKE RD.
Name

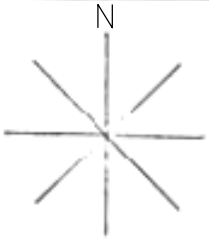
MAIN ST. (NC 50)
Name

SYMBOLS	TYPES OF COLLISIONS	SHOW FOR EACH ACCIDENT
Moving Vehicle	Rear-End	1. Approximate location of accident
Backing Vehicle	Head On	2. Type of collision and vehicles involved.
Non-Involved Vehicle	Side Swipe	3. Time, Day, Date
Pedestrian	Out of Control	4. Any other pertinent factors mentioned on the report (i.e. presence of oil on road, ruts, etc.)
Parked Vehicle	Left Turn	
Fixed Object	Right Angle	
Fatal Accident		
Injury Accident		

INTERSECTION MAIN ST. and LAKE RD.

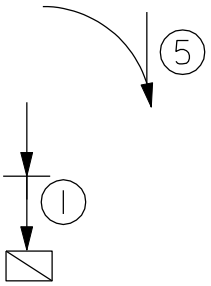
PERIOD FROM: 9/8/08 to 3/2/09

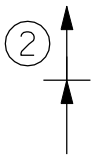
COLLISION DIAGRAM

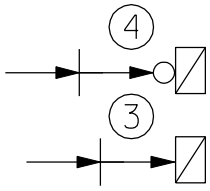


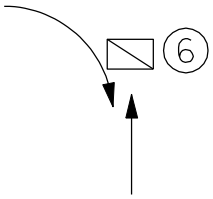
Indicate North

by Arrow









LAKE RD. (HWY 56)

Name

DURHAM AVE. (US 15)

Name

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non-Involved Vehicle
- Pedestrian
- Parked Vehicle
- Fixed Object
- Fatal Accident
- Injury Accident

TYPES OF COLLISIONS

- Rear-End
- Head On
- Side Swipe
- Out of Control
- Left Turn
- Right Angle

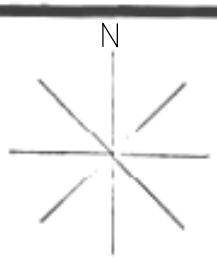
SHOW FOR EACH ACCIDENT

1. Approximate location of accident
2. Type of collision and vehicles involved.
3. Time, Day, Date
4. Any other pertinent factors mentioned on the report (i.e. presence of oil on road, ruts, etc.)

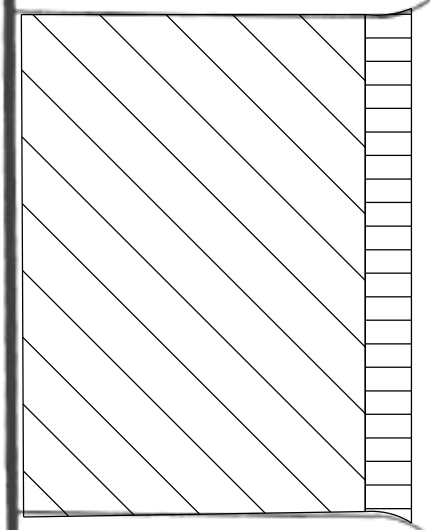
INTERSECTION LAKE RD. and DURHAM AVE.

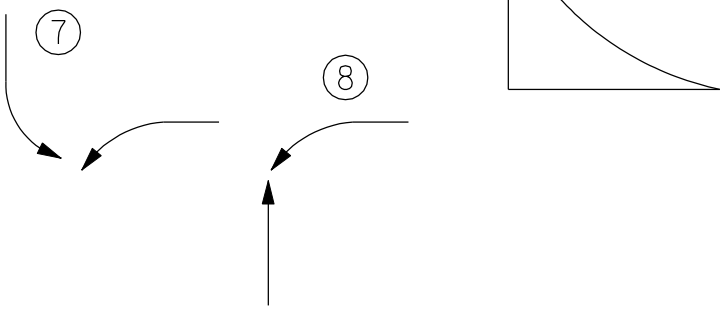
PERIOD FROM: 6/9/08 to 2/5/09

COLLISION DIAGRAM



Indicate North by Arrow





WILTON AVE. (NC 56)

Name

DURHAM AVE. (US 15)

Name

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non-Involved Vehicle
- Pedestrian
- Parked Vehicle
- Fixed Object
- Fatal Accident
- Injury Accident

TYPES OF COLLISIONS

- Rear-End
- Head On
- Side Swipe
- Out of Control
- Left Turn
- Right Angle

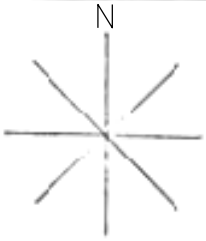
SHOW FOR EACH ACCIDENT

1. Approximate location of accident
2. Type of collision and vehicles involved.
3. Time, Day, Date
4. Any other pertinent factors mentioned on the report (i.e. presence of oil on road, ruts, etc.)

INTERSECTION DURHAM AVE. and WILTON AVE.

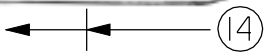
PERIOD FROM: 5/12/09 to 10/14/10

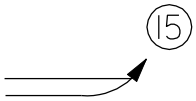
COLLISION DIAGRAM

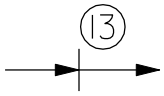


Indicate North

by Arrow







WILTON AVE. (NC 56)

Name

MAIN ST. (NC 50)

Name

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non-Involved Vehicle
- Pedestrian
- Parked Vehicle
- Fixed Object
- Fatal Accident
- Injury Accident

TYPES OF COLLISIONS

- Rear-End
- Head On
- Side Swipe
- Out of Control
- Left Turn
- Right Angle

SHOW FOR EACH ACCIDENT

1. Approximate location of accident
2. Type of collision and vehicles involved.
3. Time, Day, Date
4. Any other pertinent factors mentioned on the report (i.e. presence of oil on road, ruts, etc.)

INTERSECTION WILTON AVE. and MAIN ST.

PERIOD FROM: 7/6/10 to 11/27/10

APPENDIX B:

TRAFFIC COUNTS

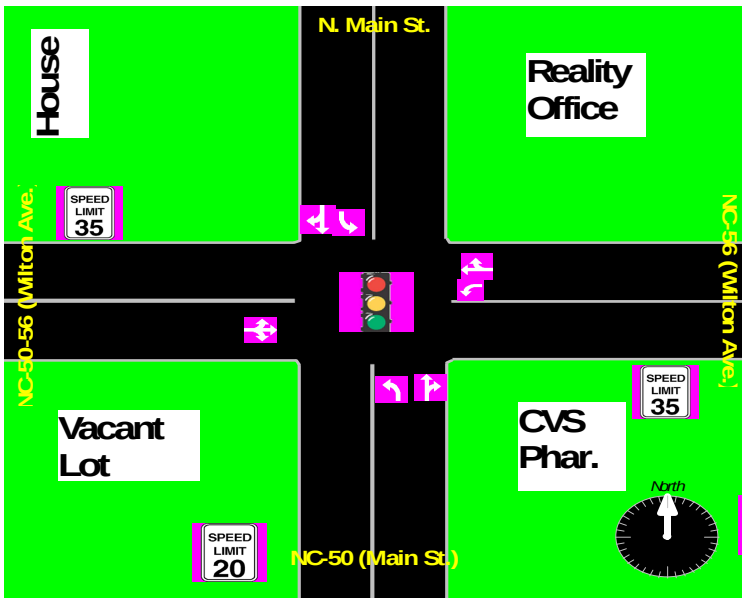
GreenLight
Traffic Services, Inc.
Post Office 1364
Garner, North Carolina 27529-1364
919-632-1779

Benny R. Johnson, President

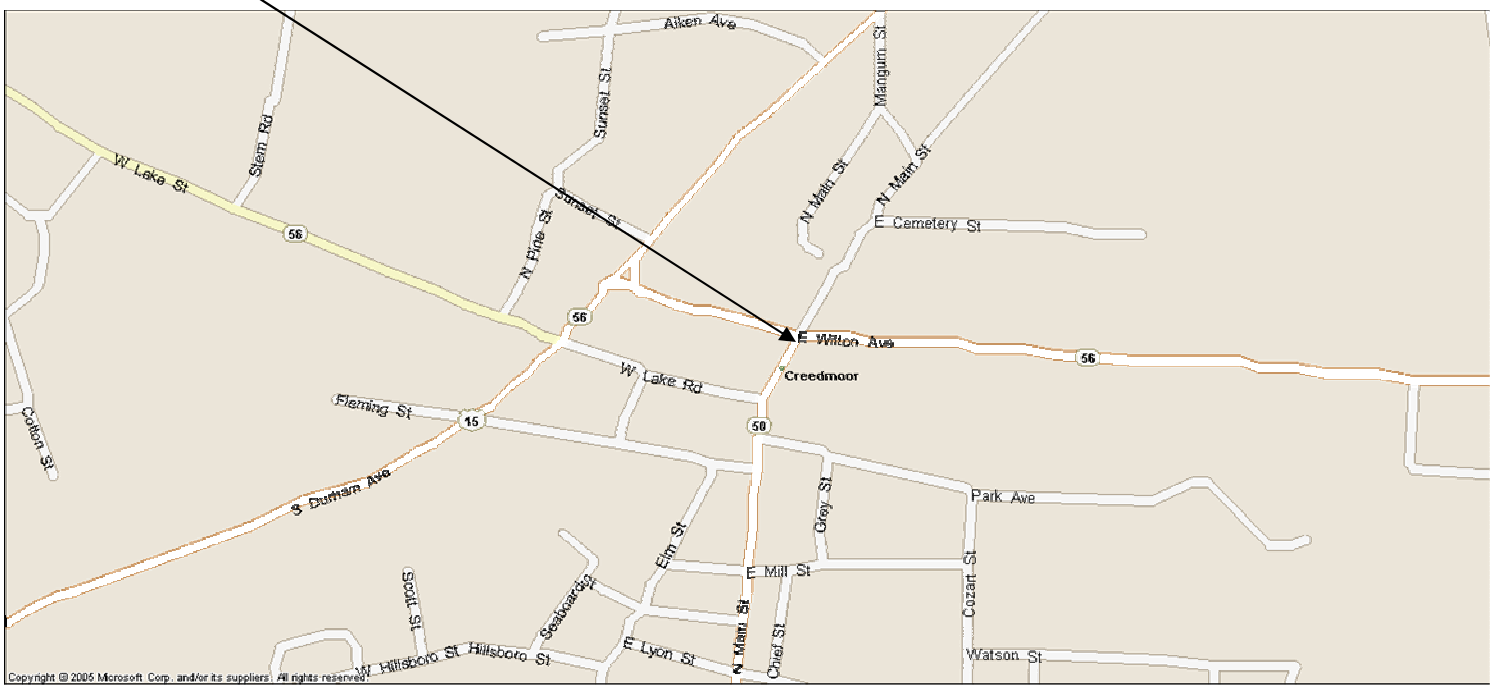
Count Site# 1

Intersection: NC-50 (Main St.) @ NC-50-56 (Wilton Ave.)
City of Creedmoor, NC

1. Count Times: 7:00 to 9:00 AM, 11:00 AM to 1:00 PM & 4:00 to 6:00 PM.



Site# 1



1. *Green Light Traffic Services, Inc.*
- *P.O. Box 1364 Garner, NC 27529*
- *Benny R. Johnson, President*
- *(919) 632-1779*

NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 1

Groups Printed- Vehicles - Bank 1= Trucks, 3 Axles+

	N. Main St. Southbound					NC-56 (Wilton Ave.) Westbound					NC-50 (Main St.) Northbound					NC-50-56 (Wilton Ave.) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	6	43	4	0	53	89	88	3	0	180	2	12	35	0	49	1	63	4	0	68	350
07:15 AM	5	37	0	0	42	130	97	7	1	235	8	16	44	0	68	0	91	7	0	98	443
07:30 AM	5	53	0	0	58	116	99	2	1	218	9	24	26	0	59	2	56	4	0	62	397
07:45 AM	3	36	0	0	39	86	79	2	1	168	7	21	23	0	51	2	58	11	0	71	329
Total	19	169	4	0	192	421	363	14	3	801	26	73	128	0	227	5	268	26	0	299	1519
08:00 AM	6	40	0	0	46	73	93	3	0	169	6	34	21	0	61	6	55	3	0	64	340
08:15 AM	5	24	0	0	29	63	84	3	0	150	12	18	22	0	52	2	54	4	0	60	291
08:30 AM	3	24	0	1	28	43	75	3	0	121	8	14	18	0	40	0	36	4	0	40	229
08:45 AM	4	25	1	0	30	24	45	2	0	71	10	17	9	0	36	4	31	4	0	39	176
Total	18	113	1	1	133	203	297	11	0	511	36	83	70	0	189	12	176	15	0	203	1036
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
*** BREAK ***																					
11:00 AM	2	20	5	0	27	20	41	4	0	65	10	23	16	0	49	0	32	6	0	38	179
11:15 AM	2	22	2	0	26	26	26	0	1	53	4	14	26	0	44	4	29	6	0	39	162
11:30 AM	3	15	3	0	21	23	36	2	0	61	9	15	29	0	53	2	37	2	0	41	176
11:45 AM	2	16	0	0	18	15	36	5	0	56	5	11	15	0	31	1	35	11	0	47	152
Total	9	73	10	0	92	84	139	11	1	235	28	63	86	0	177	7	133	25	0	165	669
12:00 PM	2	11	4	0	17	24	35	4	0	63	9	13	22	0	44	1	40	6	0	47	171
12:15 PM	1	16	2	0	19	15	47	4	0	66	9	13	15	0	37	1	47	4	0	52	174
12:30 PM	2	13	0	0	15	26	41	0	0	67	5	12	16	0	33	1	46	1	0	48	163
12:45 PM	1	18	1	0	20	21	34	2	0	57	13	9	26	0	48	1	42	9	0	52	177
Total	6	58	7	0	71	86	157	10	0	253	36	47	79	0	162	4	175	20	0	199	685
*** BREAK ***																					
04:00 PM	4	16	2	0	22	47	60	5	0	112	4	31	49	0	84	2	90	10	0	102	320
04:15 PM	3	21	0	0	24	37	49	3	0	89	3	42	52	0	97	1	90	6	0	97	307
04:30 PM	3	33	2	0	38	36	67	4	0	107	4	33	30	0	67	0	107	4	0	111	323
04:45 PM	0	27	2	0	29	35	40	3	0	78	7	36	45	3	91	1	108	6	0	115	313
Total	10	97	6	0	113	155	216	15	0	386	18	142	176	3	339	4	395	26	0	425	1263
05:00 PM	2	20	1	0	23	23	44	2	0	69	9	42	63	0	114	3	138	7	0	148	354
05:15 PM	4	30	1	0	35	39	52	3	0	94	5	35	66	0	106	0	115	11	0	126	361
05:30 PM	2	35	1	0	38	29	65	3	0	97	11	40	85	0	136	2	138	6	0	146	417
05:45 PM	6	35	0	0	41	25	48	3	0	76	8	37	52	0	97	0	132	8	0	140	354
Total	14	120	3	0	137	116	209	11	0	336	33	154	266	0	453	5	523	32	0	560	1486

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NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 2

Groups Printed- Vehicles - Bank 1= Trucks, 3 Axles+

	N. Main St. Southbound					NC-56 (Wilton Ave.) Westbound					NC-50 (Main St.) Northbound					NC-50-56 (Wilton Ave.) Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Grand Total	76	630	31	1	738	1065	1381	72	4	2522	177	562	805	3	1547	37	1671	144	0	1852	6659
Apprch %	10.3	85.4	4.2	0.1		42.2	54.8	2.9	0.2		11.4	36.3	52	0.2		2	90.2	7.8	0		
Total %	1.1	9.5	0.5	0	11.1	16	20.7	1.1	0.1	37.9	2.7	8.4	12.1	0	23.2	0.6	25.1	2.2	0	27.8	
Vehicles	76	608	31	1	716	1058	1320	72	4	2454	153	559	802	3	1517	37	1599	130	0	1766	6453
% Vehicles	100	96.5	100	100	97	99.3	95.6	100	100	97.3	86.4	99.5	99.6	100	98.1	100	95.7	90.3	0	95.4	96.9
Bank 1= Trucks, 3 Axles+	0	22	0	0	22	7	61	0	0	68	24	3	3	0	30	0	72	14	0	86	206
% Bank 1= Trucks, 3 Axles+	0	3.5	0	0	3	0.7	4.4	0	0	2.7	13.6	0.5	0.4	0	1.9	0	4.3	9.7	0	4.6	3.1

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File Name : Site# 1 Creedmoor
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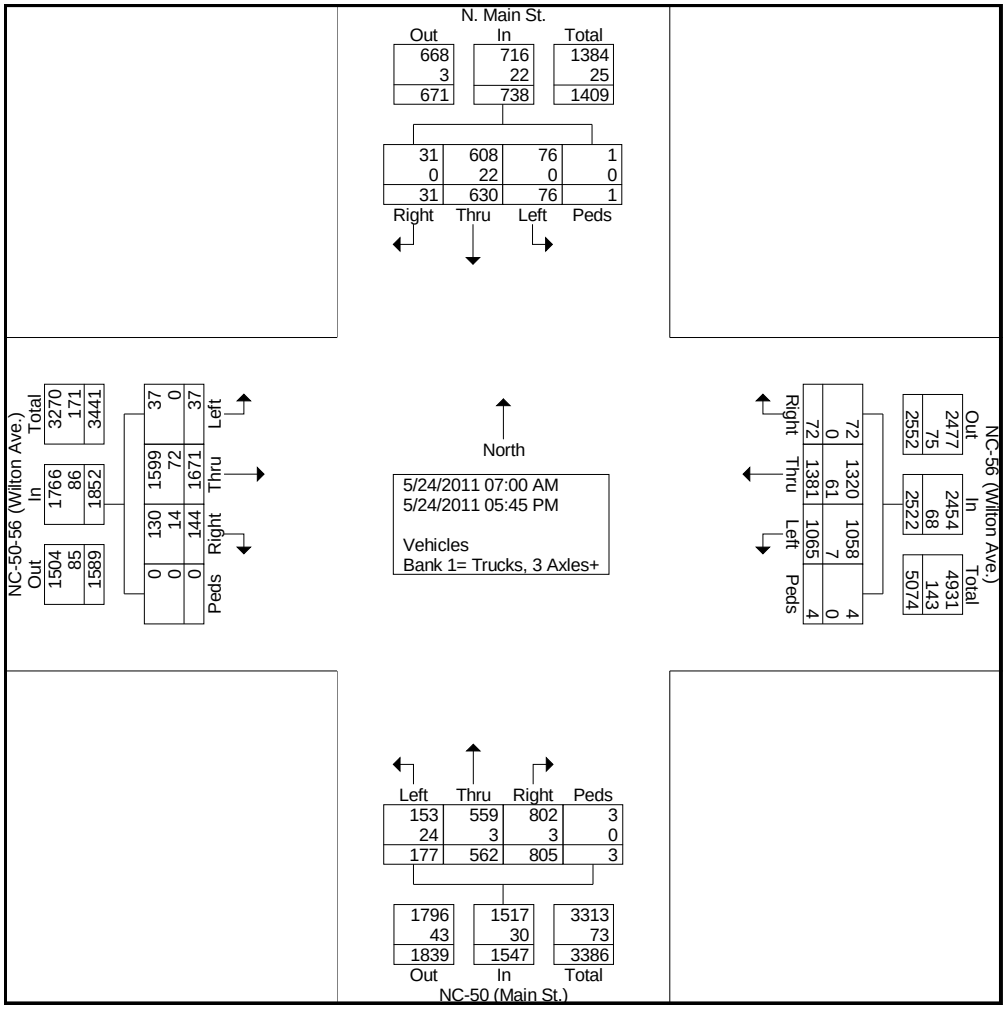
Start Date : 5/24/2011
Page No : 3



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Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 4

	N. Main St. Southbound					NC-56 (Wilton Ave.) Westbound					NC-50 (Main St.) Northbound					NC-50-56 (Wilton Ave.) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	**6**	43	**4**	0	53	89	88	3	0	180	2	12	35	0	49	1	63	4	0	68	350
07:15 AM	5	37	0	0	42	**130**	97	**7**	**1**	**235**	8	16	**44**	0	**68**	0	**91**	7	0	**98**	**443**
07:30 AM	5	**53**	0	0	**58**	116	**99**	2	1	218	**9**	**24**	26	0	59	**2**	56	4	0	62	397
07:45 AM	3	36	0	0	39	86	79	2	1	168	7	21	23	0	51	2	58	**11**	0	71	329
Total Volume	19	169	4	0	192	421	363	14	3	801	26	73	128	0	227	5	268	26	0	299	1519
% App. Total	9.9	88	2.1	0		52.6	45.3	1.7	0.4		11.5	32.2	56.4	0		1.7	89.6	8.7	0		
PHF	.792	.797	.250	.000	.828	.810	.917	.500	.750	.852	.722	.760	.727	.000	.835	.625	.736	.591	.000	.763	.857

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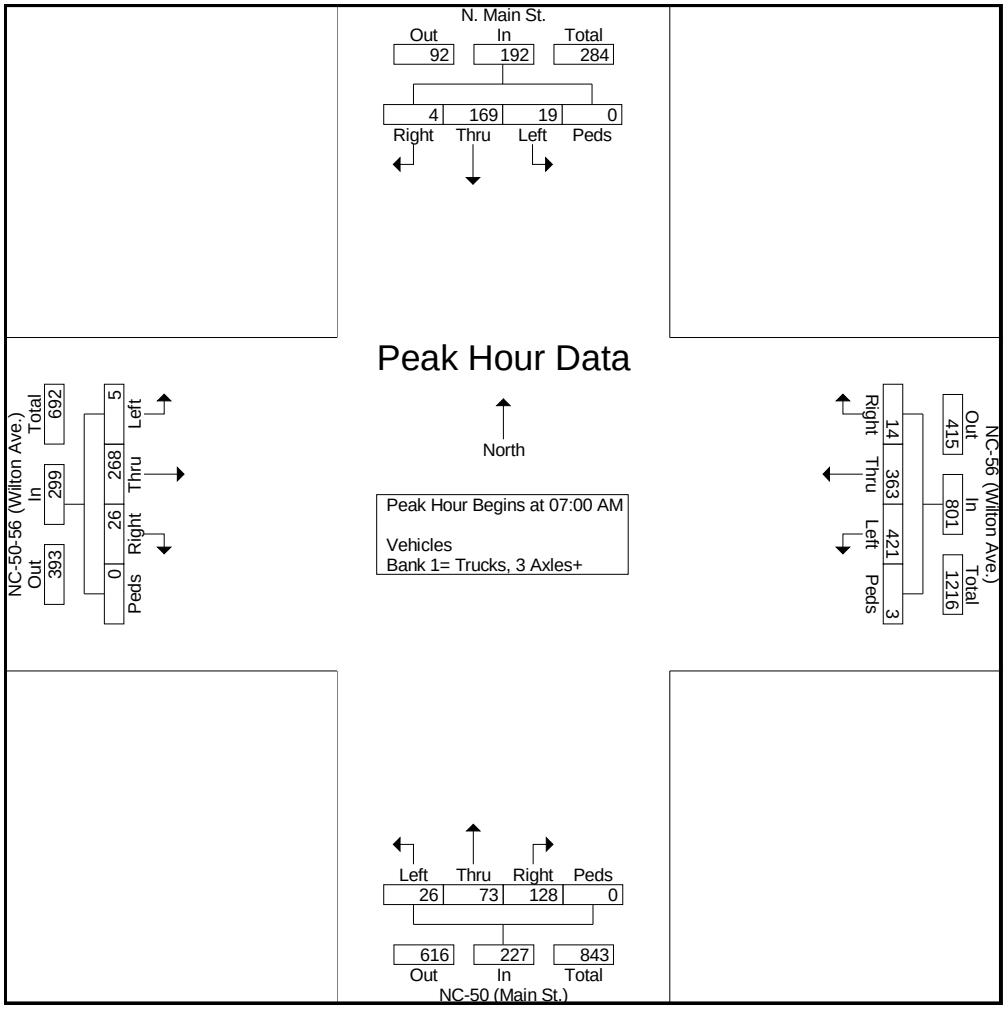
- *(919) 632-1779*

NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 5



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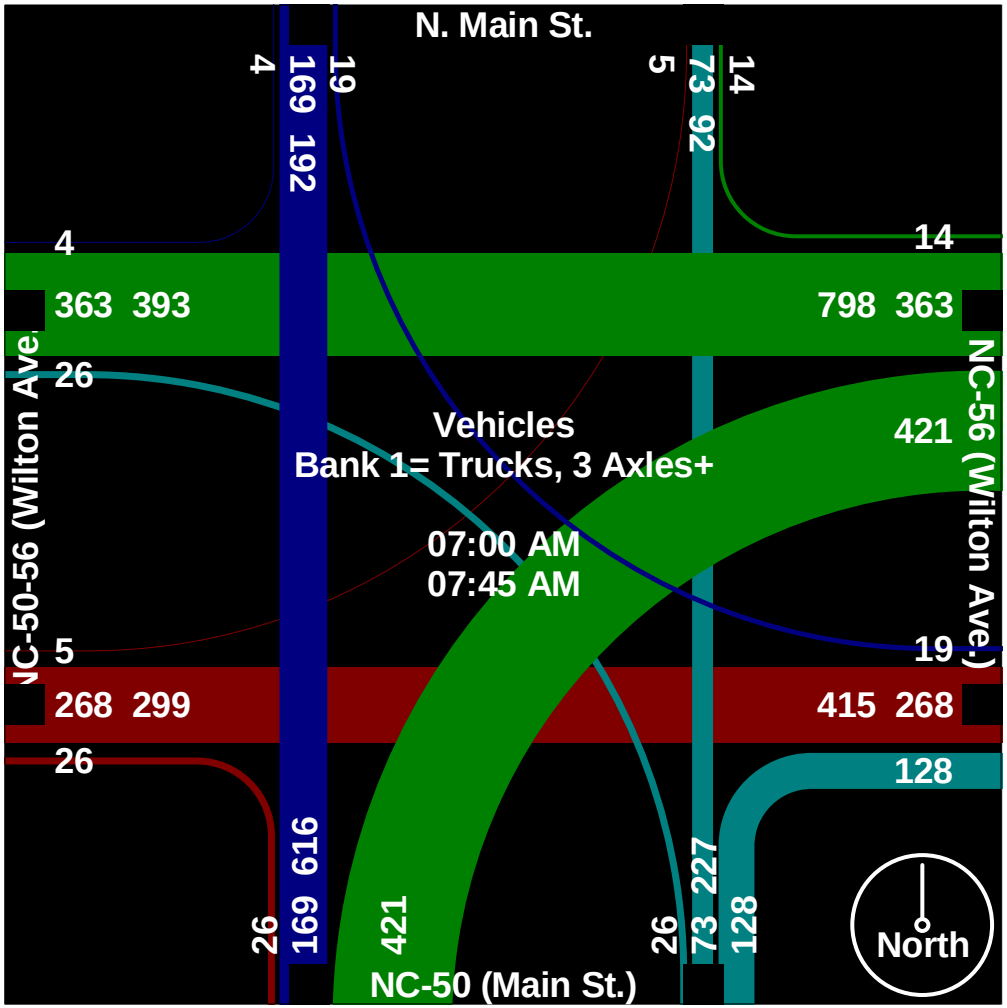
NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 6



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NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 7

	N. Main St. Southbound					NC-56 (Wilton Ave.) Westbound					NC-50 (Main St.) Northbound					NC-50-56 (Wilton Ave.) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:00 AM					07:00 AM					07:15 AM					07:00 AM					
+0 mins.	**6**	43	**4**	0	53	89	88	3	0	180	8	16	**44**	0	**68**	1	63	4	0	68	
+15 mins.	5	37	0	0	42	**130**	97	**7**	**1**	**235**	**9**	24	26	0	59	0	**91**	7	0	**98**	
+30 mins.	5	**53**	0	0	**58**	116	**99**	2	1	218	7	21	23	0	51	**2**	56	4	0	62	
+45 mins.	3	36	0	0	39	86	79	2	1	168	6	**34**	21	0	61	2	58	**11**	0	71	
Total Volume	19	169	4	0	192	421	363	14	3	801	30	95	114	0	239	5	268	26	0	299	
% App. Total	9.9	88	2.1	0		52.6	45.3	1.7	0.4		12.6	39.7	47.7	0		1.7	89.6	8.7	0		
PHF	.792	.797	.250	.000	.828	.810	.917	.500	.750	.852	.833	.699	.648	.000	.879	.625	.736	.591	.000	.763	

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Creedmoor, NC
Weather:Sunny Note:
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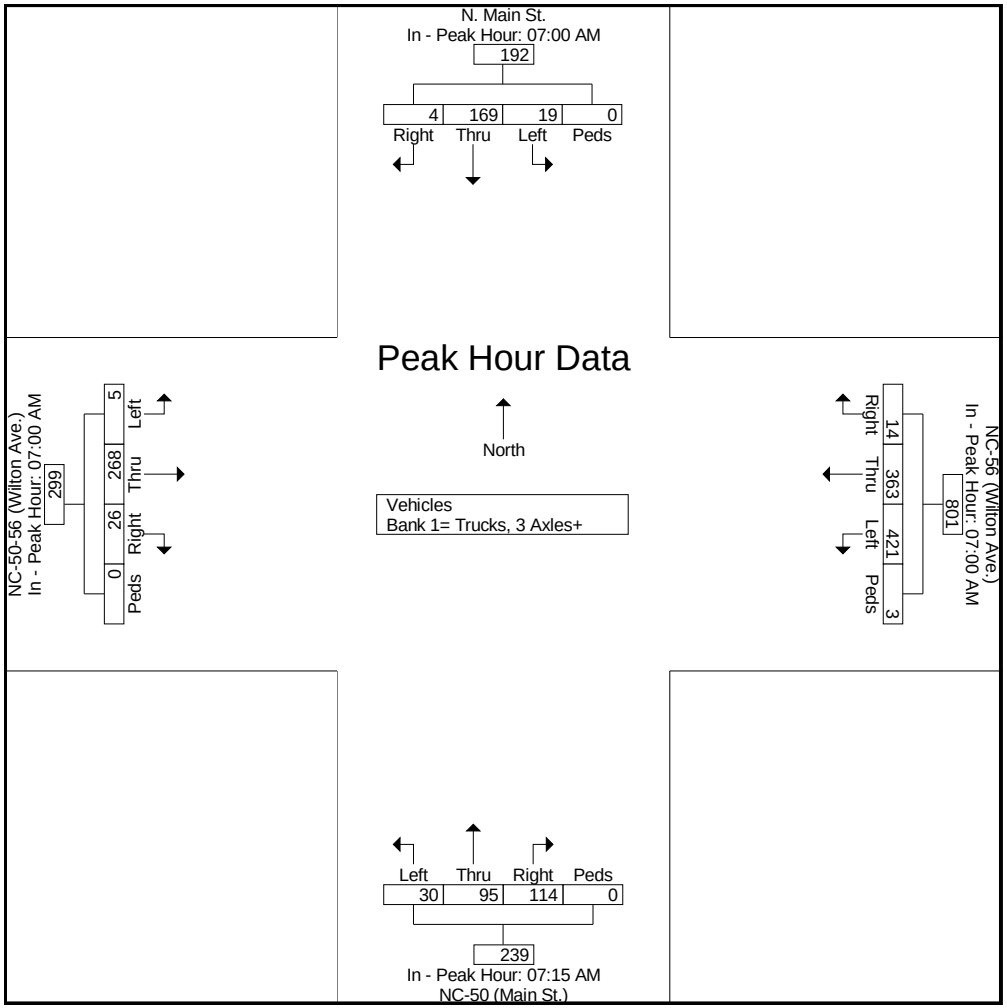
File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011



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NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
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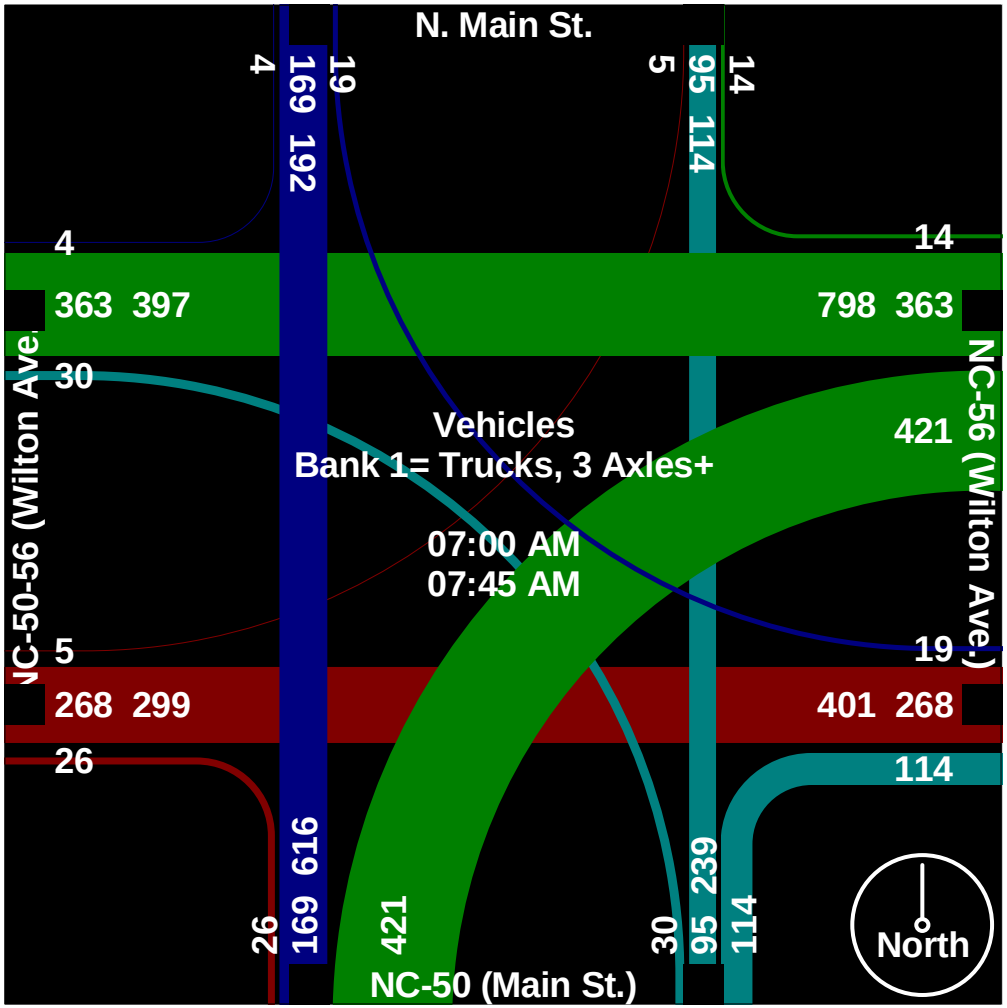
File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011



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NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 10

	N. Main St. Southbound					NC-56 (Wilton Ave.) Westbound					NC-50 (Main St.) Northbound					NC-50-56 (Wilton Ave.) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	**2**	11	**4**	0	17	24	35	**4**	0	63	9	**13**	22	0	44	**1**	40	6	0	47	171
12:15 PM	1	16	2	0	19	15	**47**	4	0	66	9	13	15	0	37	1	**47**	4	0	**52**	174
12:30 PM	2	13	0	0	15	**26**	41	0	0	**67**	5	12	16	0	33	1	46	1	0	48	163
12:45 PM	1	**18**	1	0	**20**	21	34	2	0	57	**13**	9	**26**	0	**48**	1	42	**9**	0	52	**177**
Total Volume	6	58	7	0	71	86	157	10	0	253	36	47	79	0	162	4	175	20	0	199	685
% App. Total	8.5	81.7	9.9	0		34	62.1	4	0		22.2	29	48.8	0		2	87.9	10.1	0		
PHF	.750	.806	.438	.000	.888	.827	.835	.625	.000	.944	.692	.904	.760	.000	.844	1.00	.931	.556	.000	.957	.968

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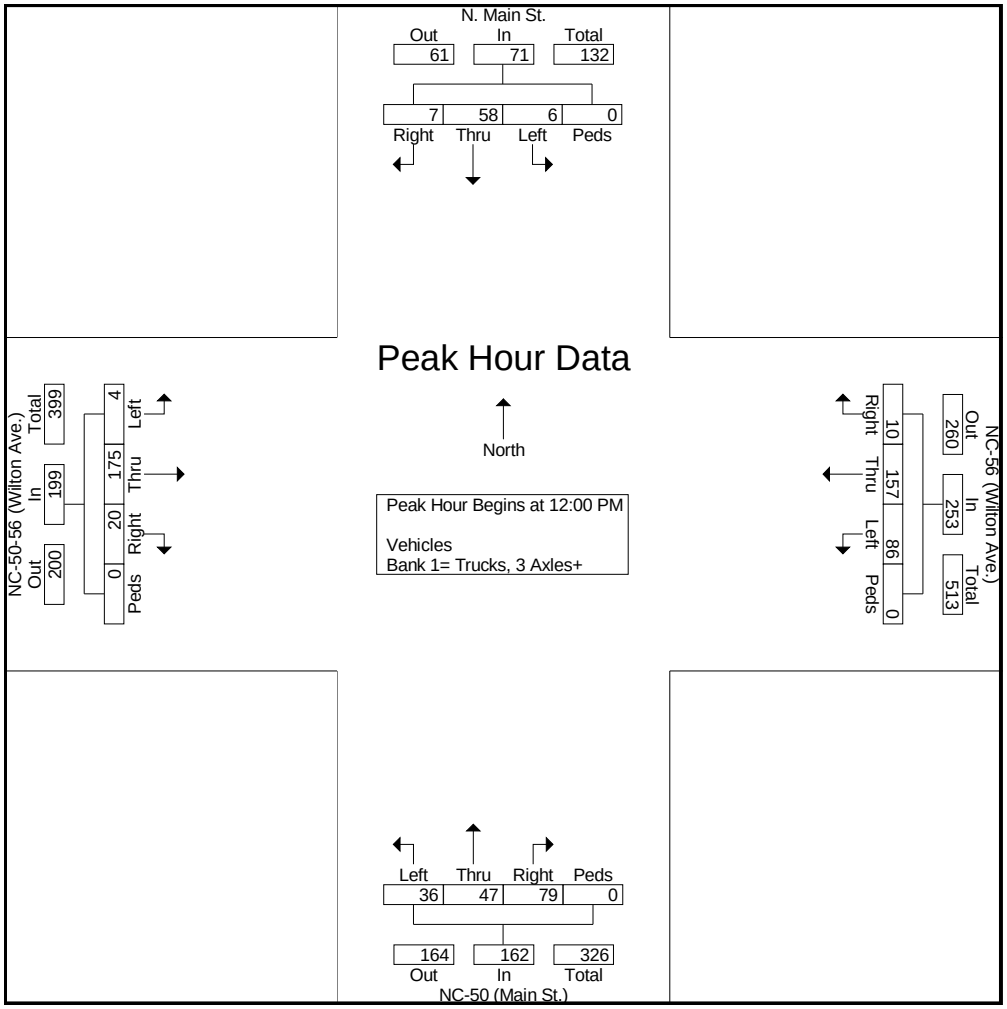
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011



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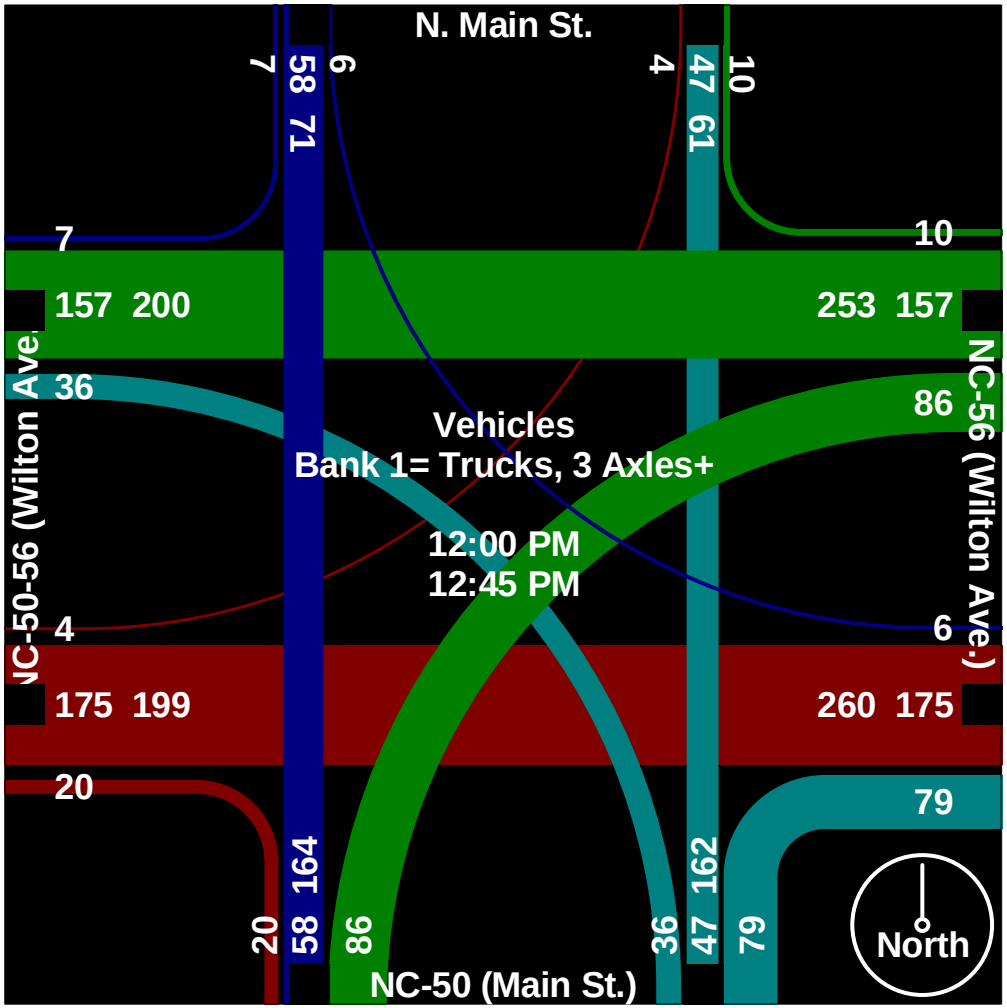
NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011



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NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 13

	N. Main St. Southbound					NC-56 (Wilton Ave.) Westbound					NC-50 (Main St.) Northbound					NC-50-56 (Wilton Ave.) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	11:00 AM					12:00 PM					11:00 AM					12:00 PM					
+0 mins.	2	20	**5**	0	**27**	24	35	**4**	0	63	**10**	**23**	16	0	49	**1**	40	6	0	47	
+15 mins.	2	**22**	2	0	26	15	**47**	4	0	66	4	14	26	0	44	1	**47**	4	0	**52**	
+30 mins.	**3**	15	3	0	21	**26**	41	0	0	**67**	9	15	**29**	0	**53**	1	46	1	0	48	
+45 mins.	2	16	0	0	18	21	34	2	0	57	5	11	15	0	31	1	42	**9**	0	52	
Total Volume	9	73	10	0	92	86	157	10	0	253	28	63	86	0	177	4	175	20	0	199	
% App. Total	9.8	79.3	10.9	0		34	62.1	4	0		15.8	35.6	48.6	0		2	87.9	10.1	0		
PHF	.750	.830	.500	.000	.852	.827	.835	.625	.000	.944	.700	.685	.741	.000	.835	1.000	.931	.556	.000	.957	

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Creedmoor, NC
Weather:Sunny Note:
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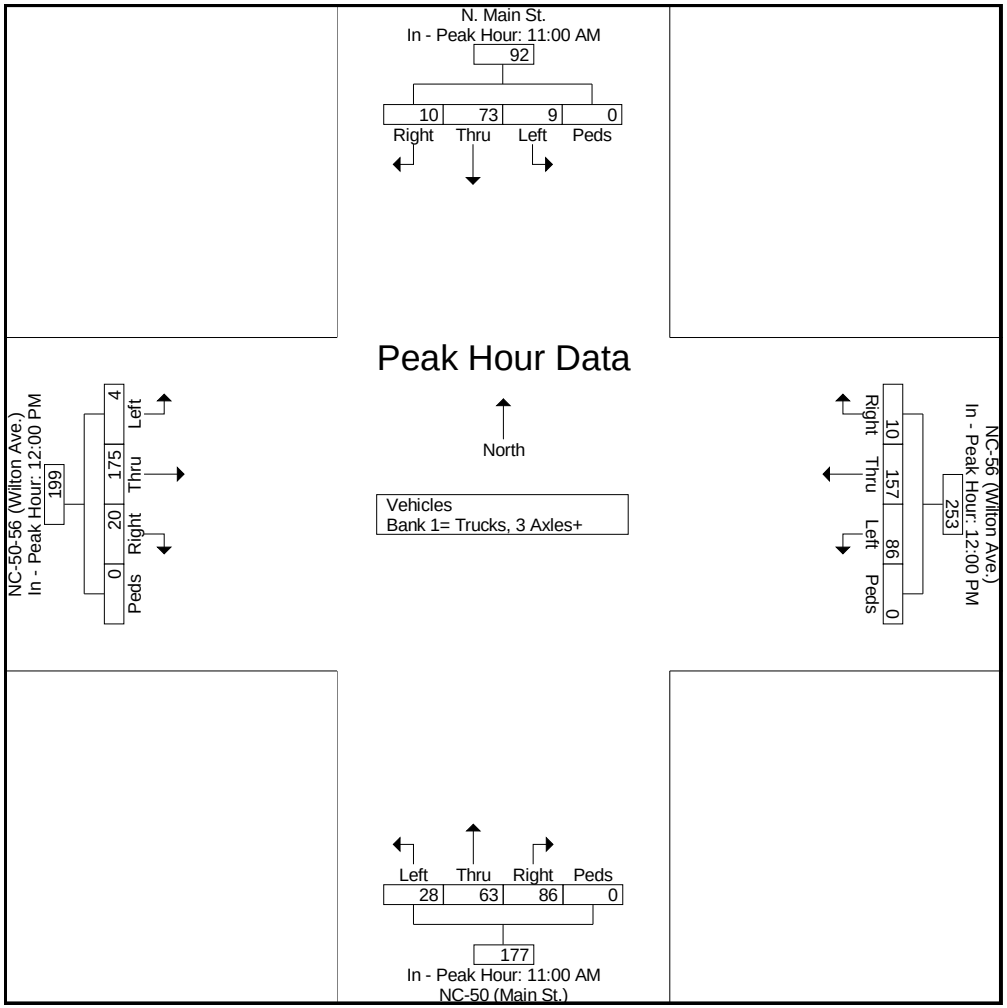
File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011



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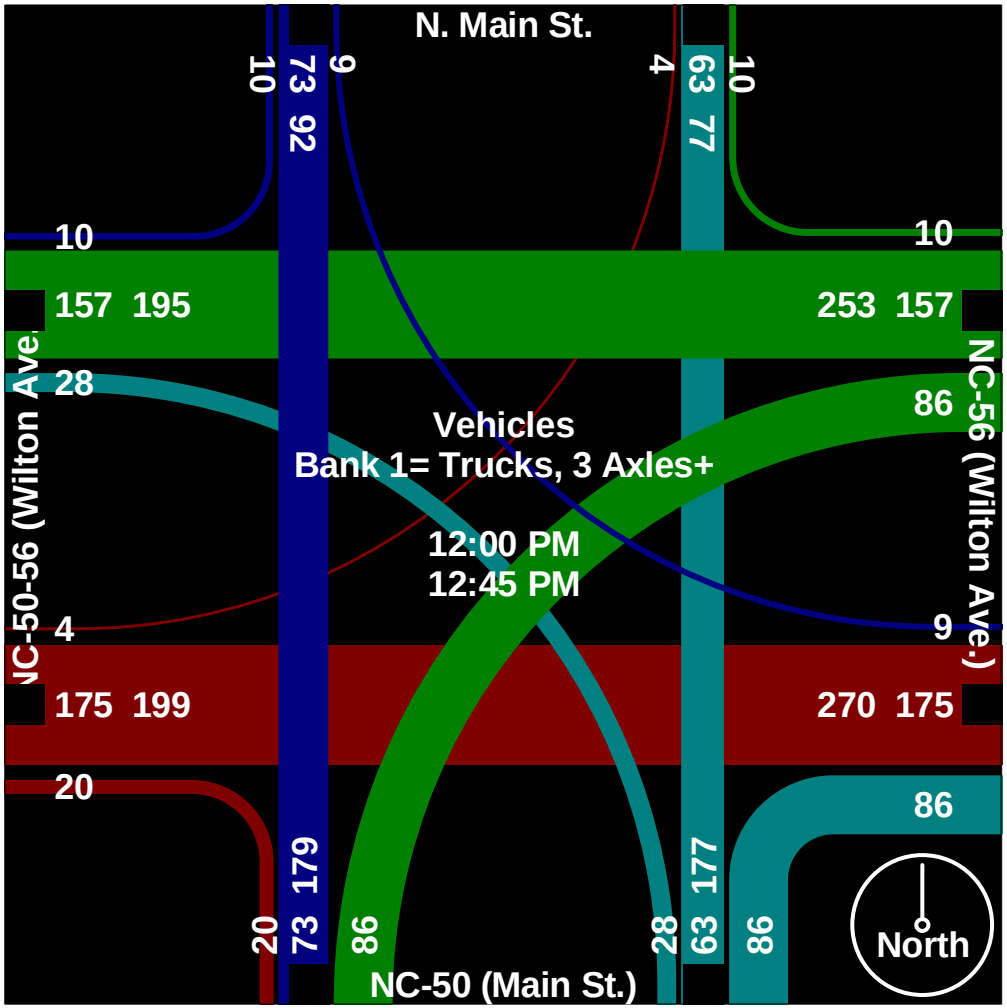
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 15



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NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 16

	N. Main St. Southbound					NC-56 (Wilton Ave.) Westbound					NC-50 (Main St.) Northbound					NC-50-56 (Wilton Ave.) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	2	20	**1**	0	23	23	44	2	0	69	9	**42**	63	0	114	**3**	**138**	7	0	**148**	354
05:15 PM	4	30	1	0	35	**39**	52	**3**	0	94	5	35	66	0	106	0	115	**11**	0	126	361
05:30 PM	2	**35**	1	0	38	29	**65**	3	0	**97**	**11**	40	**85**	0	**136**	2	138	6	0	146	**417**
05:45 PM	**6**	35	0	0	**41**	25	48	3	0	76	8	37	52	0	97	0	132	8	0	140	354
Total Volume	14	120	3	0	137	116	209	11	0	336	33	154	266	0	453	5	523	32	0	560	1486
% App. Total	10.2	87.6	2.2	0		34.5	62.2	3.3	0		7.3	34	58.7	0		0.9	93.4	5.7	0		
PHF	.583	.857	.750	.000	.835	.744	.804	.917	.000	.866	.750	.917	.782	.000	.833	.417	.947	.727	.000	.946	.891

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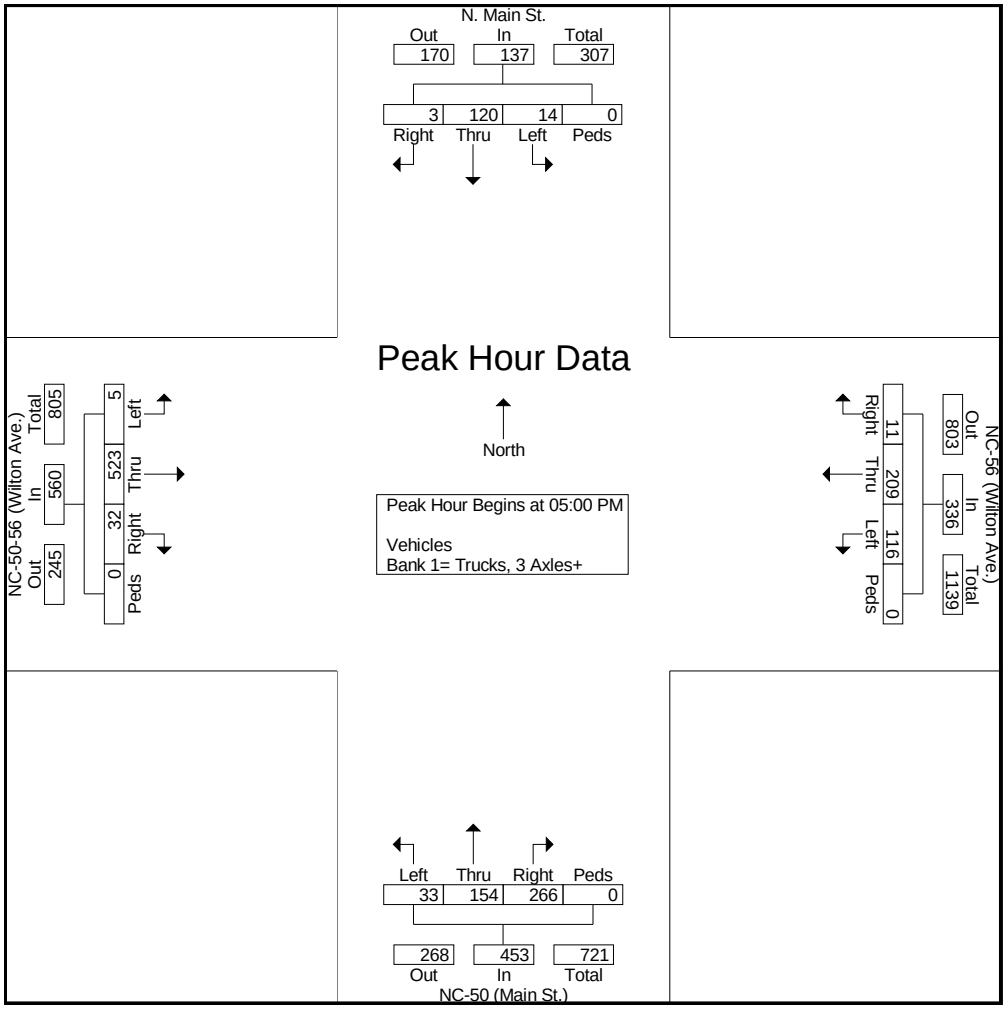
NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011



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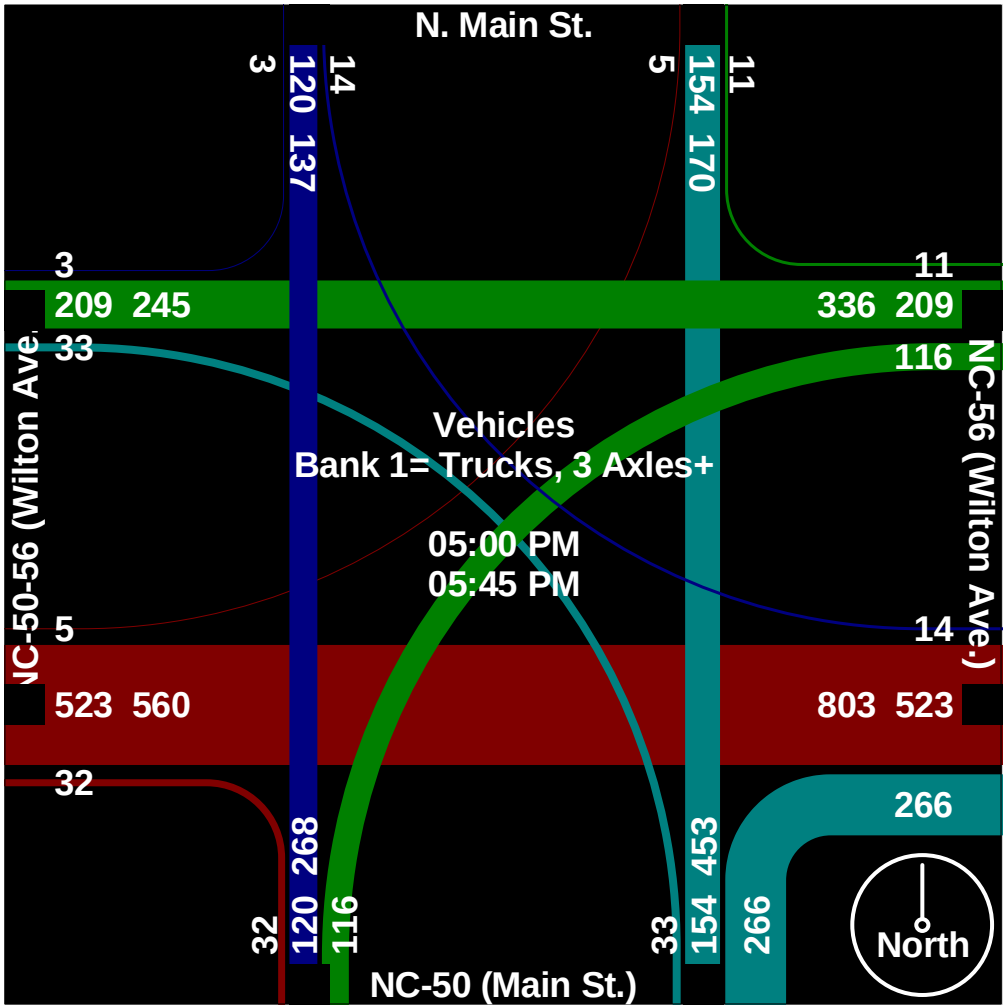
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011



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Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011

	N. Main St. Southbound					NC-56 (Wilton Ave.) Westbound					NC-50 (Main St.) Northbound					NC-50-56 (Wilton Ave.) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	05:00 PM					04:00 PM					05:00 PM					05:00 PM					
+0 mins.	2	20	**1**	0	23	**47**	60	**5**	0	**112**	9	**42**	63	0	114	**3**	**138**	7	0	**148**	
+15 mins.	4	30	1	0	35	37	49	3	0	89	5	35	66	0	106	0	115	**11**	0	126	
+30 mins.	2	**35**	1	0	38	36	**67**	4	0	107	**11**	40	**85**	0	**136**	2	138	6	0	146	
+45 mins.	**6**	35	0	0	**41**	35	40	3	0	78	8	37	52	0	97	0	132	8	0	140	
Total Volume	14	120	3	0	137	155	216	15	0	386	33	154	266	0	453	5	523	32	0	560	
% App. Total	10.2	87.6	2.2	0		40.2	56	3.9	0		7.3	34	58.7	0		0.9	93.4	5.7	0		
PHF	.583	.857	.750	.000	.835	.824	.806	.750	.000	.862	.750	.917	.782	.000	.833	.417	.947	.727	.000	.946	

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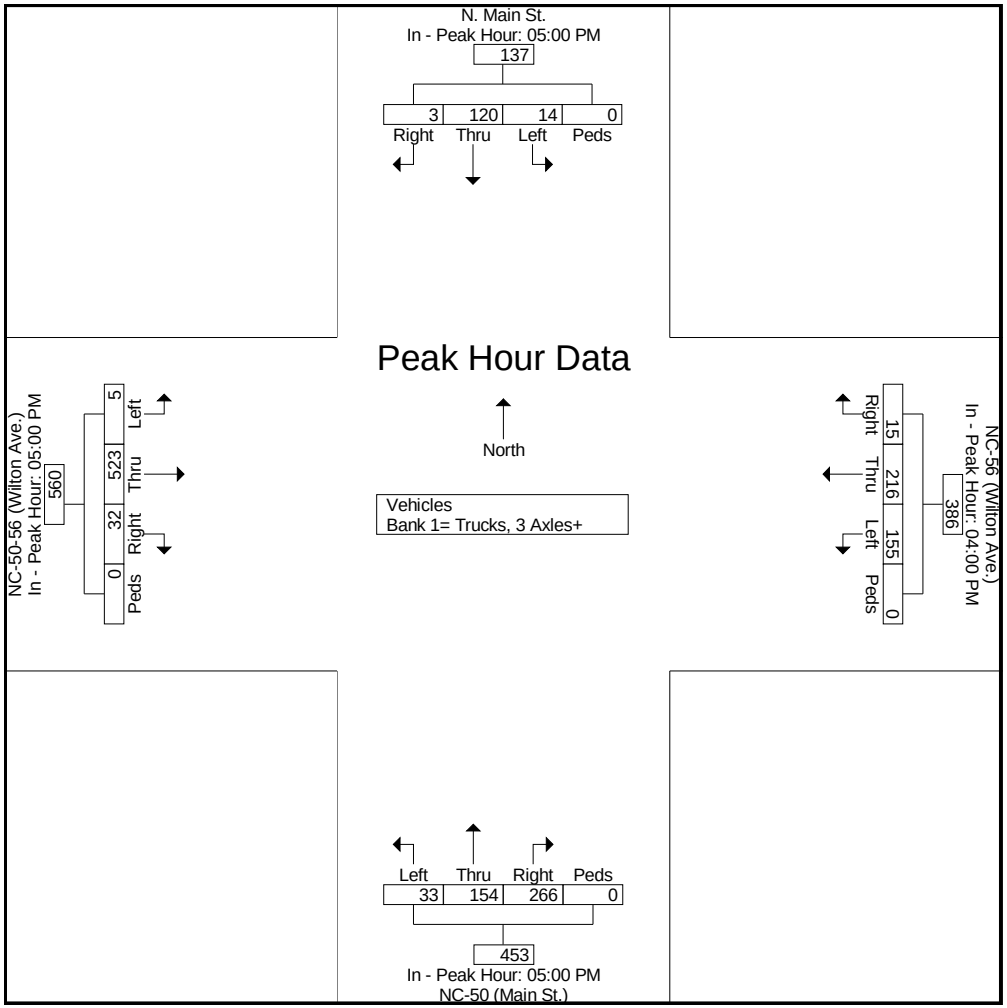
NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 20



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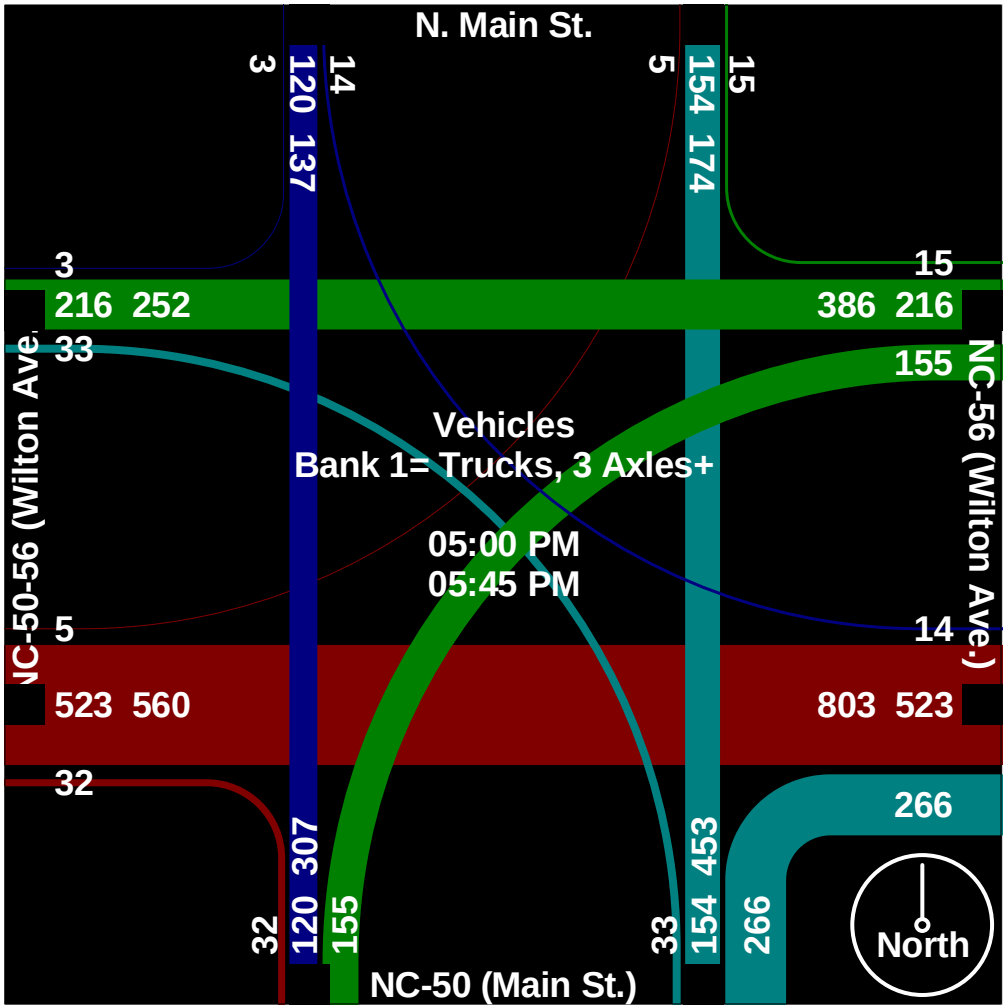
File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011



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Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 22

Southbound on Main St.

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Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011

Westbound on NC-56

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NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 24

Northbound on NC-50 (Main St.)

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NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011

Eastbound on NC-50-56 (Wilton Ave.

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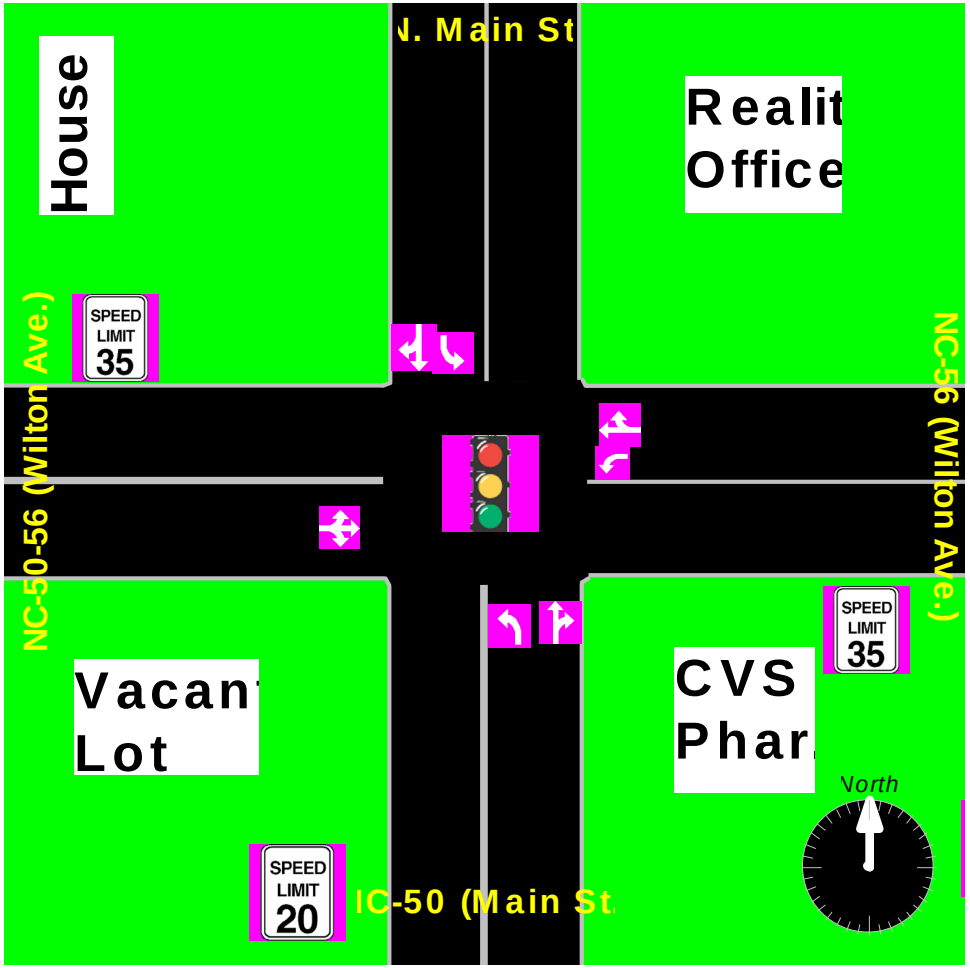
NC-50 (Main St.) @ NC-56 (Wilton Ave.)
Creedmoor, NC
Weather:Sunny Note:
Counted By: Benny

File Name : Site# 1 Creedmoor
Site Code : Site# 01
Start Date : 5/24/2011
Page No : 26



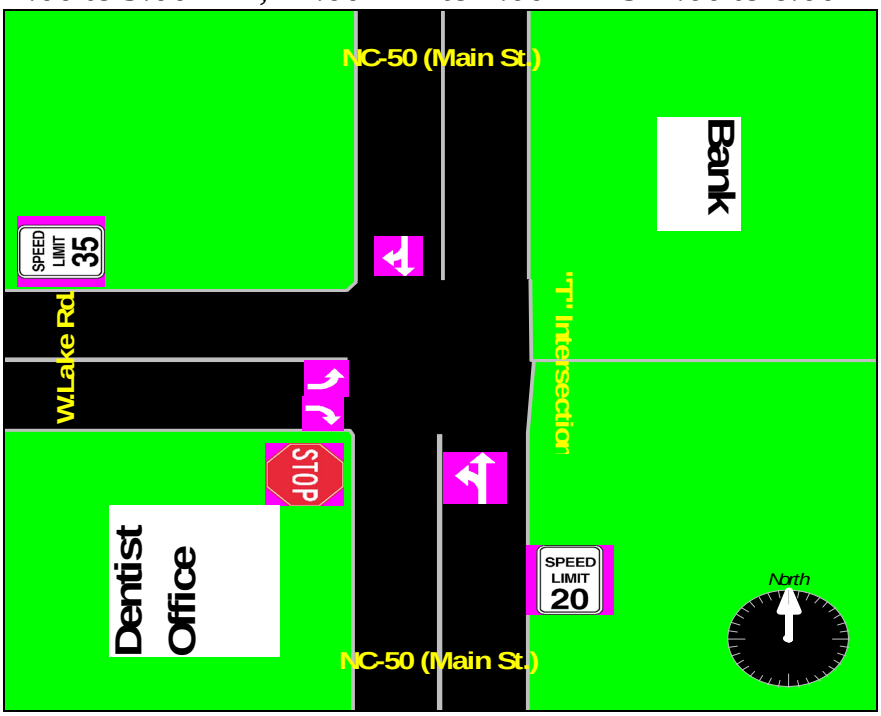
GreenLight
Traffic Services, Inc.
Post Office 1364
Garner, North Carolina 27529-1364
919-632-1779

Benny R. Johnson, President

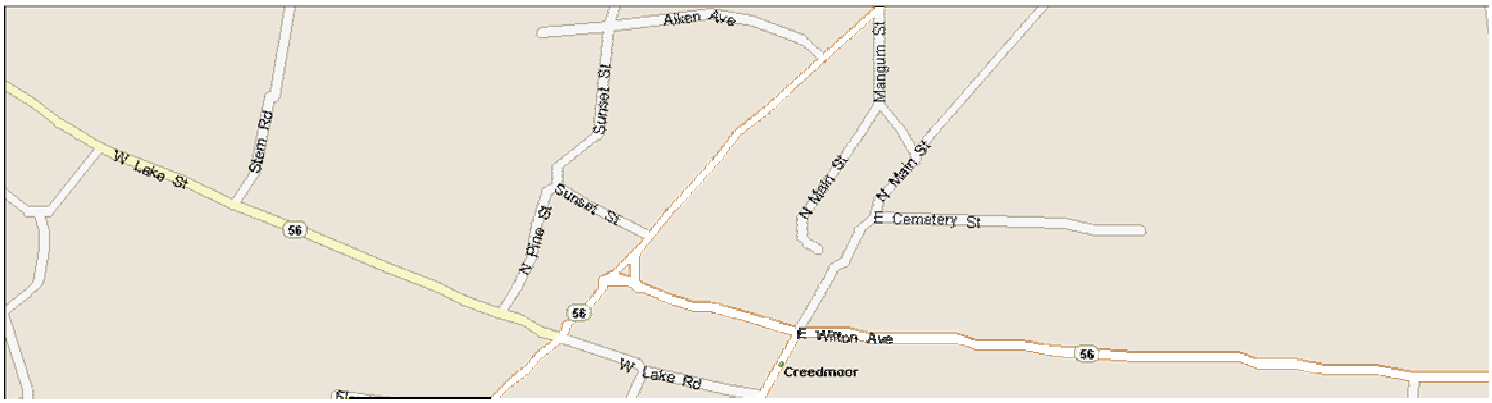
Count Site# 2

Intersection:) NC-50 (Main St.) @ Lake Rd.)
City of Creedmoor, NC

1. Count Times: 7:00 to 9:00 AM, 11:00 AM to 1:00 PM & 4:00 to 6:00 PM.



Site# 2



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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 1

Groups Printed- Vehicles - Bank 1=Trucks, 3 Axles

	NC-50 (Main St.) Southbound					"T" Intersection Westbound					NC-50 (Main St.) Northbound					W.Lake Rd. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	123	13	0	136	0	0	0	0	0	32	46	0	0	78	2	0	30	0	32	246
07:15 AM	0	151	30	0	181	0	0	0	0	0	30	63	0	0	93	3	0	33	0	36	310
07:30 AM	0	146	32	0	178	0	0	0	0	0	48	55	0	0	103	2	0	27	0	29	310
07:45 AM	0	114	19	0	133	0	0	0	0	0	62	55	0	0	117	7	1	21	0	29	279
Total	0	534	94	0	628	0	0	0	0	0	172	219	0	0	391	14	1	111	0	126	1145
08:00 AM	0	100	16	0	116	0	0	0	0	0	39	68	0	0	107	1	0	23	0	24	247
08:15 AM	0	82	12	0	94	0	0	0	0	0	43	47	0	0	90	2	0	28	0	30	214
08:30 AM	0	70	5	0	75	0	0	0	0	0	31	44	0	0	75	2	0	22	0	24	174
08:45 AM	0	51	4	0	55	0	0	0	0	0	27	38	0	0	65	3	0	34	0	37	157
Total	0	303	37	0	340	0	0	0	0	0	140	197	0	0	337	8	0	107	0	115	792
*** BREAK ***																					
11:00 AM	0	50	2	0	52	0	0	0	0	0	27	47	0	0	74	3	0	25	0	28	154
11:15 AM	0	53	10	0	63	0	0	0	0	0	24	47	0	0	71	6	0	28	0	34	168
11:30 AM	0	42	6	0	48	0	0	0	0	0	22	50	0	0	72	8	0	36	0	44	164
11:45 AM	0	41	8	0	49	0	0	0	0	0	32	37	0	0	69	2	0	24	0	26	144
Total	0	186	26	0	212	0	0	0	0	0	105	181	0	0	286	19	0	113	0	132	630
12:00 PM	0	50	3	0	53	0	0	0	0	0	31	43	0	0	74	4	0	31	0	35	162
12:15 PM	0	40	7	0	47	0	0	0	0	0	28	34	0	0	62	5	0	37	0	42	151
12:30 PM	0	43	10	0	53	0	0	0	0	0	26	33	1	0	60	6	0	28	0	34	147
12:45 PM	0	47	8	0	55	0	0	0	0	0	30	49	0	0	79	10	0	26	0	36	170
Total	0	180	28	0	208	0	0	0	0	0	115	159	1	0	275	25	0	122	0	147	630
*** BREAK ***																					
04:00 PM	0	73	5	0	78	0	0	0	0	0	44	93	0	0	137	7	0	45	0	52	267
04:15 PM	0	64	4	0	68	0	0	0	0	0	39	79	0	0	118	12	0	40	0	52	238
04:30 PM	0	71	9	0	80	0	0	0	0	0	38	79	0	0	117	10	0	49	0	59	256
04:45 PM	0	60	8	0	68	0	0	0	0	0	45	88	0	0	133	6	0	52	0	58	259
Total	0	268	26	0	294	0	0	0	0	0	166	339	0	0	505	35	0	186	0	221	1020
05:00 PM	0	47	9	0	56	0	0	0	0	0	35	118	0	0	153	9	0	56	0	65	274
05:15 PM	0	87	8	0	95	0	0	0	0	0	26	101	0	0	127	10	0	48	0	58	280
05:30 PM	0	57	11	0	68	0	0	0	0	0	50	130	0	0	180	9	0	48	0	57	305
05:45 PM	0	60	6	0	66	0	0	0	0	0	31	109	0	0	140	8	0	35	0	43	249
Total	0	251	34	0	285	0	0	0	0	0	142	458	0	0	600	36	0	187	0	223	1108
Grand Total	0	1722	245	0	1967	0	0	0	0	0	840	1553	1	0	2394	137	1	826	0	964	5325
Apprch %	0	87.5	12.5	0		0	0	0	0		35.1	64.9	0	0		14.2	0.1	85.7	0		
Total %	0	32.3	4.6	0	36.9	0	0	0	0	0	15.8	29.2	0	0	45	2.6	0	15.5	0	18.1	
Vehicles	0	1720	245	0	1965	0	0	0	0	0	839	1548	1	0	2388	137	1	824	0	962	5315
% Vehicles	0	99.9	100	0	99.9	0	0	0	0	0	99.9	99.7	100	0	99.7	100	100	99.8	0	99.8	99.8

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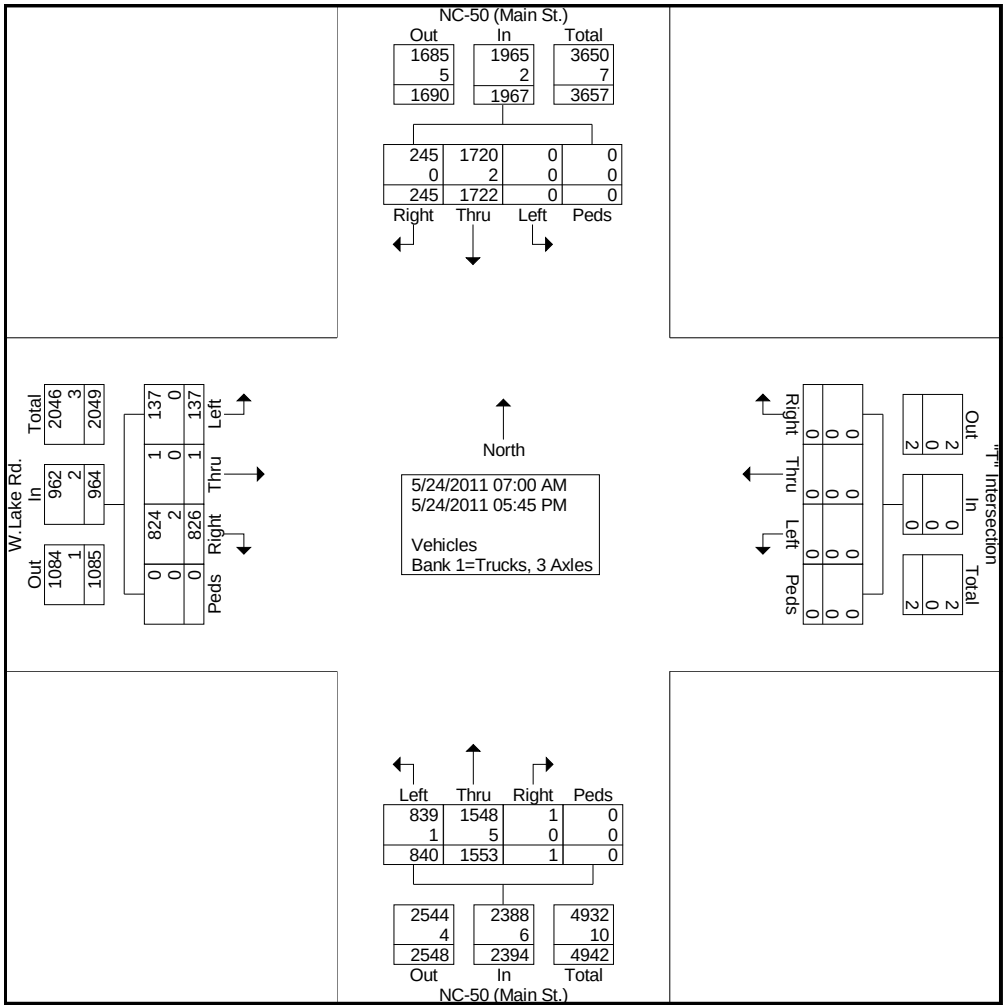
NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011

Groups Printed- Vehicles - Bank 1=Trucks, 3 Axles

	NC-50 (Main St.) Southbound					"T" Intersection Westbound					NC-50 (Main St.) Northbound					W.Lake Rd. Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Bank 1=Trucks, 3 Axles	0	2	0	0	2	0	0	0	0	0	1	5	0	0	6	0	0	2	0	2	10
% Bank 1=Trucks, 3 Axles	0	0.1	0	0	0.1	0	0	0	0	0	0.1	0.3	0	0	0.3	0	0	0.2	0	0.2	0.2



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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
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File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011

	NC-50 (Main St.) Southbound					"T" Intersection Westbound					NC-50 (Main St.) Northbound					W.Lake Rd. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	**151**	30	0	**181**	0	0	0	0	0	30	63	0	0	93	3	0	**33**	0	**36**	**310**
07:30 AM	0	146	**32**	0	178	0	0	0	0	0	48	55	0	0	103	2	0	27	0	29	310
07:45 AM	0	114	19	0	133	0	0	0	0	0	**62**	55	0	0	**117**	**7**	**1**	21	0	29	279
08:00 AM	0	100	16	0	116	0	0	0	0	0	39	**68**	0	0	107	1	0	23	0	24	247
Total Volume	0	511	97	0	608	0	0	0	0	0	179	241	0	0	420	13	1	104	0	118	1146
% App. Total	0	84	16	0		0	0	0	0		42.6	57.4	0	0		11	0.8	88.1	0		
PHF	.000	.846	.758	.000	.840	.000	.000	.000	.000	.000	.722	.886	.000	.000	.897	.464	.250	.788	.000	.819	.924

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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
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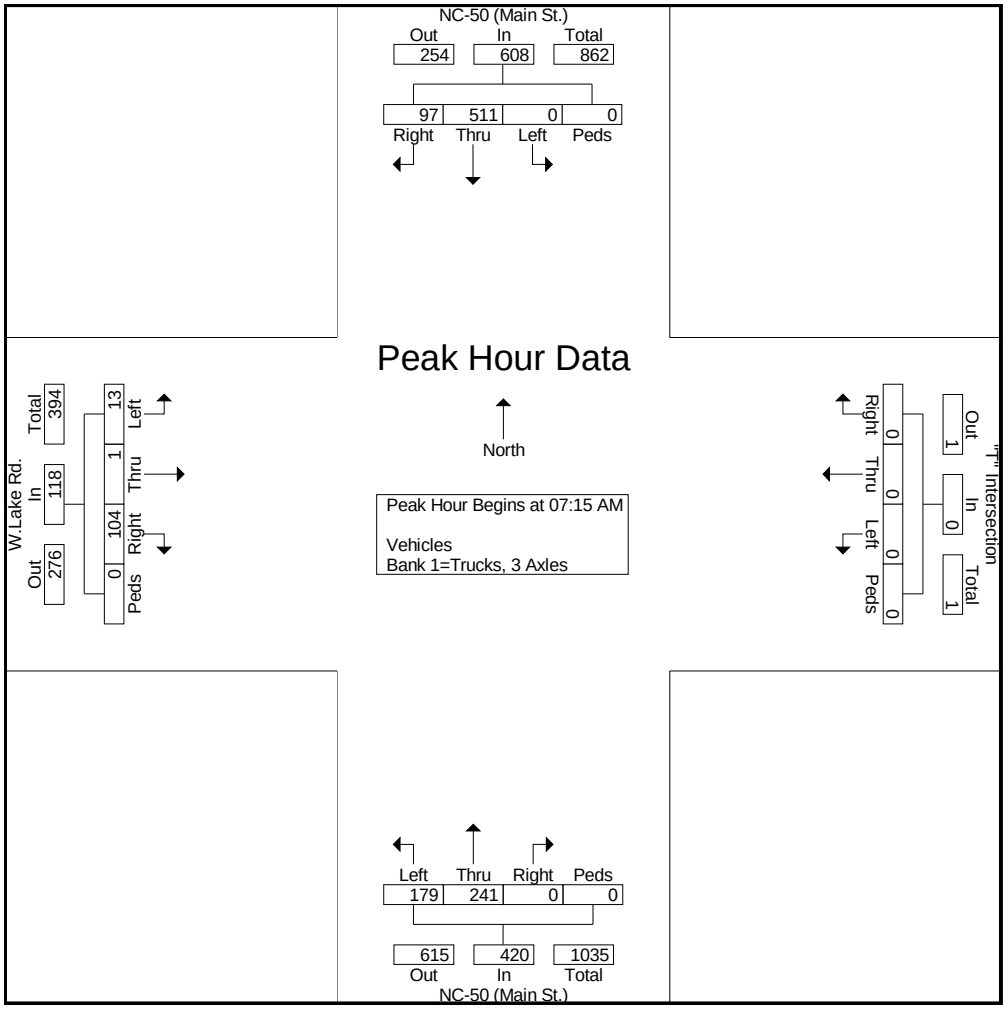
File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 4



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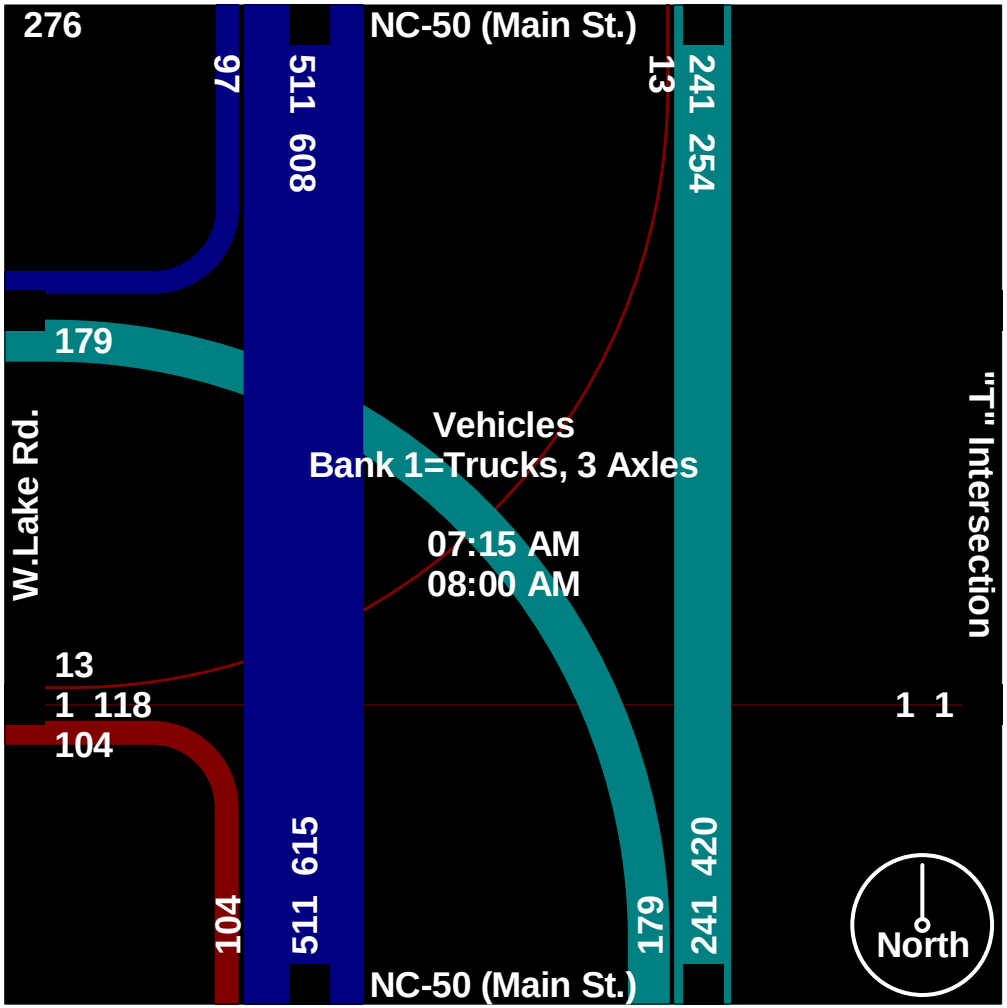
NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 5



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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011

	NC-50 (Main St.) Southbound					"T" Intersection Westbound					NC-50 (Main St.) Northbound					W.Lake Rd. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:00 AM					07:00 AM					07:15 AM					07:00 AM					
+0 mins.	0	123	13	0	136	0	0	0	0	0	30	63	0	0	93	2	0	30	0	32	
+15 mins.	0	**151**	30	0	**181**	0	0	0	0	0	48	55	0	0	103	3	0	**33**	0	**36**	
+30 mins.	0	146	**32**	0	178	0	0	0	0	0	**62**	55	0	0	**117**	2	0	27	0	29	
+45 mins.	0	114	19	0	133	0	0	0	0	0	39	**68**	0	0	107	**7**	**1**	21	0	29	
Total Volume	0	534	94	0	628	0	0	0	0	0	179	241	0	0	420	14	1	111	0	126	
% App. Total	0	85	15	0		0	0	0	0		42.6	57.4	0	0		11.1	0.8	88.1	0		
PHF	.000	.884	.734	.000	.867	.000	.000	.000	.000	.000	.722	.886	.000	.000	.897	.500	.250	.841	.000	.875	

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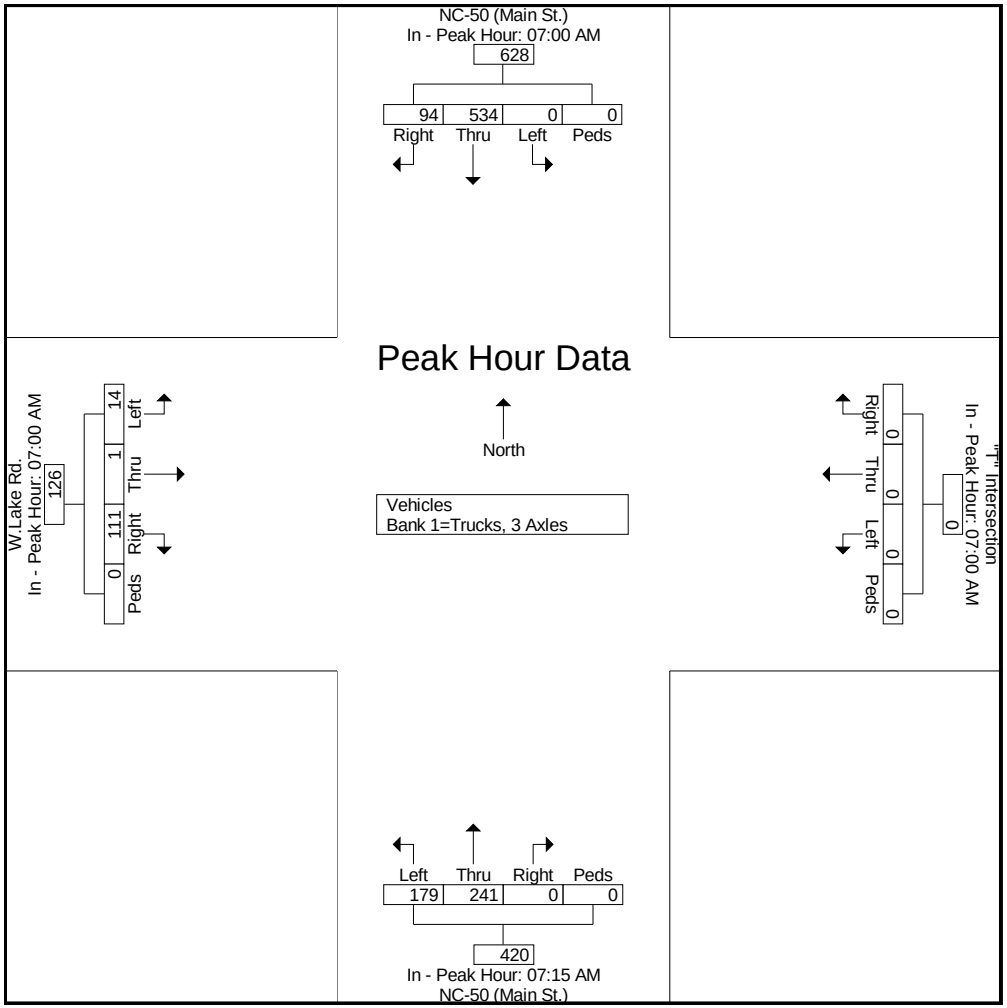
NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 7



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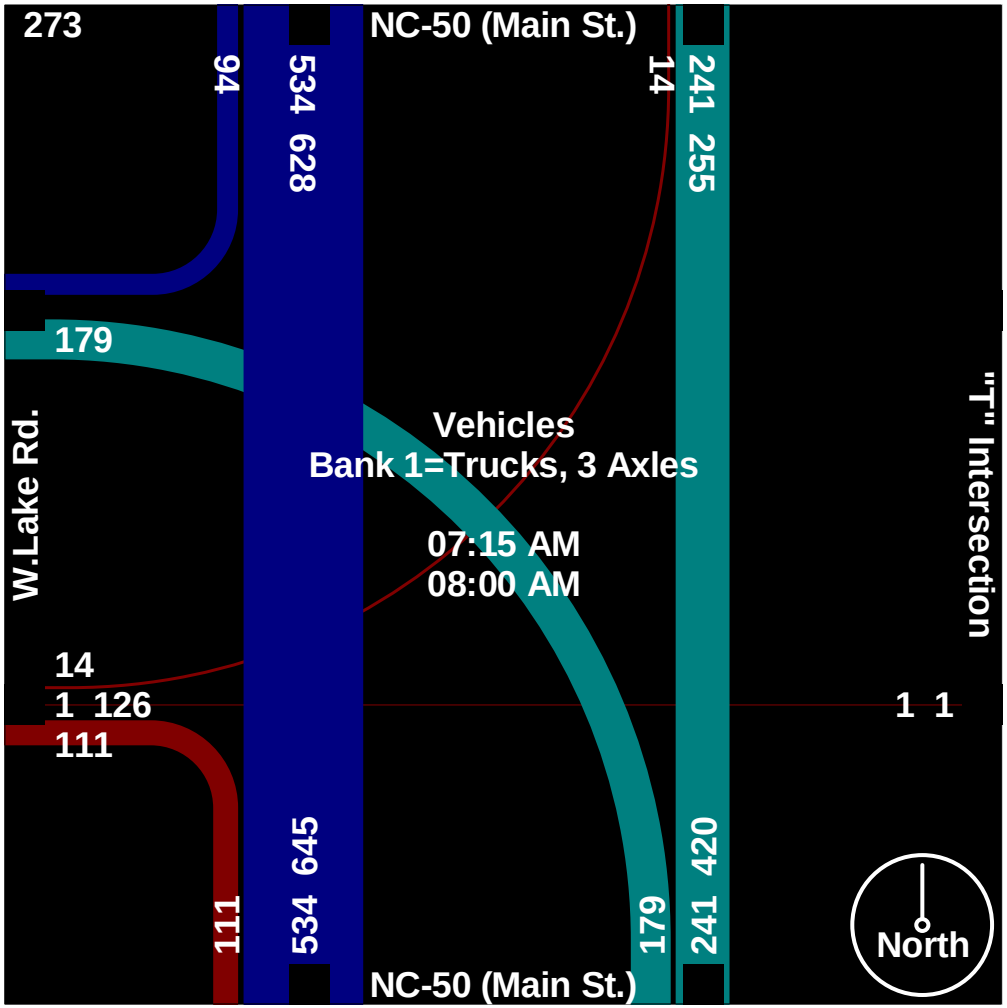
NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011



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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
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File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011

	NC-50 (Main St.) Southbound					"T" Intersection Westbound					NC-50 (Main St.) Northbound					W.Lake Rd. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:15 AM																					
11:15 AM	0	**53**	**10**	0	**63**	0	0	0	0	0	24	47	0	0	71	6	0	28	0	34	**168**
11:30 AM	0	42	6	0	48	0	0	0	0	0	22	**50**	0	0	72	**8**	0	**36**	0	**44**	164
11:45 AM	0	41	8	0	49	0	0	0	0	0	**32**	37	0	0	69	2	0	24	0	26	144
12:00 PM	0	50	3	0	53	0	0	0	0	0	31	43	0	0	**74**	4	0	31	0	35	162
Total Volume	0	186	27	0	213	0	0	0	0	0	109	177	0	0	286	20	0	119	0	139	638
% App. Total	0	87.3	12.7	0		0	0	0	0		38.1	61.9	0	0		14.4	0	85.6	0		
PHF	.000	.877	.675	.000	.845	.000	.000	.000	.000	.000	.852	.885	.000	.000	.966	.625	.000	.826	.000	.790	.949

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Creedmoor
Weather: Note:
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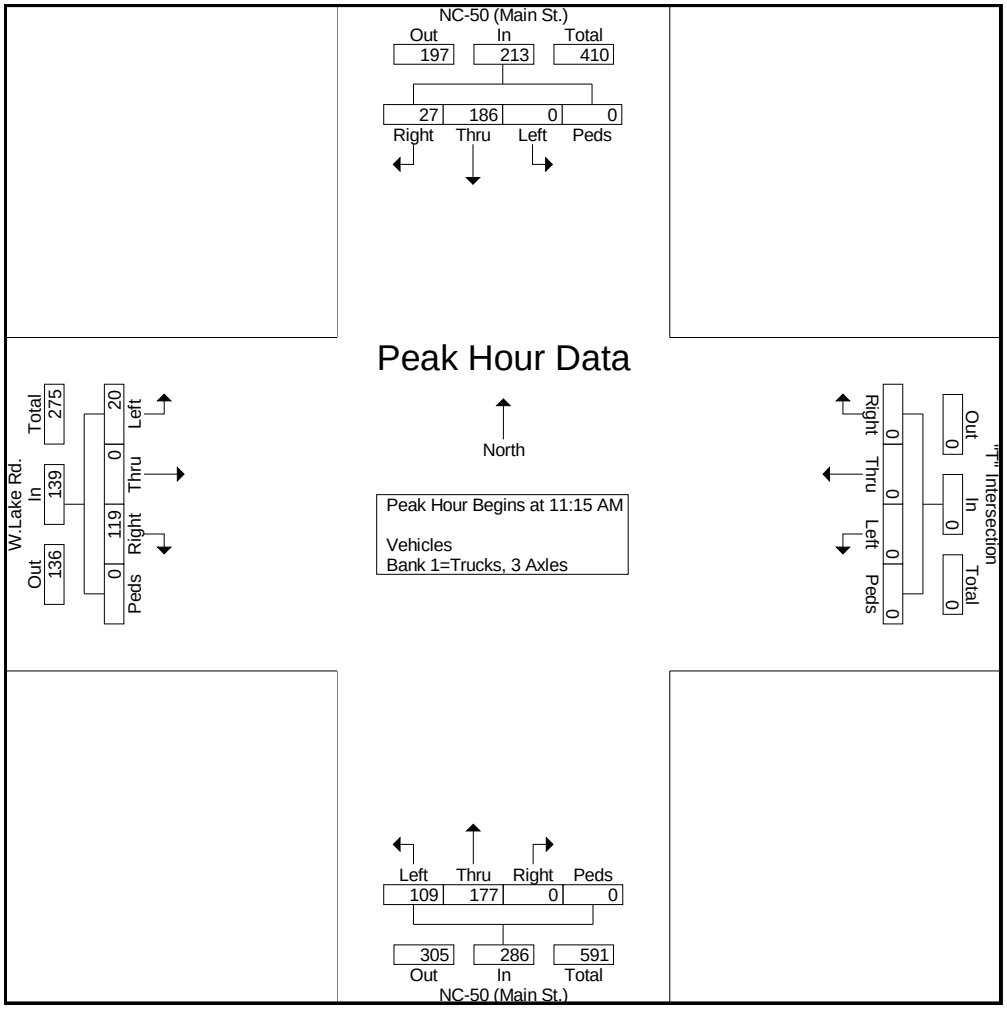
File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 10



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Creedmoor
Weather: Note:
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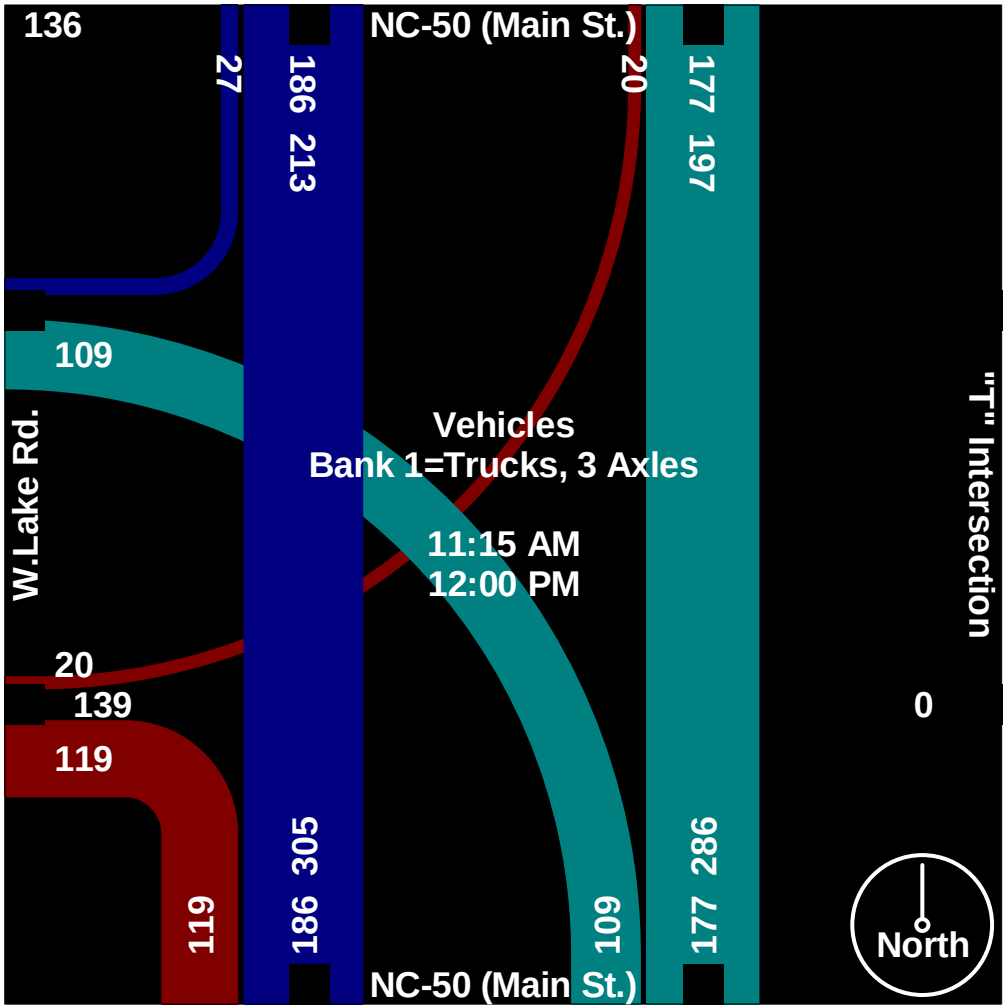
File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011



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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
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File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011

	NC-50 (Main St.) Southbound					"T" Intersection Westbound					NC-50 (Main St.) Northbound					W.Lake Rd. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	11:15 AM					10:00 AM					11:00 AM					11:30 AM					
+0 mins.	0	**53**	**10**	0	**63**	0	0	0	0	0	27	47	0	0	**74**	**8**	0	36	0	**44**	
+15 mins.	0	42	6	0	48	0	0	0	0	0	24	47	0	0	71	2	0	24	0	26	
+30 mins.	0	41	8	0	49	0	0	0	0	0	22	**50**	0	0	72	4	0	31	0	35	
+45 mins.	0	50	3	0	53	0	0	0	0	0	**32**	37	0	0	69	5	0	**37**	0	42	
Total Volume	0	186	27	0	213	0	0	0	0	0	105	181	0	0	286	19	0	128	0	147	
% App. Total	0	87.3	12.7	0		0	0	0	0		36.7	63.3	0	0		12.9	0	87.1	0		
PHF	.000	.877	.675	.000	.845	.000	.000	.000	.000	.000	.820	.905	.000	.000	.966	.594	.000	.865	.000	.835	

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Creedmoor
Weather: Note:
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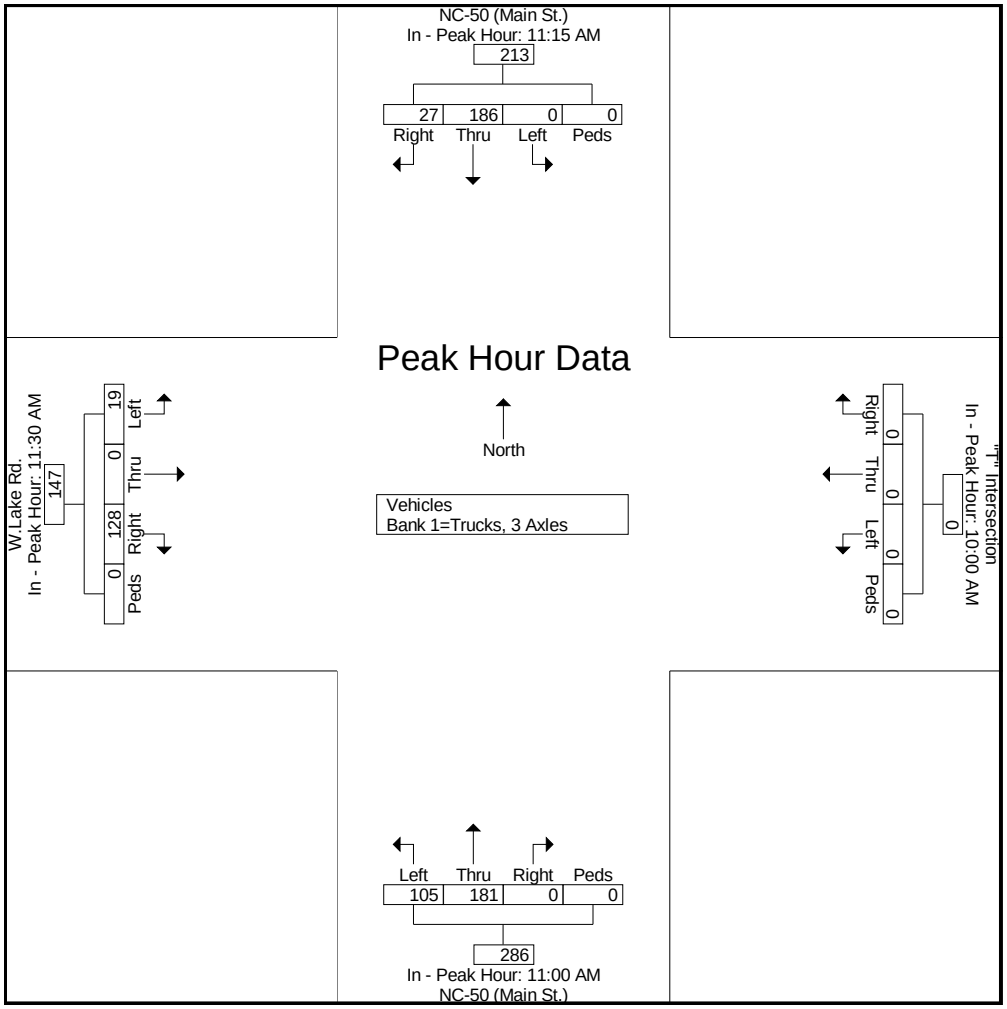
File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 13



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Creedmoor
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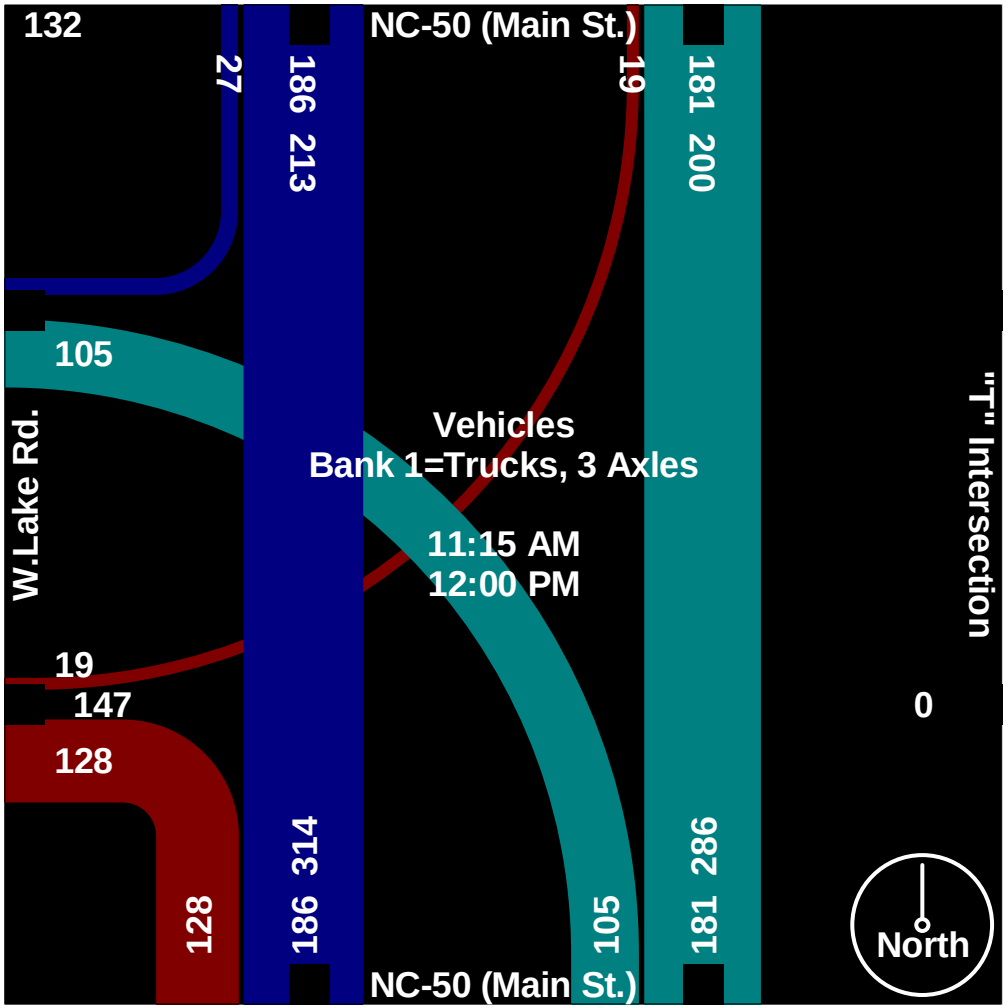
File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011



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	NC-50 (Main St.) Southbound					"T" Intersection Westbound					NC-50 (Main St.) Northbound					W.Lake Rd. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	60	8	0	68	0	0	0	0	0	45	88	0	0	133	6	0	52	0	58	259
05:00 PM	0	47	9	0	56	0	0	0	0	0	35	118	0	0	153	9	0	**56**	0	**65**	274
05:15 PM	0	**87**	8	0	**95**	0	0	0	0	0	26	101	0	0	127	**10**	0	48	0	58	280
05:30 PM	0	57	**11**	0	68	0	0	0	0	0	**50**	**130**	0	0	**180**	9	0	48	0	57	**305**
Total Volume	0	251	36	0	287	0	0	0	0	0	156	437	0	0	593	34	0	204	0	238	1118
% App. Total	0	87.5	12.5	0		0	0	0	0		26.3	73.7	0	0		14.3	0	85.7	0		
PHF	.000	.721	.818	.000	.755	.000	.000	.000	.000	.000	.780	.840	.000	.000	.824	.850	.000	.911	.000	.915	.916

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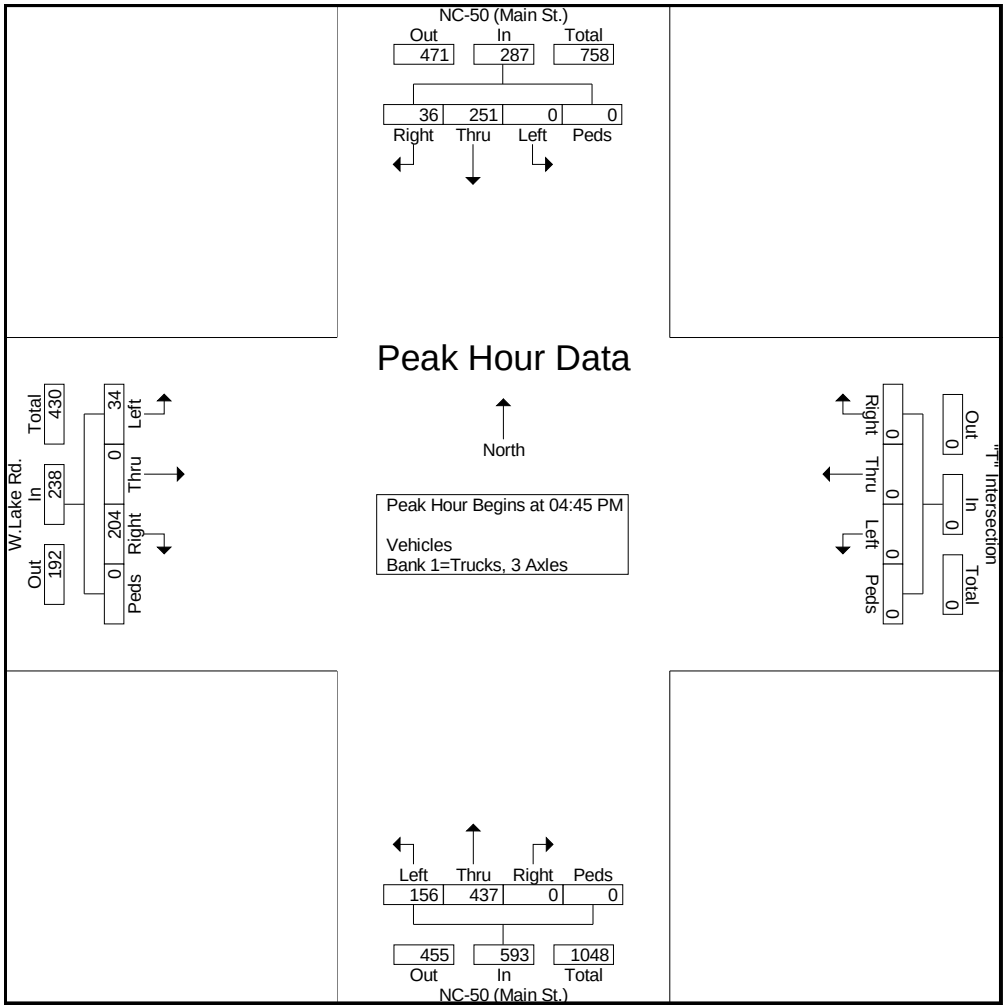
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 16



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Creedmoor
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File Name : Site# 2 Creedmoor
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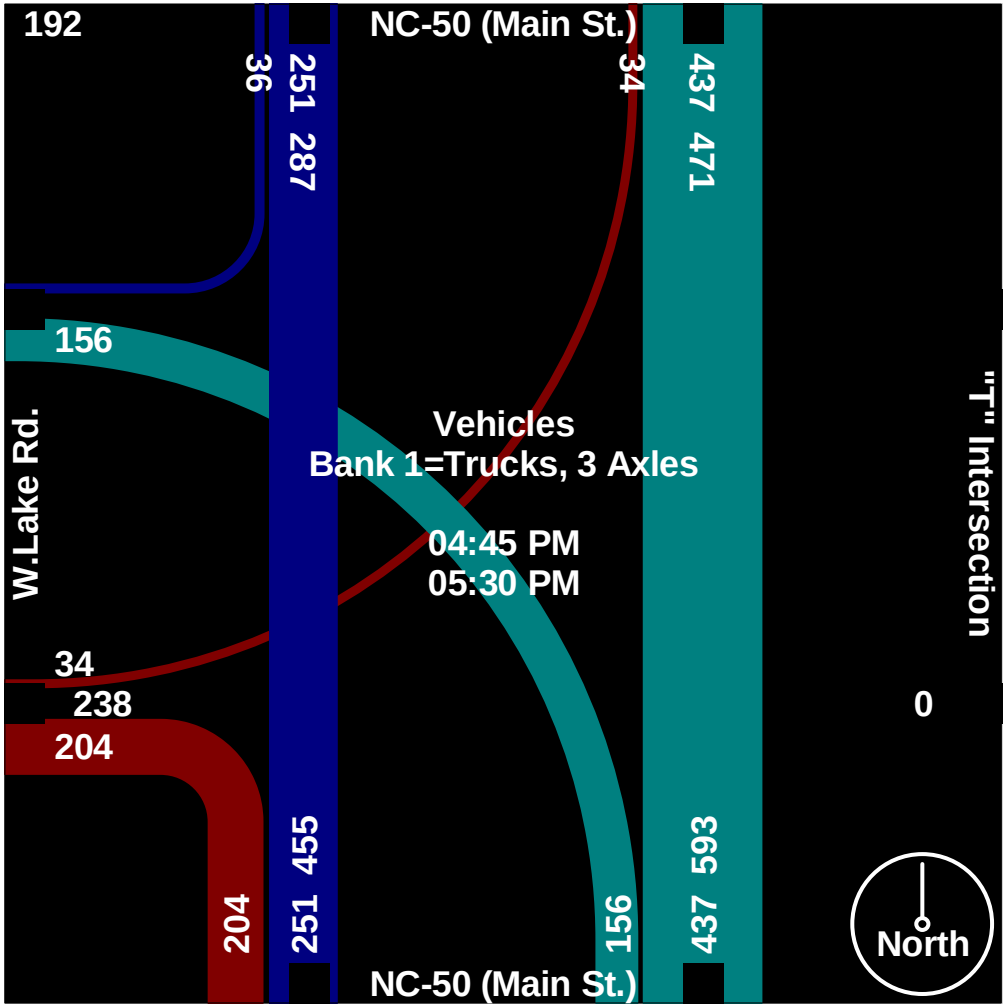
Start Date : 5/24/2011



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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011

	NC-50 (Main St.) Southbound					"T" Intersection Westbound					NC-50 (Main St.) Northbound					W.Lake Rd. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:30 PM					02:00 PM					05:00 PM					04:30 PM					
+0 mins.	0	71	**9**	0	80	0	0	0	0	0	35	118	0	0	153	**10**	0	49	0	59	
+15 mins.	0	60	8	0	68	0	0	0	0	0	26	101	0	0	127	6	0	52	0	58	
+30 mins.	0	47	9	0	56	0	0	0	0	0	**50**	**130**	0	0	**180**	9	0	**56**	0	**65**	
+45 mins.	0	**87**	8	0	**95**	0	0	0	0	0	31	109	0	0	140	10	0	48	0	58	
Total Volume	0	265	34	0	299	0	0	0	0	0	142	458	0	0	600	35	0	205	0	240	
% App. Total	0	88.6	11.4	0		0	0	0	0		23.7	76.3	0	0		14.6	0	85.4	0		
PHF	.000	.761	.944	.000	.787	.000	.000	.000	.000	.000	.710	.881	.000	.000	.833	.875	.000	.915	.000	.923	

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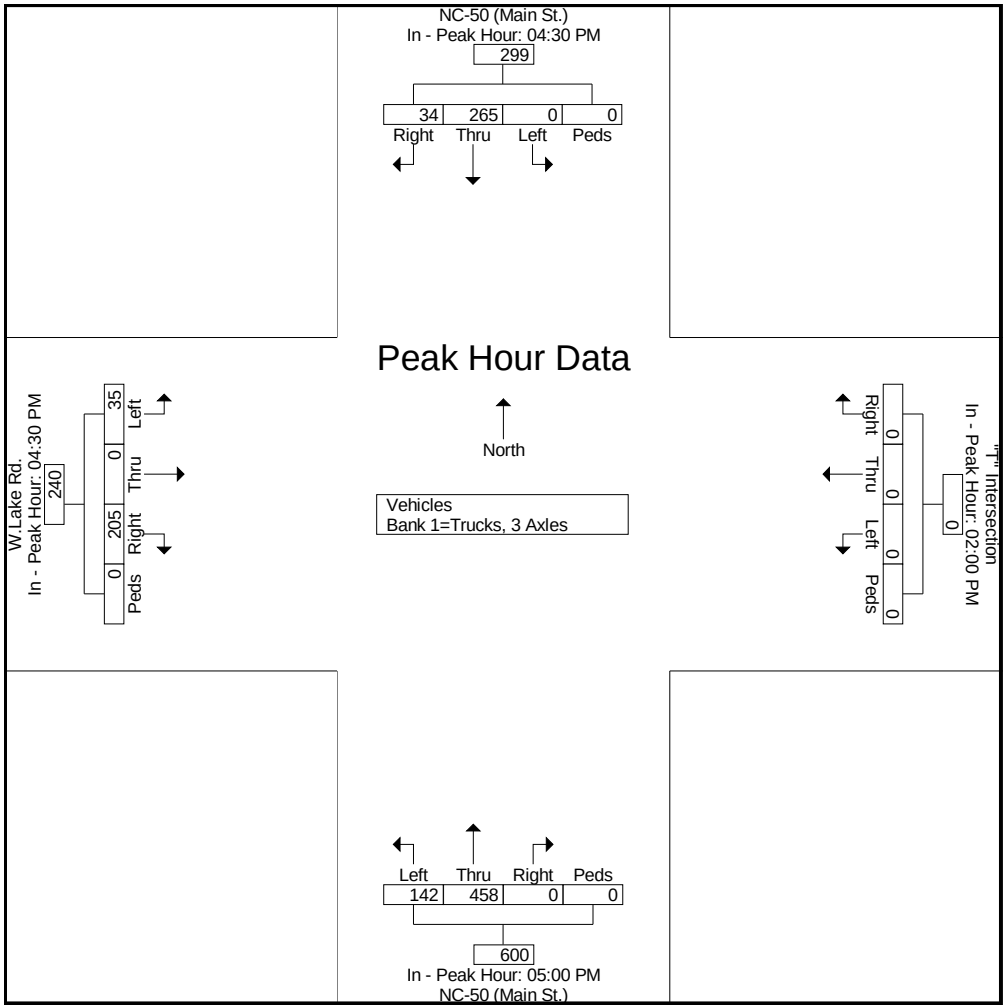
NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 19



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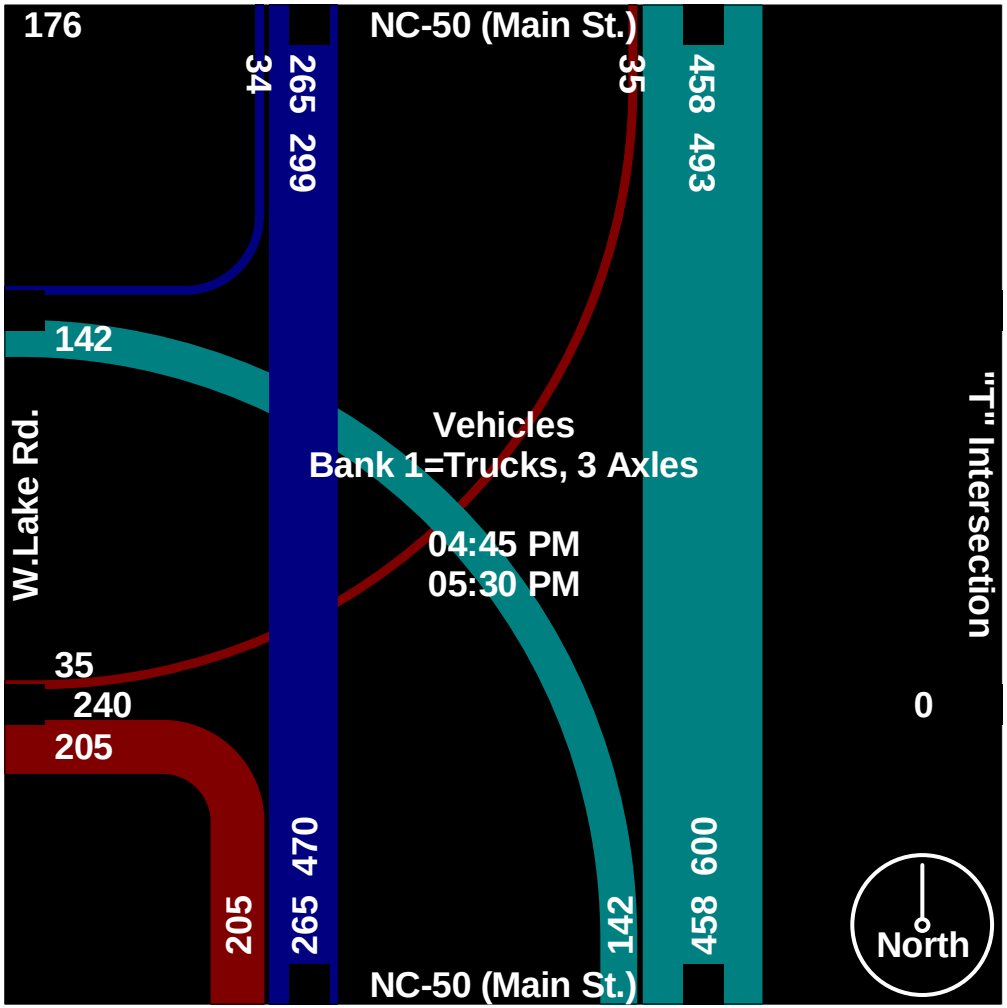
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011



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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
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File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011

Southbound on NC-50

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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 22

Looking West on Lake Rd.

1. *Green Light Traffic Services, Inc.*
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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 23

Northbound on NC-50

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NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 24

East on Lake Rd.

1. *Green Light Traffic Services, Inc.*
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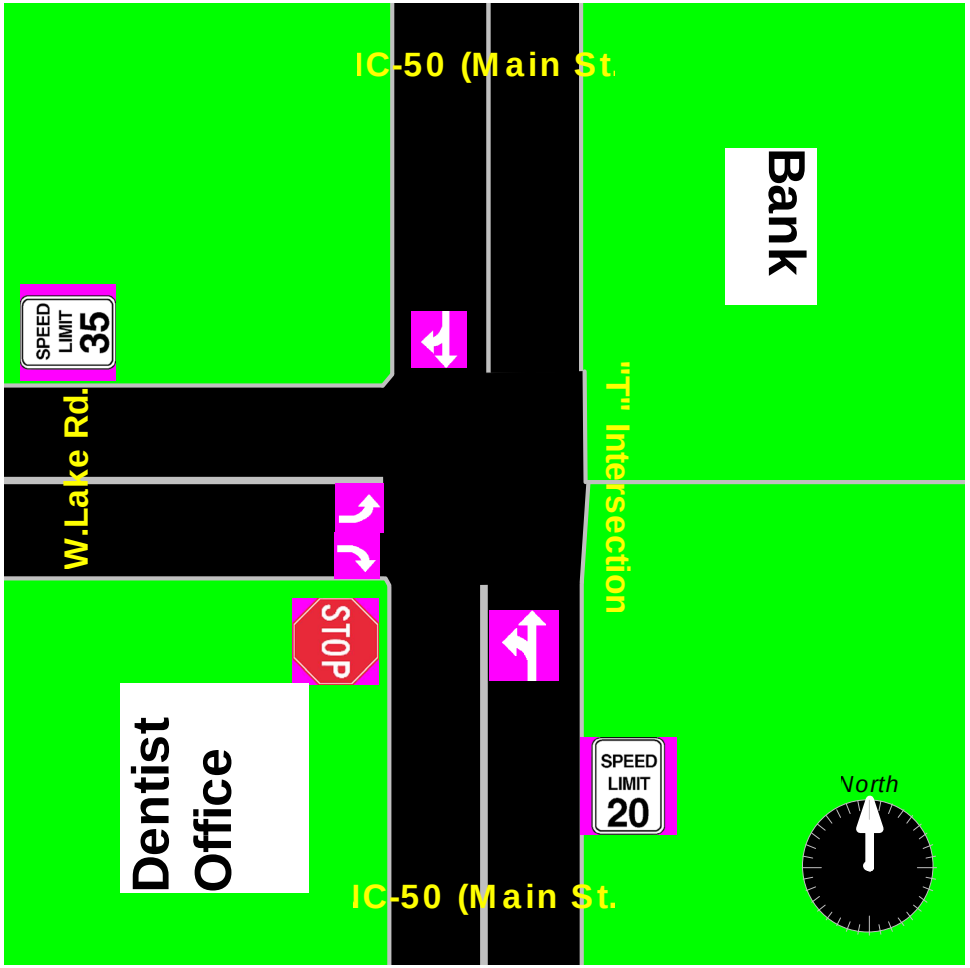
NC-50 (Main St.) @ W. Lake Rd.
Creedmoor
Weather: Note:
Counted By: Mike

File Name : Site# 2 Creedmoor
Site Code : Site# 2
Start Date : 5/24/2011
Page No : 25



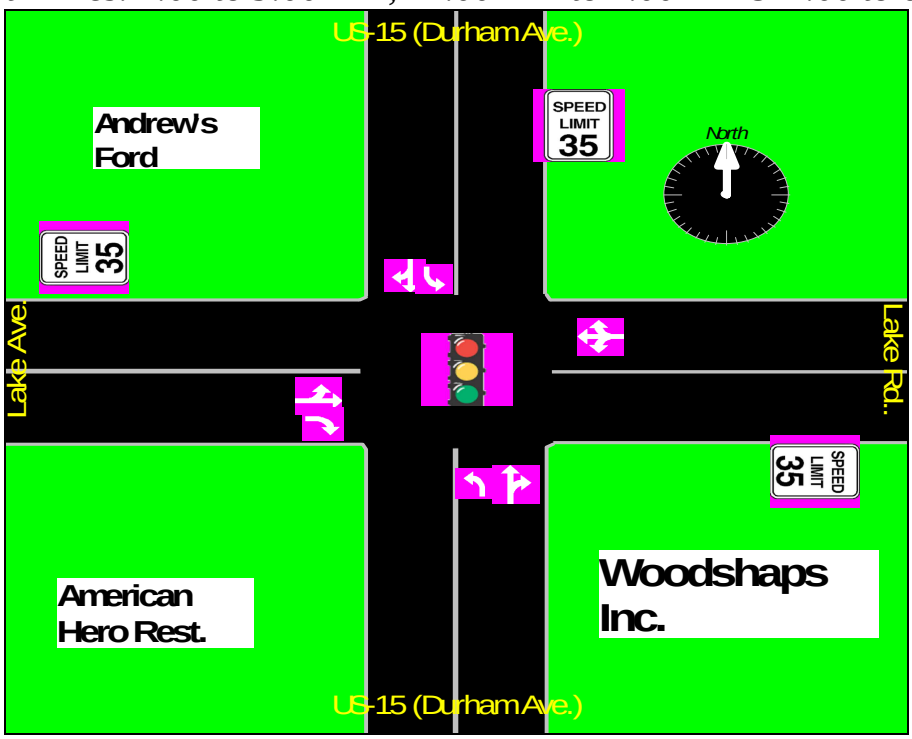
GreenLight
Traffic Services, Inc.
Post Office 1364
Garner, North Carolina 27529-1364
919-632-1779

Benny R. Johnson, President

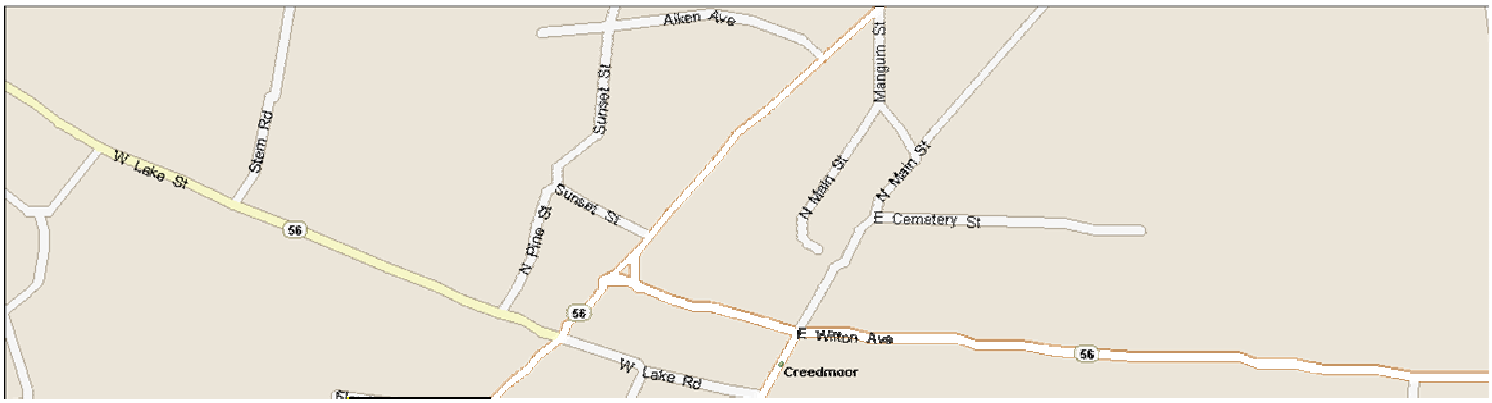
Count Site# 3

Intersection: US-15 (Durham Ave.) @ Lake Rd.)
City of Creedmoor, NC

1. Count Times: 7:00 to 9:00 AM, 11:00 AM to 1:00 PM & 4:00 to 6:00 PM.



Site# 3



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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 1

Groups Printed- Vehicles - Bank 1= Trucks, 3 Axles+

	US-15 (Durham Ave.) Southbound					Lake Rd.. Westbound					US-15 (Durham Ave.) Northbound					Lake Ave. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	1	70	42	0	113	8	34	4	0	46	2	48	1	0	51	33	28	8	0	69	279
07:15 AM	1	67	50	0	118	10	56	2	0	68	4	59	2	0	65	45	29	15	0	89	340
07:30 AM	2	67	52	0	121	13	60	2	0	75	4	39	0	0	43	29	21	12	0	62	301
07:45 AM	2	49	53	0	104	3	65	8	1	77	7	43	0	0	50	35	23	16	0	74	305
Total	6	253	197	0	456	34	215	16	1	266	17	189	3	0	209	142	101	51	0	294	1225
08:00 AM	1	49	39	0	89	5	49	3	0	57	8	34	0	0	42	45	23	14	0	82	270
08:15 AM	3	73	41	0	117	5	46	4	0	55	3	44	1	0	48	30	23	9	0	62	282
08:30 AM	0	55	36	0	91	2	34	0	0	36	5	18	1	0	24	26	23	6	0	55	206
08:45 AM	5	36	29	0	70	1	30	1	0	32	10	23	3	0	36	25	32	10	0	67	205
Total	9	213	145	0	367	13	159	8	0	180	26	119	5	0	150	126	101	39	0	266	963
*** BREAK ***																					
11:00 AM	5	22	43	0	70	0	29	1	0	30	8	24	3	0	35	24	24	9	0	57	192
11:15 AM	1	27	20	0	48	2	35	1	0	38	5	18	0	0	23	35	33	8	0	76	185
11:30 AM	0	20	32	0	52	2	26	5	0	33	10	22	2	0	34	27	34	13	0	74	193
11:45 AM	3	21	27	0	51	2	34	4	0	40	6	21	2	0	29	31	21	9	0	61	181
Total	9	90	122	0	221	6	124	11	0	141	29	85	7	0	121	117	112	39	0	268	751
12:00 PM	0	25	32	0	57	2	32	5	0	39	10	25	2	0	37	25	30	11	0	66	199
12:15 PM	4	25	37	0	66	3	34	4	1	42	6	31	2	0	39	29	37	10	0	76	223
12:30 PM	6	19	32	0	57	4	27	1	1	33	13	33	1	0	47	30	24	11	0	65	202
12:45 PM	4	21	28	0	53	1	30	4	0	35	10	23	2	0	35	34	26	13	0	73	196
Total	14	90	129	0	233	10	123	14	2	149	39	112	7	0	158	118	117	45	0	280	820
*** BREAK ***																					
04:00 PM	3	32	34	0	69	4	44	3	0	51	14	65	3	0	82	54	42	15	0	111	313
04:15 PM	1	25	45	0	71	1	39	1	0	41	18	77	5	0	100	56	47	11	0	114	326
04:30 PM	3	45	36	0	84	3	44	3	0	50	8	74	1	0	83	63	44	17	1	125	342
04:45 PM	1	21	31	0	53	6	49	2	0	57	13	91	5	0	109	52	47	16	0	115	334
Total	8	123	146	0	277	14	176	9	0	199	53	307	14	0	374	225	180	59	1	465	1315
05:00 PM	3	25	33	0	61	4	39	2	0	45	13	88	2	0	103	77	67	16	0	160	369
05:15 PM	4	29	51	0	84	0	40	3	0	43	15	91	3	0	109	53	45	12	0	110	346
05:30 PM	1	34	40	0	75	4	45	6	0	55	14	108	4	0	126	60	54	13	0	127	383
05:45 PM	1	22	42	0	65	5	40	1	0	46	13	83	3	0	99	57	41	21	0	119	329
Total	9	110	166	0	285	13	164	12	0	189	55	370	12	0	437	247	207	62	0	516	1427
Grand Total	55	879	905	0	1839	90	961	70	3	1124	219	1182	48	0	1449	975	818	295	1	2089	6501
Apprch %	3	47.8	49.2	0		8	85.5	6.2	0.3		15.1	81.6	3.3	0		46.7	39.2	14.1	0		
Total %	0.8	13.5	13.9	0	28.3	1.4	14.8	1.1	0	17.3	3.4	18.2	0.7	0	22.3	15	12.6	4.5	0	32.1	
Vehicles	55	863	891	0	1809	90	954	70	3	1117	218	1146	48	0	1412	962	809	294	1	2066	6404
% Vehicles	100	98.2	98.5	0	98.4	100	99.3	100	100	99.4	99.5	97	100	0	97.4	98.7	98.9	99.7	100	98.9	98.5

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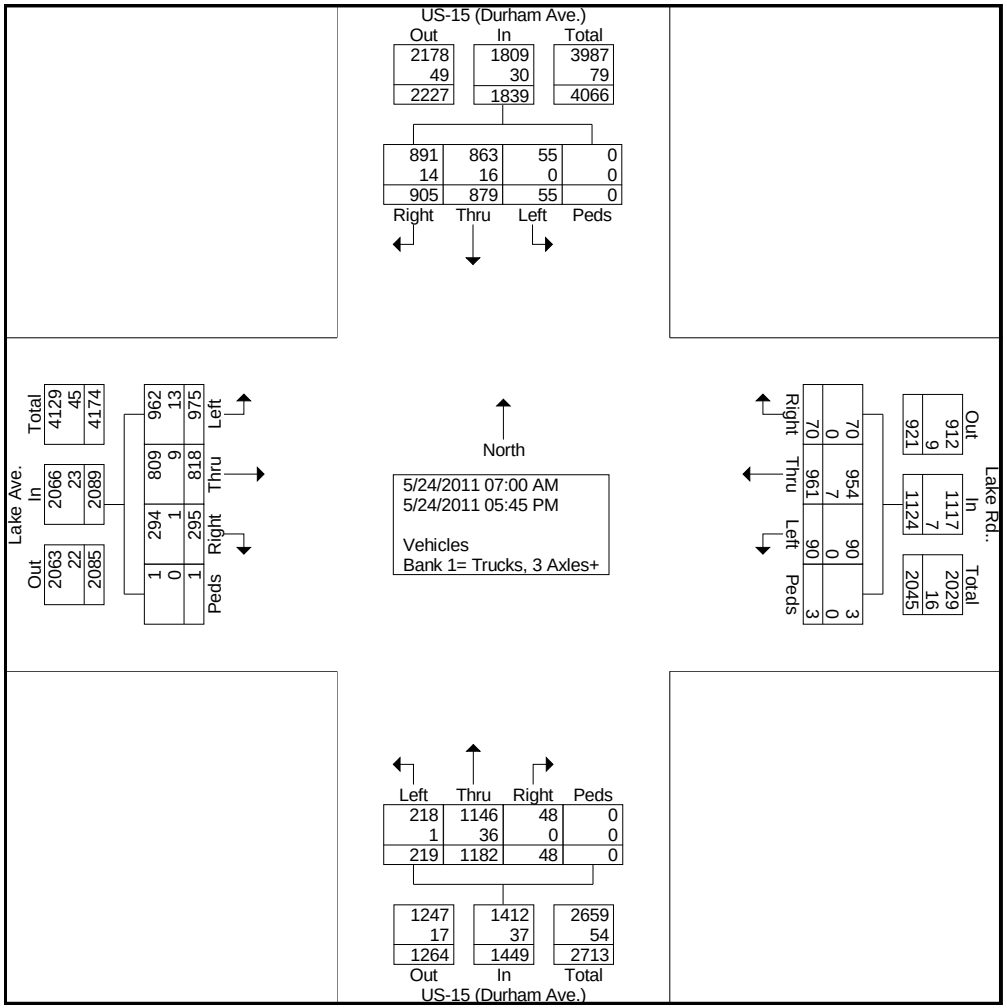
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 2

Groups Printed- Vehicles - Bank 1= Trucks, 3 Axles+

	US-15 (Durham Ave.) Southbound					Lake Rd.. Westbound					US-15 (Durham Ave.) Northbound					Lake Ave. Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Bank 1= Trucks, 3 Axles+	0	16	14	0	30	0	7	0	0	7	1	36	0	0	37	13	9	1	0	23	97
% Bank 1= Trucks, 3 Axles+	0	1.8	1.5	0	1.6	0	0.7	0	0	0.6	0.5	3	0	0	2.6	1.3	1.1	0.3	0	1.1	1.5



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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
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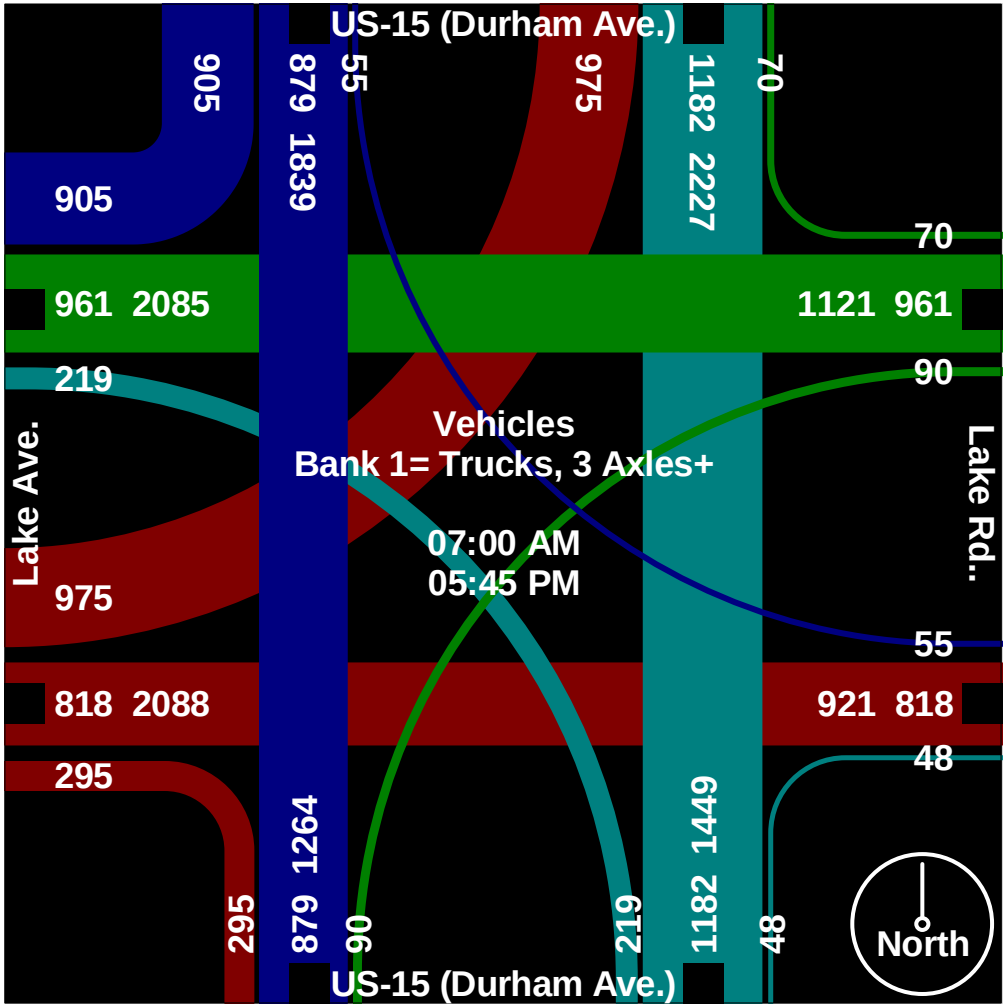
File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 3



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File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 4

	US-15 (Durham Ave.) Southbound					Lake Rd.. Westbound					US-15 (Durham Ave.) Northbound					Lake Ave. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	**70**	42	0	113	8	34	4	0	46	2	48	1	0	51	33	28	8	0	69	279
07:15 AM	1	67	50	0	118	10	56	2	0	68	4	**59**	**2**	0	**65**	**45**	**29**	15	0	**89**	**340**
07:30 AM	**2**	67	52	0	**121**	**13**	60	2	0	75	4	39	0	0	43	29	21	12	0	62	301
07:45 AM	2	49	**53**	0	104	3	**65**	**8**	**1**	**77**	**7**	43	0	0	50	35	23	**16**	0	74	305
Total Volume	6	253	197	0	456	34	215	16	1	266	17	189	3	0	209	142	101	51	0	294	1225
% App. Total	1.3	55.5	43.2	0		12.8	80.8	6	0.4		8.1	90.4	1.4	0		48.3	34.4	17.3	0		
PHF	.750	.904	.929	.000	.942	.654	.827	.500	.250	.864	.607	.801	.375	.000	.804	.789	.871	.797	.000	.826	.901

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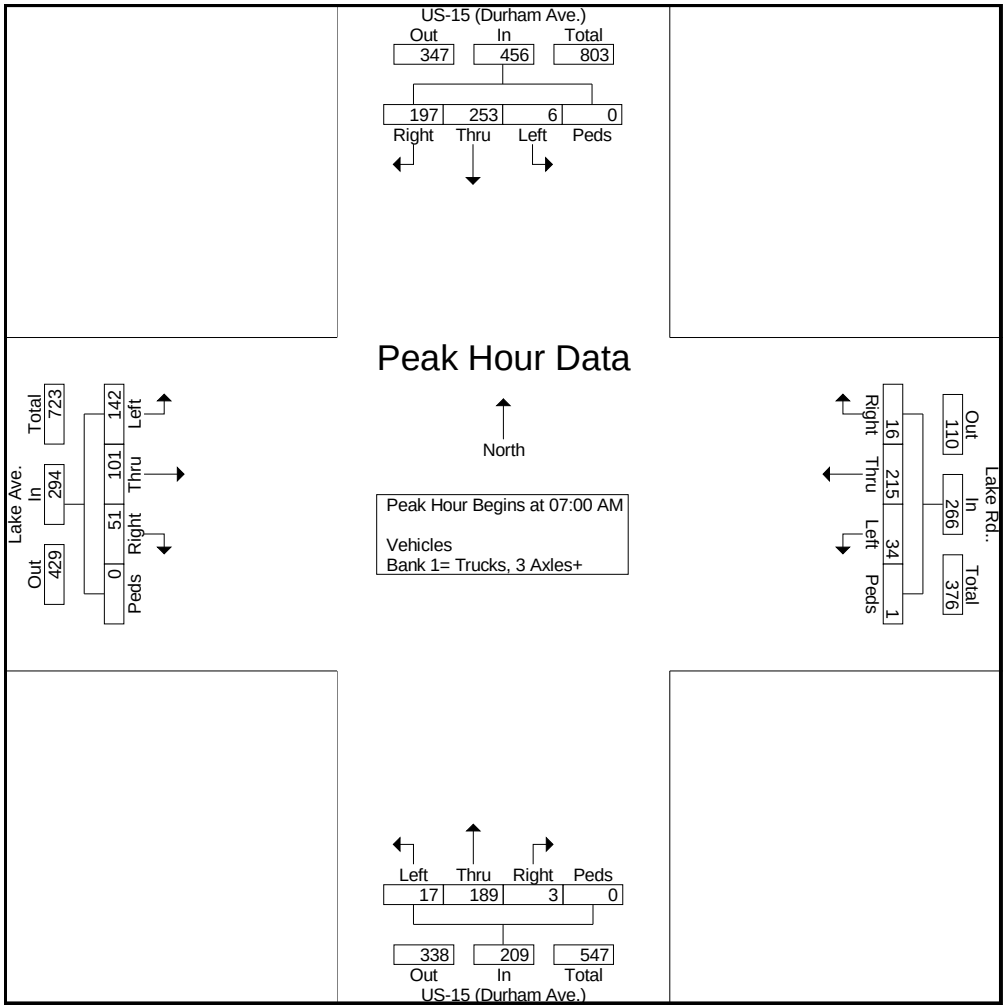
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 5



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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
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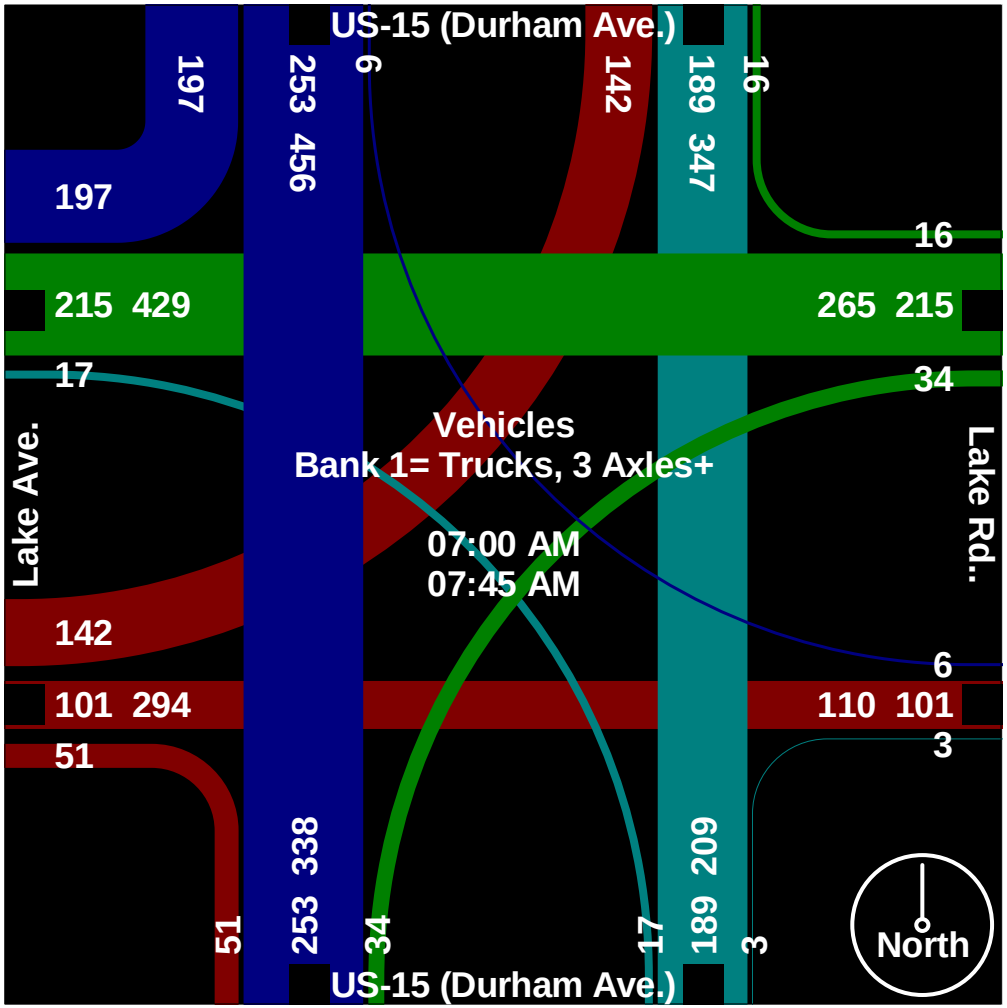
File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 6



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Weather: Note:
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File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 7

	US-15 (Durham Ave.) Southbound					Lake Rd.. Westbound					US-15 (Durham Ave.) Northbound					Lake Ave. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:00 AM					07:15 AM					07:00 AM					07:15 AM					
+0 mins.	1	**70**	42	0	113	10	56	2	0	68	2	48	1	0	51	**45**	**29**	15	0	**89**	
+15 mins.	1	67	50	0	118	**13**	60	2	0	75	4	**59**	**2**	0	**65**	29	21	12	0	62	
+30 mins.	**2**	67	52	0	**121**	3	**65**	**8**	**1**	**77**	4	39	0	0	43	35	23	**16**	0	74	
+45 mins.	2	49	**53**	0	104	5	49	3	0	57	**7**	43	0	0	50	45	23	14	0	82	
Total Volume	6	253	197	0	456	31	230	15	1	277	17	189	3	0	209	154	96	57	0	307	
% App. Total	1.3	55.5	43.2	0		11.2	83	5.4	0.4		8.1	90.4	1.4	0		50.2	31.3	18.6	0		
PHF	.750	.904	.929	.000	.942	.596	.885	.469	.250	.899	.607	.801	.375	.000	.804	.856	.828	.891	.000	.862	

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Creedmoor, NC
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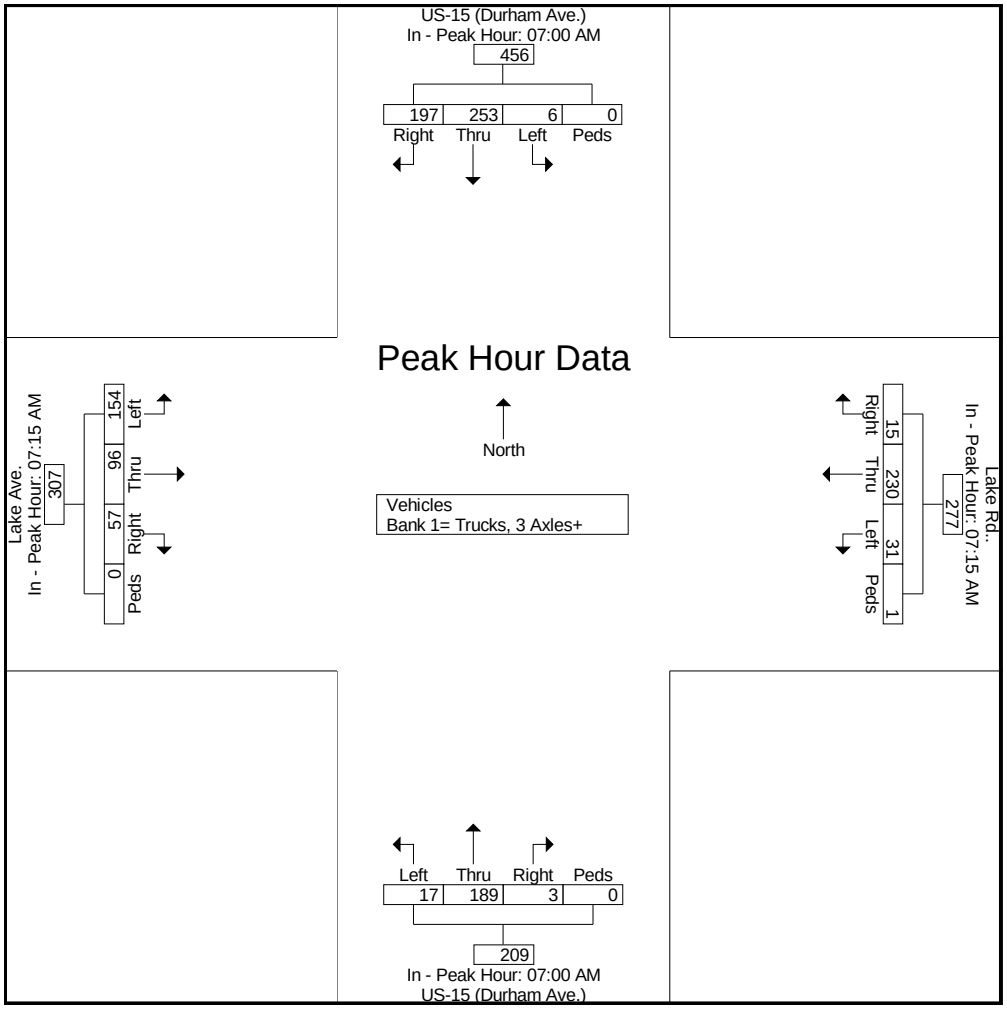
Start Date : 5/24/2011



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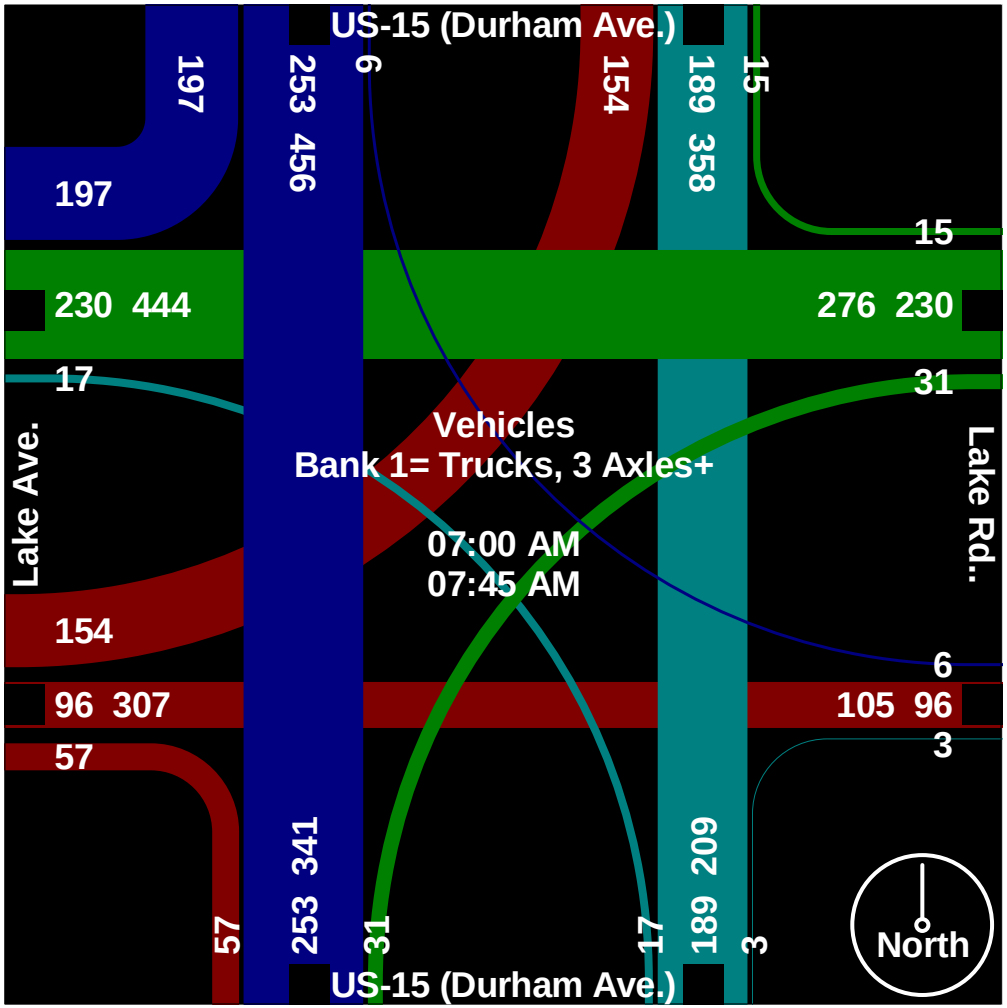

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Creedmoor, NC
Weather: Note:
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File Name : Site# 3 Creedmoor
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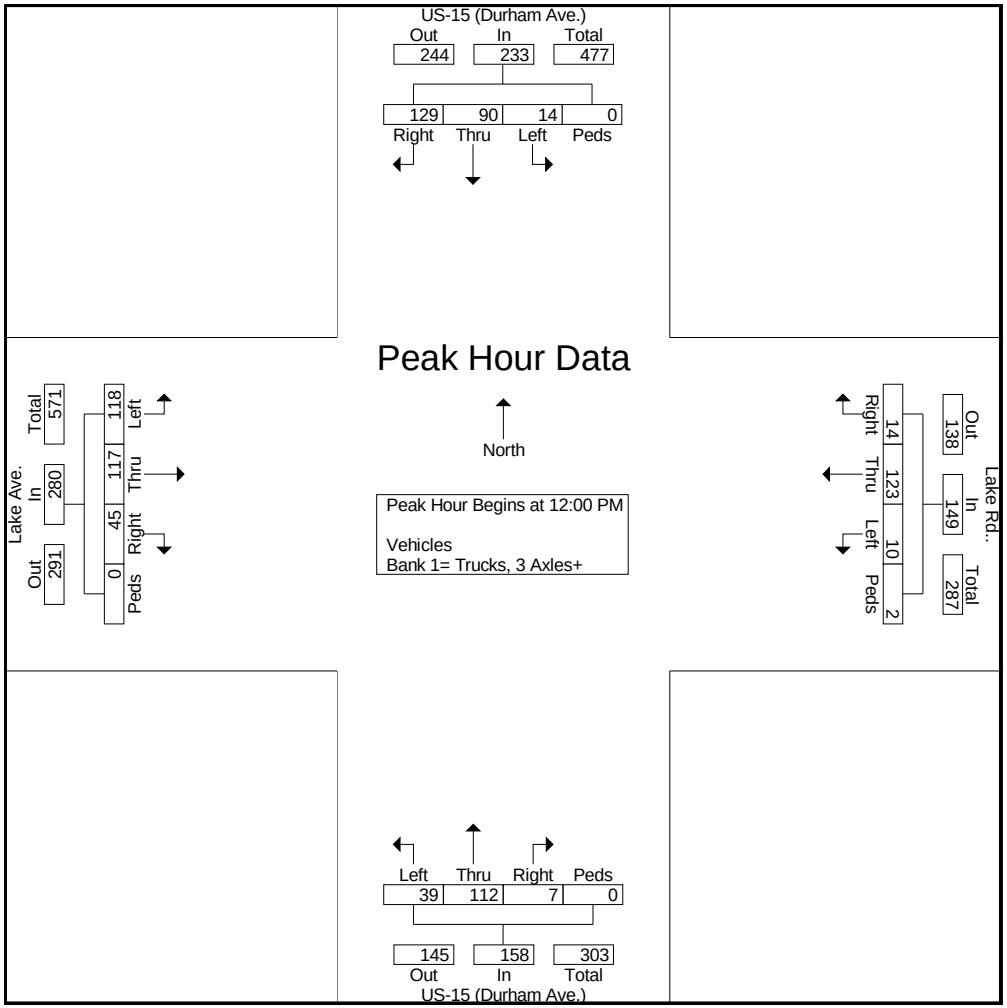
Start Date : 5/24/2011

	US-15 (Durham Ave.) Southbound					Lake Rd.. Westbound					US-15 (Durham Ave.) Northbound					Lake Ave. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	**25**	32	0	57	2	32	**5**	0	39	10	25	**2**	0	37	25	30	11	0	66	199
12:15 PM	4	25	**37**	0	**66**	3	**34**	4	**1**	**42**	6	31	2	0	39	29	**37**	10	0	**76**	**223**
12:30 PM	**6**	19	32	0	57	**4**	27	1	1	33	**13**	**33**	1	0	**47**	30	24	11	0	65	202
12:45 PM	4	21	28	0	53	1	30	4	0	35	10	23	2	0	35	**34**	26	**13**	0	73	196
Total Volume	14	90	129	0	233	10	123	14	2	149	39	112	7	0	158	118	117	45	0	280	820
% App. Total	6	38.6	55.4	0		6.7	82.6	9.4	1.3		24.7	70.9	4.4	0		42.1	41.8	16.1	0		
PHF	.583	.900	.872	.000	.883	.625	.904	.700	.500	.887	.750	.848	.875	.000	.840	.868	.791	.865	.000	.921	.919

1. *Green Light Traffic Services, Inc.*
- *P.O. Box 1364 Garner, NC 27529*
- *Benny R. Johnson, President*
- *(919) 632-1779*

US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 11



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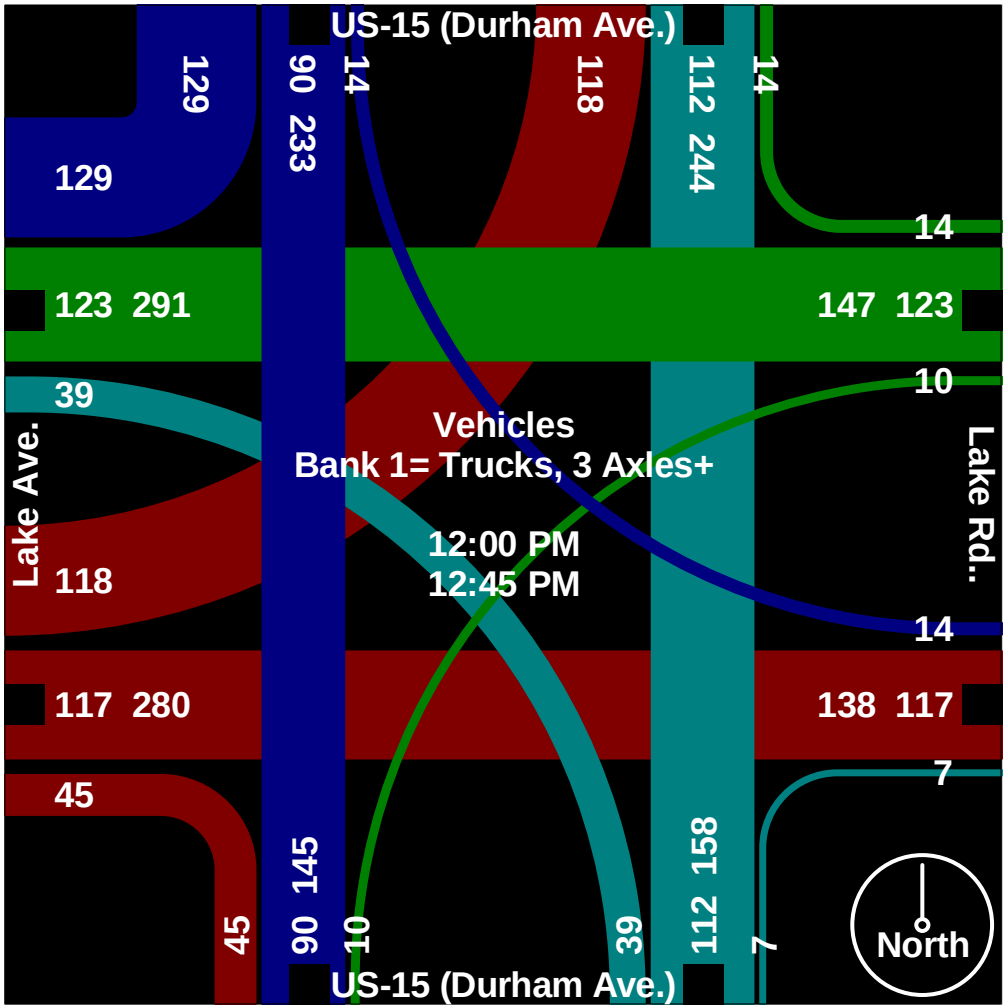
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 12



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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011

	US-15 (Durham Ave.) Southbound					Lake Rd.. Westbound					US-15 (Durham Ave.) Northbound					Lake Ave. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	12:00 PM					11:30 AM					12:00 PM					12:00 PM					
+0 mins.	0	**25**	32	0	57	2	26	**5**	0	33	10	25	**2**	0	37	25	30	11	0	66	
+15 mins.	4	25	**37**	0	**66**	2	**34**	4	0	40	6	31	2	0	39	29	**37**	10	0	**76**	
+30 mins.	**6**	19	32	0	57	2	32	5	0	39	**13**	**33**	1	0	**47**	30	24	11	0	65	
+45 mins.	4	21	28	0	53	**3**	34	4	**1**	**42**	10	23	2	0	35	**34**	26	**13**	0	73	
Total Volume	14	90	129	0	233	9	126	18	1	154	39	112	7	0	158	118	117	45	0	280	
% App. Total	6	38.6	55.4	0		5.8	81.8	11.7	0.6		24.7	70.9	4.4	0		42.1	41.8	16.1	0		
PHF	.583	.900	.872	.000	.883	.750	.926	.900	.250	.917	.750	.848	.875	.000	.840	.868	.791	.865	.000	.921	

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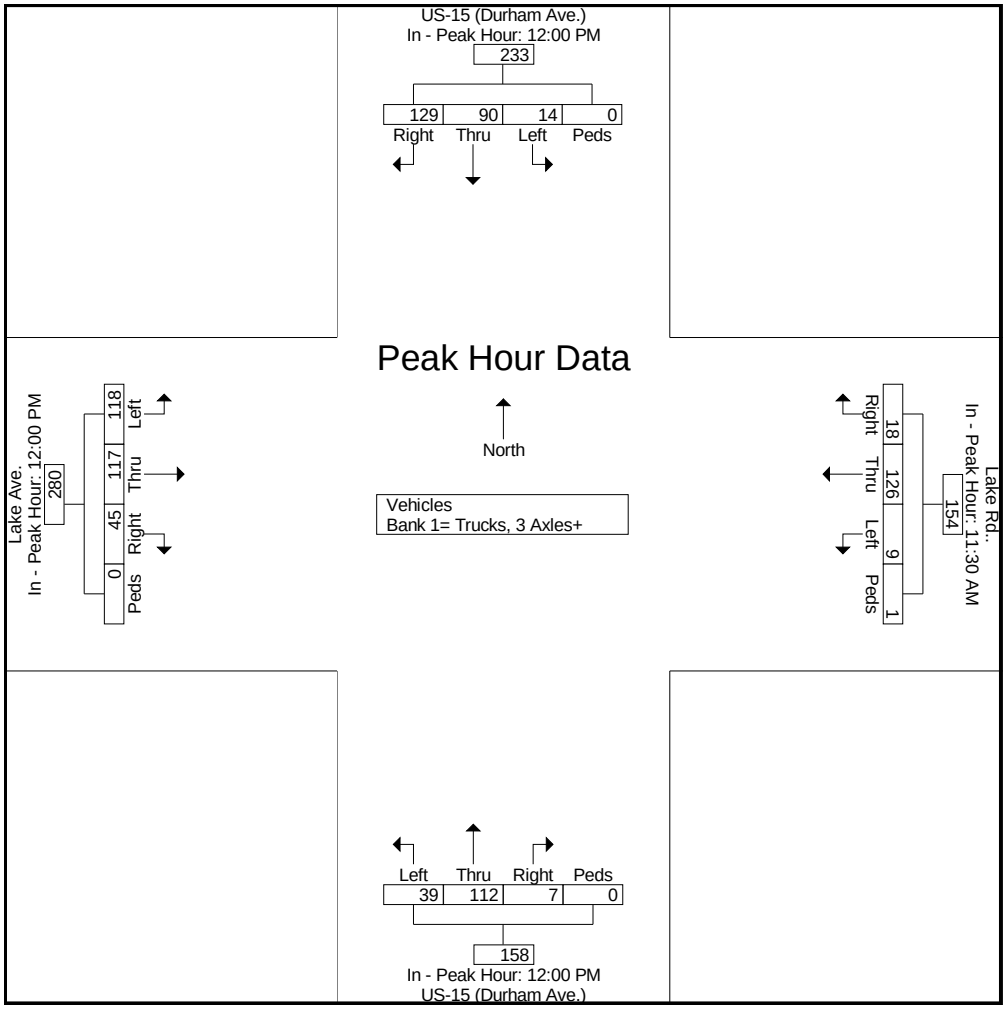
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 14



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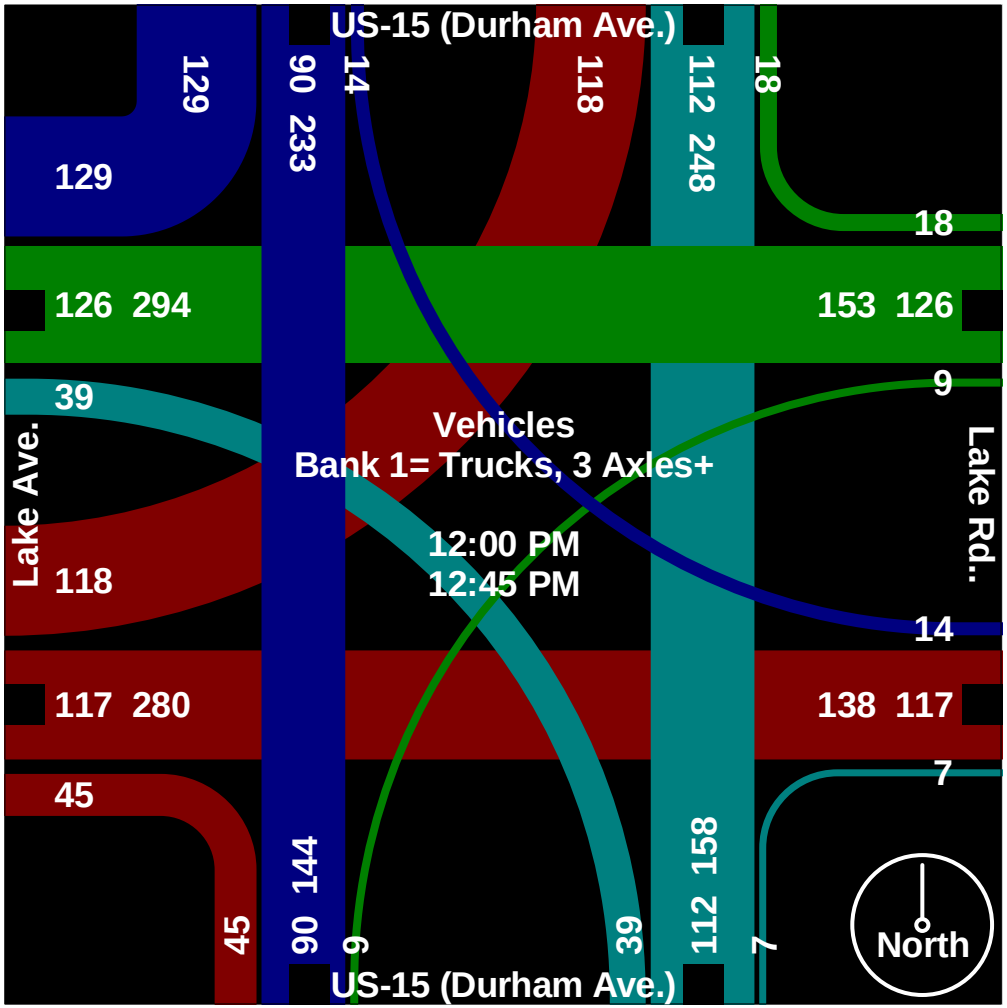
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 15



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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011

	US-15 (Durham Ave.) Southbound					Lake Rd.. Westbound					US-15 (Durham Ave.) Northbound					Lake Ave. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	21	31	0	53	**6**	**49**	2	0	**57**	13	91	**5**	0	109	52	47	**16**	0	115	334
05:00 PM	3	25	33	0	61	4	39	2	0	45	13	88	2	0	103	**77**	**67**	16	0	**160**	369
05:15 PM	**4**	29	**51**	0	**84**	0	40	3	0	43	**15**	91	3	0	109	53	45	12	0	110	346
05:30 PM	1	**34**	40	0	75	4	45	**6**	0	55	14	**108**	4	0	**126**	60	54	13	0	127	**383**
Total Volume	9	109	155	0	273	14	173	13	0	200	55	378	14	0	447	242	213	57	0	512	1432
% App. Total	3.3	39.9	56.8	0		7	86.5	6.5	0		12.3	84.6	3.1	0		47.3	41.6	11.1	0		
PHF	.563	.801	.760	.000	.813	.583	.883	.542	.000	.877	.917	.875	.700	.000	.887	.786	.795	.891	.000	.800	.935

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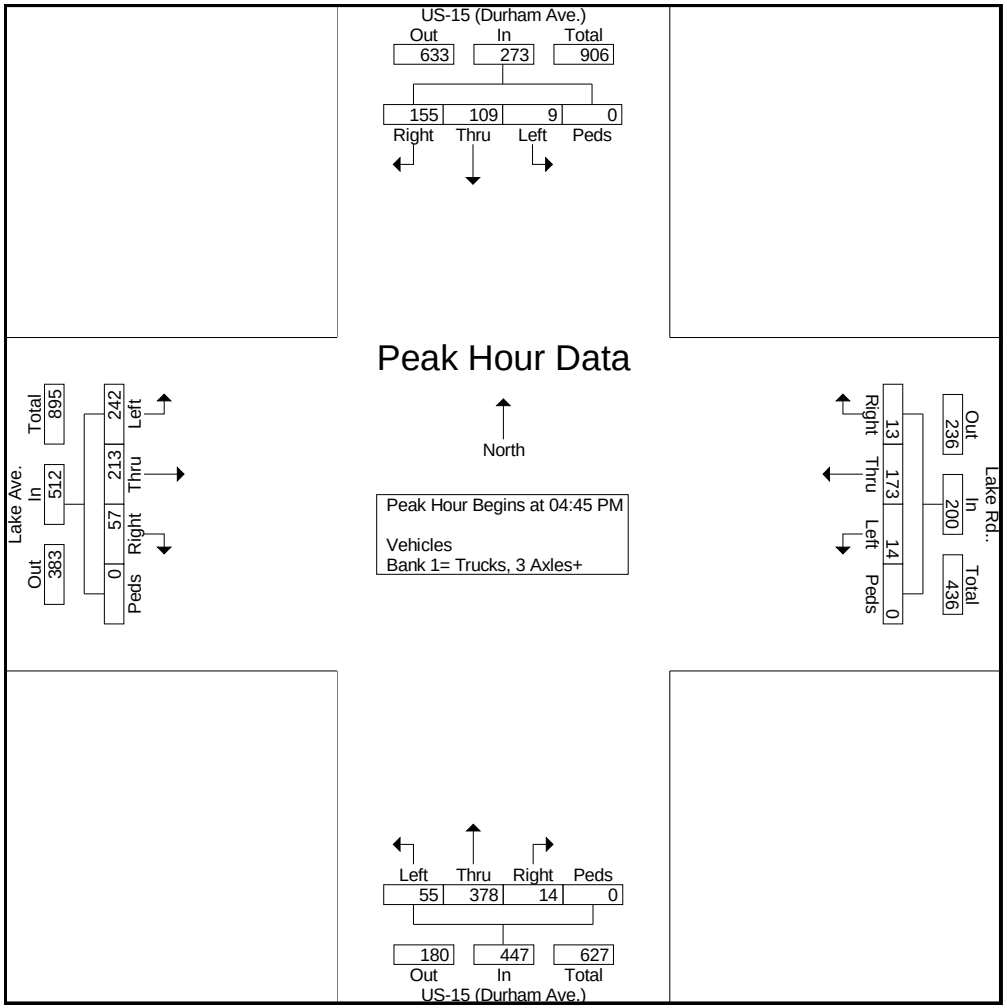
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 17



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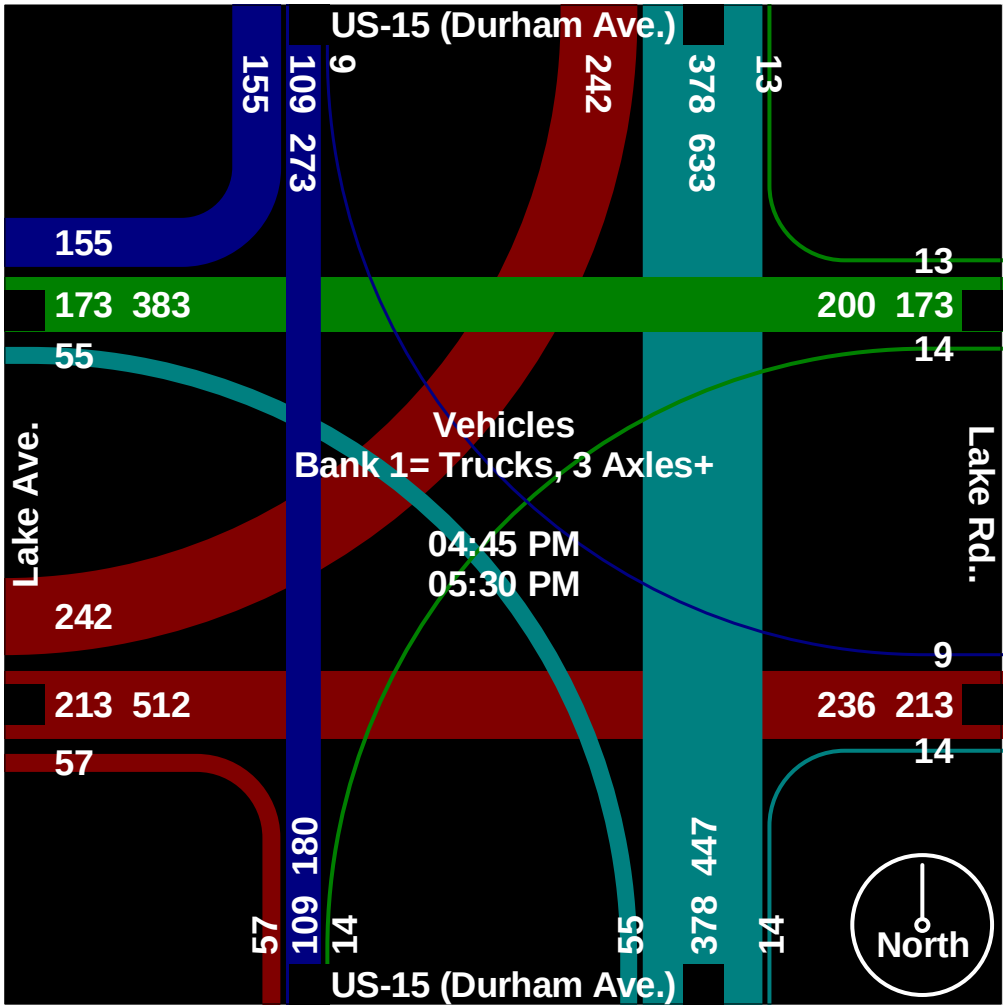
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011



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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011

	US-15 (Durham Ave.) Southbound					Lake Rd.. Westbound					US-15 (Durham Ave.) Northbound					Lake Ave. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	05:00 PM					04:45 PM					04:45 PM					05:00 PM					
+0 mins.	3	25	33	0	61	**6**	**49**	2	0	**57**	13	91	**5**	0	109	**77**	**67**	16	0	**160**	
+15 mins.	**4**	29	**51**	0	**84**	4	39	2	0	45	13	88	2	0	103	53	45	12	0	110	
+30 mins.	1	**34**	40	0	75	0	40	3	0	43	**15**	91	3	0	109	60	54	13	0	127	
+45 mins.	1	22	42	0	65	4	45	**6**	0	55	14	**108**	4	0	**126**	57	41	**21**	0	119	
Total Volume	9	110	166	0	285	14	173	13	0	200	55	378	14	0	447	247	207	62	0	516	
% App. Total	3.2	38.6	58.2	0		7	86.5	6.5	0		12.3	84.6	3.1	0		47.9	40.1	12	0		
PHF	.563	.809	.814	.000	.848	.583	.883	.542	.000	.877	.917	.875	.700	.000	.887	.802	.772	.738	.000	.806	

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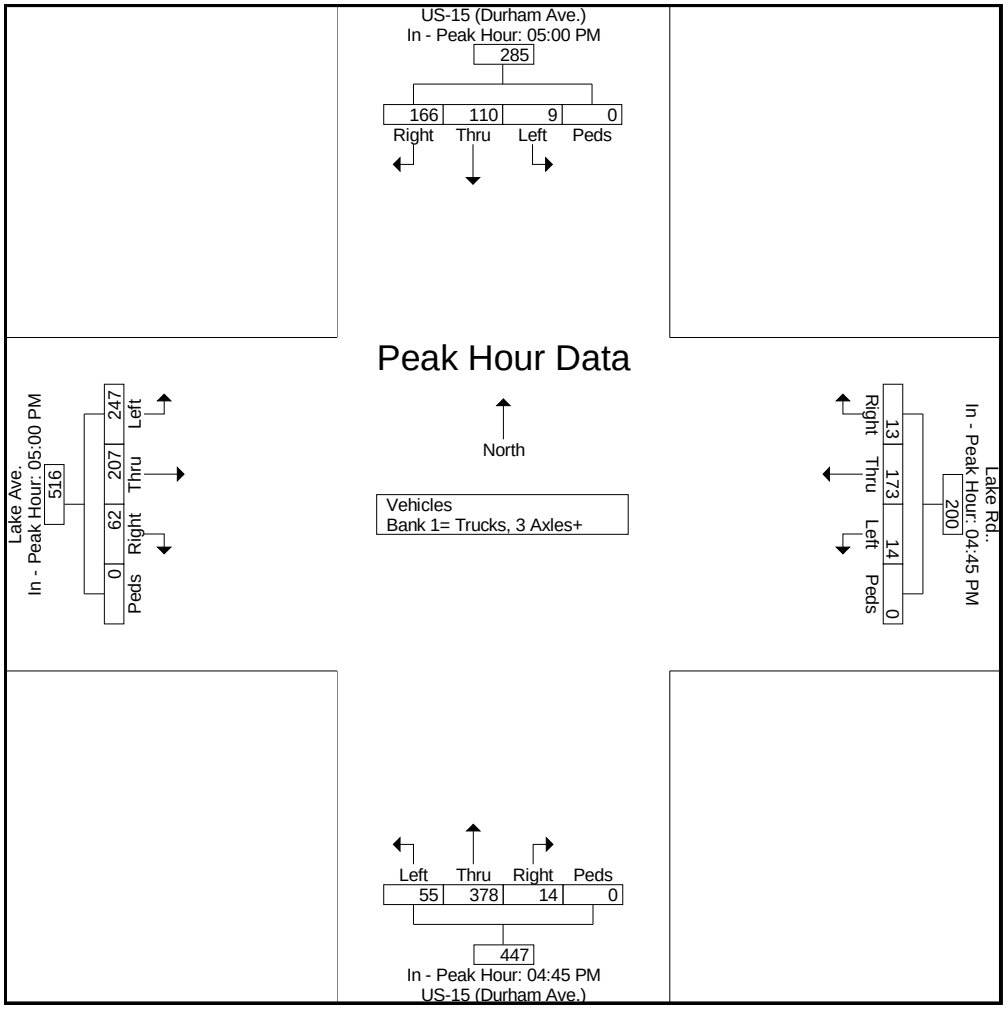
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011



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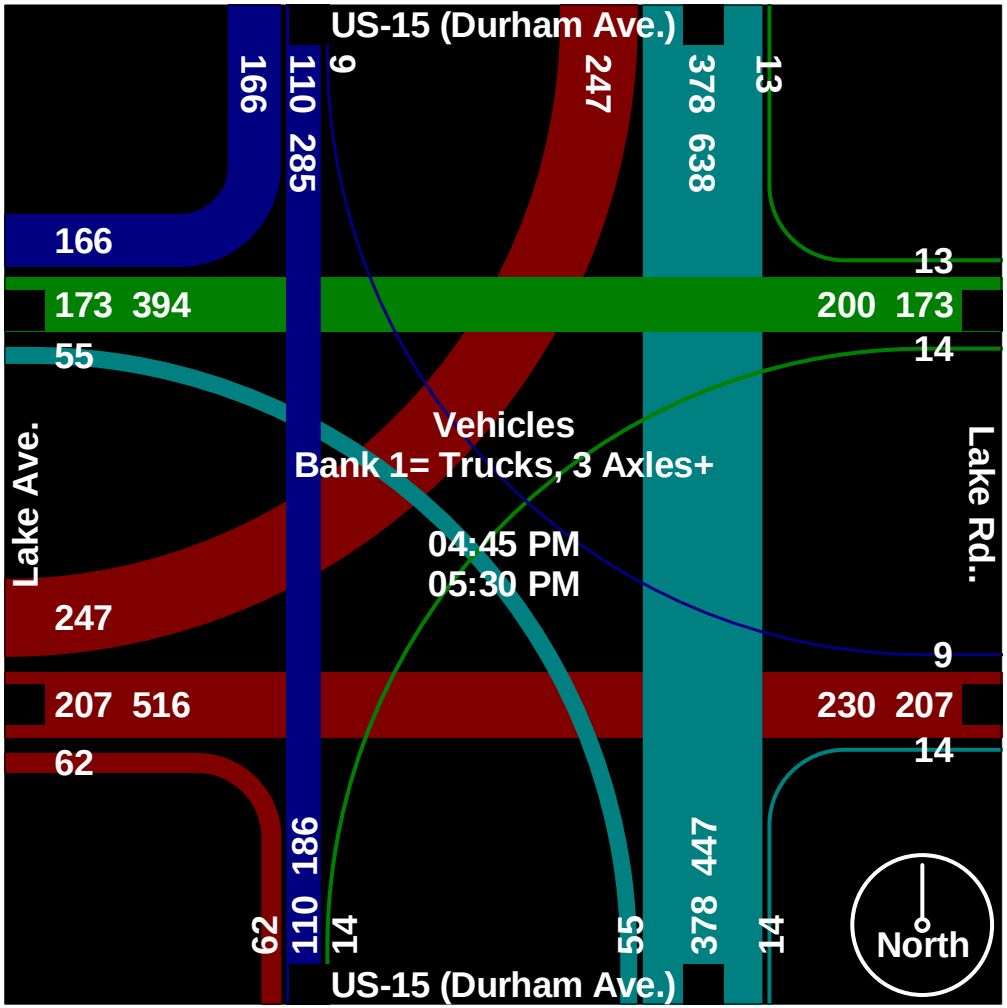
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011



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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 22

Southbound on US-15

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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 23

Westbound on Lake Rd.

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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 24

Northbound on US-15

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US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 25

Eastbound on Lakee Rd.

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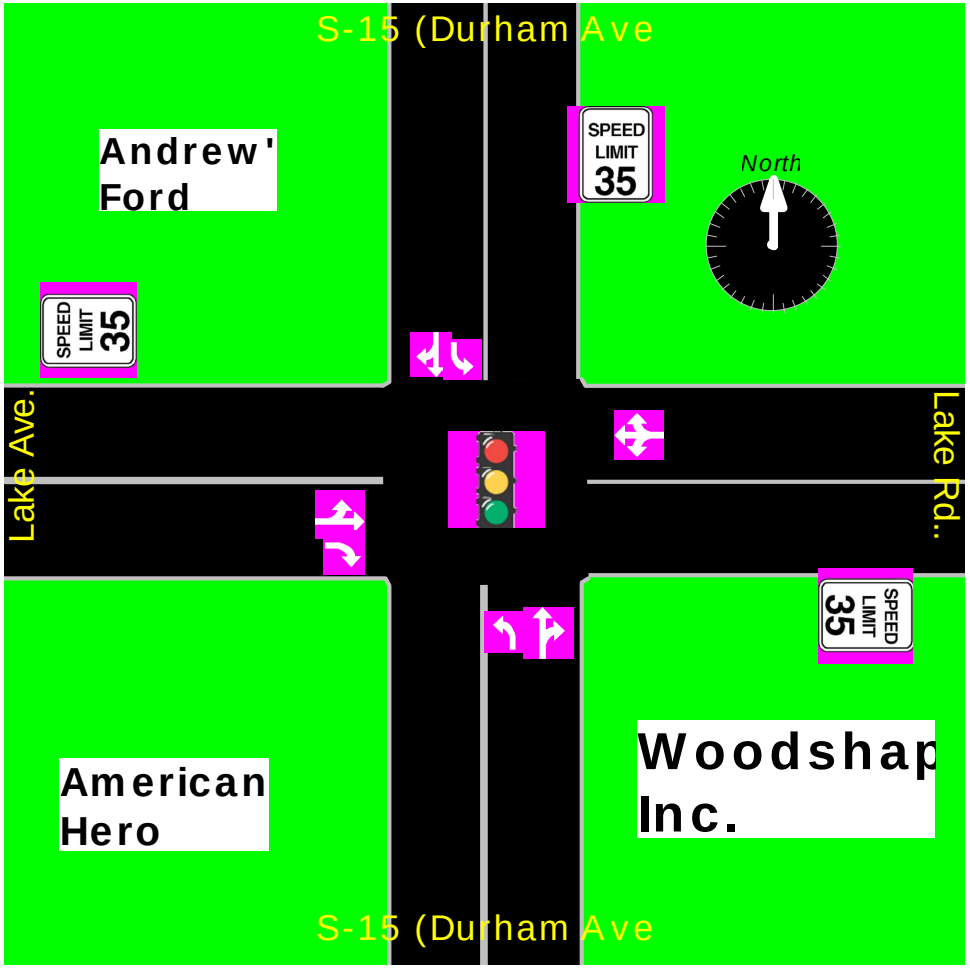
US-15 (Durham Ave.) @ Lake Rd.
Creedmoor, NC
Weather: Note:
Counted By: Lois

File Name : Site# 3 Creedmoor
Site Code : Site# 3
Start Date : 5/24/2011
Page No : 26



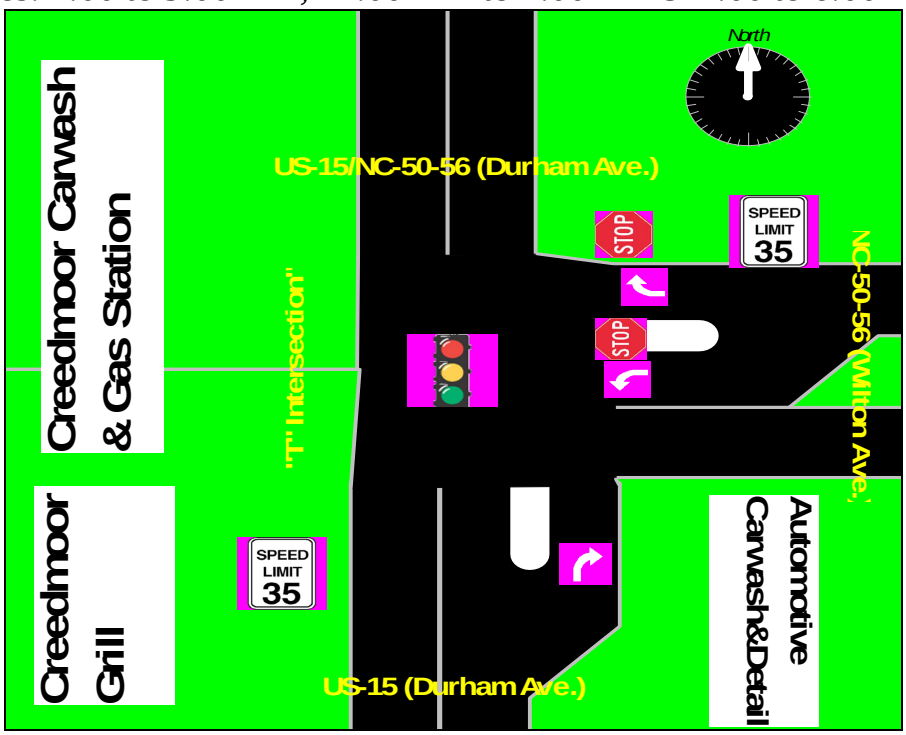
GreenLight
Traffic Services, Inc.
Post Office 1364
Garner, North Carolina 27529-1364
919-632-1779

Benny R. Johnson, President

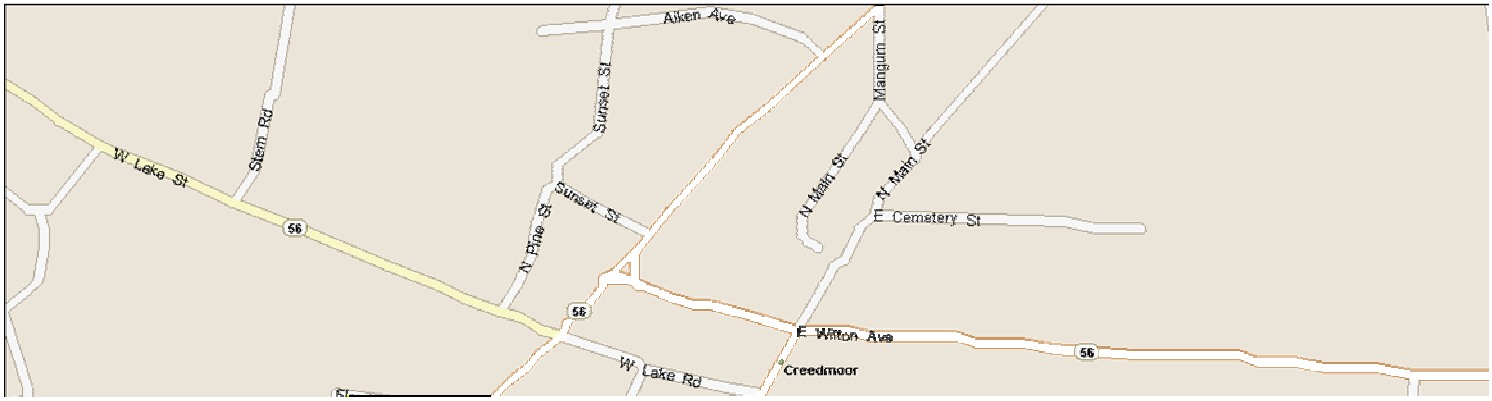
Count Site# 4

Intersection: US-15/NC-50-56 (Durham Ave.) @ NC-50-56 (Wilton Ave.)
City of Creedmoor, NC

1. Count Times: 7:00 to 9:00 AM, 11:00 AM to 1:00 PM & 4:00 to 6:00 PM.



Site# 4



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US-15/NC-50-56 @ NC-50-56 (Wilton Ave.)
Creedmoor, NC
Weather: Sunny Note:
Counted By: Chris

File Name : Site# 4 Creedmoor
Site Code : Site# 4
Start Date : 5/24/2011
Page No : 1

Groups Printed- Vehicles - Bank 1= Trucks, 3 Axles+

	US-15/NC-50-56 (Durham Ave.) Southbound					NC-50-56 (Wilton Ave.) Westbound					US-15 (Durham Ave.) Northbound					"T" Intersection" Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	12	24	0	0	36	89	0	9	0	98	0	14	64	0	78	0	0	0	0	0	212
07:15 AM	9	26	0	0	35	110	0	10	0	120	0	15	87	0	102	0	0	0	0	0	257
07:30 AM	11	34	0	0	45	100	0	12	0	112	0	12	55	0	67	0	0	0	0	0	224
07:45 AM	12	24	0	0	36	82	0	8	1	91	0	17	64	0	81	0	0	0	0	0	208
Total	44	108	0	0	152	381	0	39	1	421	0	58	270	0	328	0	0	0	0	0	901
08:00 AM	11	14	0	0	25	96	0	13	0	109	0	21	60	0	81	0	0	0	0	0	215
08:15 AM	6	19	0	0	25	100	0	18	0	118	0	22	49	2	73	0	0	0	0	0	216
08:30 AM	13	17	0	0	30	86	0	9	0	95	0	10	30	0	40	0	0	0	0	0	165
08:45 AM	6	26	0	0	32	54	0	9	0	63	0	17	33	1	51	0	0	0	0	0	146
Total	36	76	0	0	112	336	0	49	0	385	0	70	172	3	245	0	0	0	0	0	742
*** BREAK ***																					
11:00 AM	6	20	0	0	26	51	0	16	0	67	0	20	29	0	49	0	0	0	0	0	142
11:15 AM	5	16	0	0	21	26	0	8	0	34	0	15	33	0	48	0	0	0	0	0	103
11:30 AM	4	11	0	1	16	39	0	10	0	49	0	13	33	0	46	0	0	0	0	0	111
11:45 AM	11	10	0	0	21	36	0	10	0	46	0	9	42	0	51	0	0	0	0	0	118
Total	26	57	0	1	84	152	0	44	0	196	0	57	137	0	194	0	0	0	0	0	474
12:00 PM	6	13	0	0	19	44	0	8	0	52	0	23	38	0	61	0	0	0	0	0	132
12:15 PM	5	18	0	0	23	40	0	15	0	55	0	17	47	0	64	0	0	0	0	0	142
12:30 PM	2	13	0	0	15	36	0	8	0	44	0	16	46	0	62	0	0	0	0	0	121
12:45 PM	10	16	0	0	26	42	0	7	0	49	1	11	42	0	54	0	0	0	0	0	129
Total	23	60	0	0	83	162	0	38	0	200	1	67	173	0	241	0	0	0	0	0	524
*** BREAK ***																					
04:00 PM	3	17	0	0	20	65	0	2	0	67	0	31	86	0	117	0	0	0	0	0	204
04:15 PM	7	22	0	0	29	50	0	9	0	59	0	34	93	2	129	0	0	0	0	0	217
04:30 PM	12	16	0	0	28	68	0	5	0	73	0	28	111	1	140	0	0	0	0	0	241
04:45 PM	5	9	0	0	14	42	0	11	0	53	0	25	125	1	151	0	0	0	0	0	218
Total	27	64	0	0	91	225	0	27	0	252	0	118	415	4	537	0	0	0	0	0	880
05:00 PM	14	17	0	0	31	51	1	13	0	65	0	32	146	0	178	0	0	0	0	0	274
05:15 PM	11	24	0	0	35	60	3	7	0	70	0	39	108	1	148	0	0	0	0	0	253
05:30 PM	16	22	0	0	38	71	0	11	0	82	0	38	139	1	178	0	0	0	0	0	298
05:45 PM	9	18	0	0	27	43	0	13	0	56	0	19	129	0	148	0	0	0	0	0	231
Total	50	81	0	0	131	225	4	44	0	273	0	128	522	2	652	0	0	0	0	0	1056
Grand Total	206	446	0	1	653	1481	4	241	1	1727	1	498	1689	9	2197	0	0	0	0	0	4577
Apprch %	31.5	68.3	0	0.2		85.8	0.2	14	0.1		0	22.7	76.9	0.4		0	0	0	0		
Total %	4.5	9.7	0	0	14.3	32.4	0.1	5.3	0	37.7	0	10.9	36.9	0.2	48	0	0	0	0	0	
Vehicles	187	442	0	1	630	1442	4	199	1	1646	1	489	1649	9	2148	0	0	0	0	0	4424
% Vehicles	90.8	99.1	0	100	96.5	97.4	100	82.6	100	95.3	100	98.2	97.6	100	97.8	0	0	0	0	0	96.7

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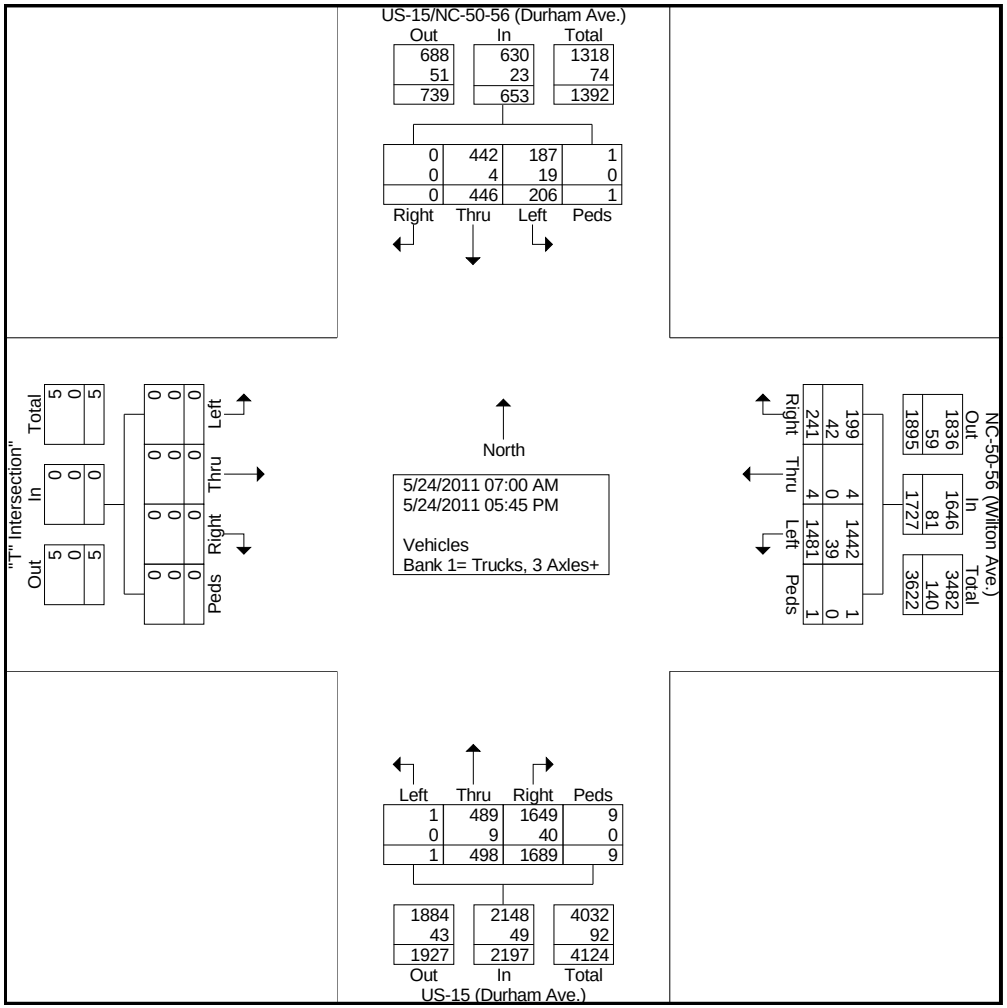
US-15/NC-50-56 @ NC-50-56 (Wilton Ave.)
Creedmoor, NC
Weather: Sunny Note:
Counted By: Chris

File Name : Site# 4 Creedmoor
Site Code : Site# 4
Start Date : 5/24/2011
Page No : 2

Groups Printed- Vehicles - Bank 1= Trucks, 3 Axles+

	US-15/NC-50-56 (Durham Ave.) Southbound					NC-50-56 (Wilton Ave.) Westbound					US-15 (Durham Ave.) Northbound					"T" Intersection" Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Bank 1= Trucks, 3 Axles+	19	4	0	0	23	39	0	42	0	81	0	9	40	0	49	0	0	0	0	0	153
% Bank 1= Trucks, 3 Axles+	9.2	0.9	0	0	3.5	2.6	0	17.4	0	4.7	0	1.8	2.4	0	2.2	0	0	0	0	0	3.3



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US-15/NC-50-56 @ NC-50-56 (Wilton Ave.)
Creedmoor, NC
Weather: Sunny Note:
Counted By: Chris

File Name : Site# 4 Creedmoor
Site Code : Site# 4
Start Date : 5/24/2011
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	US-15/NC-50-56 (Durham Ave.) Southbound					NC-50-56 (Wilton Ave.) Westbound					US-15 (Durham Ave.) Northbound					"T" Intersection" Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	9	26	0	0	35	**110**	0	10	0	**120**	0	15	**87**	0	**102**	0	0	0	0	0	**257**
07:30 AM	11	**34**	0	0	**45**	100	0	12	0	112	0	12	55	0	67	0	0	0	0	0	224
07:45 AM	**12**	24	0	0	36	82	0	8	**1**	91	0	17	64	0	81	0	0	0	0	0	208
08:00 AM	11	14	0	0	25	96	0	**13**	0	109	0	**21**	60	0	81	0	0	0	0	0	215
Total Volume	43	98	0	0	141	388	0	43	1	432	0	65	266	0	331	0	0	0	0	0	904
% App. Total	30.5	69.5	0	0		89.8	0	10	0.2		0	19.6	80.4	0		0	0	0	0		
PHF	.896	.721	.000	.000	.783	.882	.000	.827	.250	.900	.000	.774	.764	.000	.811	.000	.000	.000	.000	.000	.879

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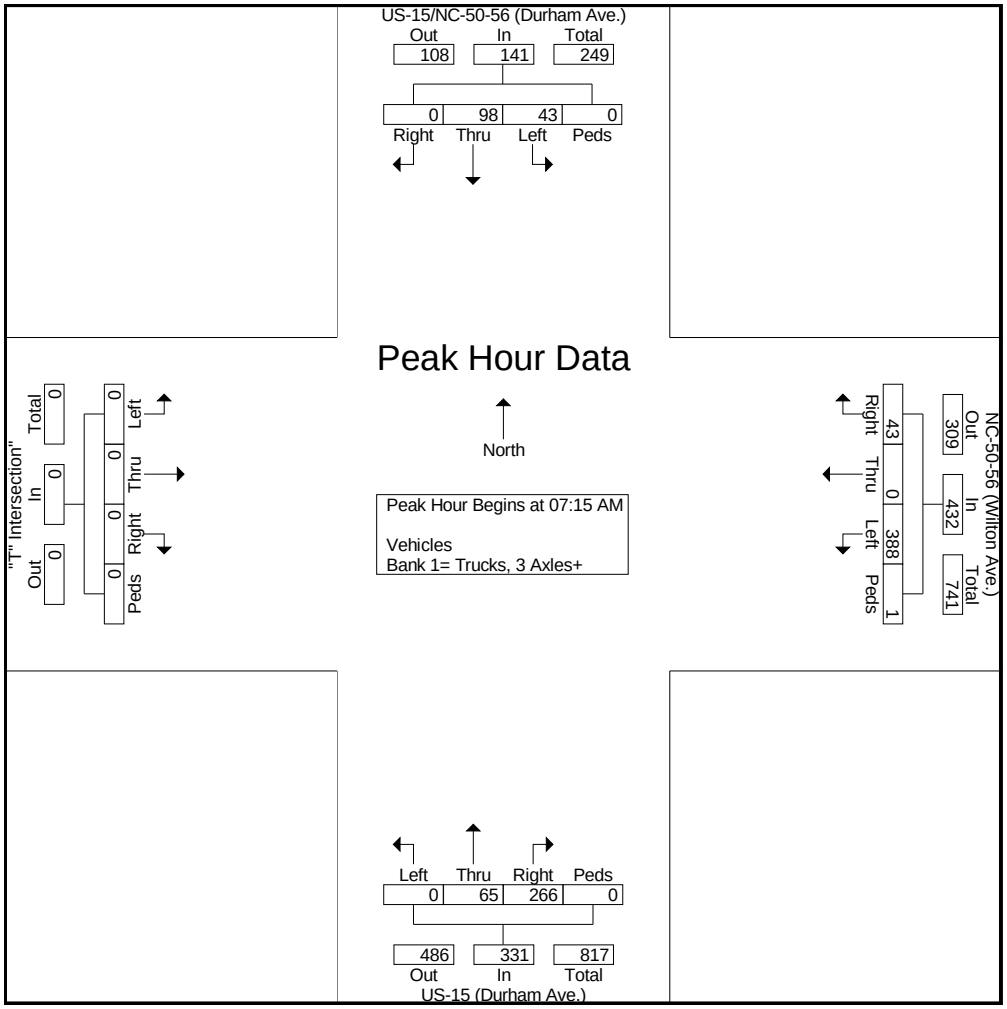
- *(919) 632-1779*

US-15/NC-50-56 @ NC-50-56 (Wilton Ave.)
Creedmoor, NC
Weather: Sunny Note:
Counted By: Chris

File Name : Site# 4 Creedmoor
Site Code : Site# 4
Start Date : 5/24/2011
Page No : 4



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Site Code : Site# 4
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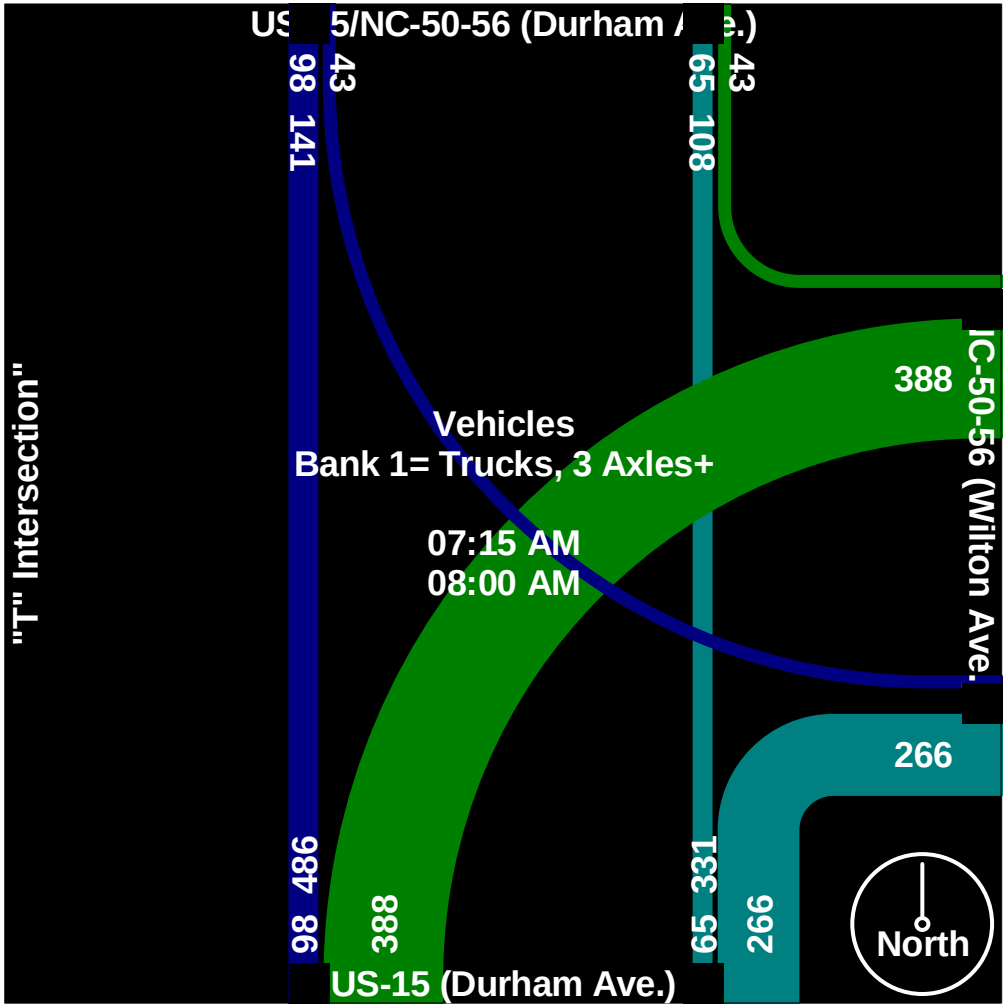

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US-15/NC-50-56 @ NC-50-56 (Wilton Ave.)
Creedmoor, NC
Weather: Sunny Note:
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File Name : Site# 4 Creedmoor
Site Code : Site# 4
Start Date : 5/24/2011

	US-15/NC-50-56 (Durham Ave.) Southbound					NC-50-56 (Wilton Ave.) Westbound					US-15 (Durham Ave.) Northbound					"T" Intersection" Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:00 AM					07:15 AM					07:15 AM					07:00 AM					
+0 mins.	**12**	24	0	0	36	**110**	0	10	0	**120**	0	15	**87**	0	**102**	0	0	0	0	0	
+15 mins.	9	26	0	0	35	100	0	12	0	112	0	12	55	0	67	0	0	0	0	0	
+30 mins.	11	**34**	0	0	**45**	82	0	8	**1**	91	0	17	64	0	81	0	0	0	0	0	
+45 mins.	12	24	0	0	36	96	0	**13**	0	109	0	**21**	60	0	81	0	0	0	0	0	
Total Volume	44	108	0	0	152	388	0	43	1	432	0	65	266	0	331	0	0	0	0	0	
% App. Total	28.9	71.1	0	0		89.8	0	10	0.2		0	19.6	80.4	0		0	0	0	0		
PHF	.917	.794	.000	.000	.844	.882	.000	.827	.250	.900	.000	.774	.764	.000	.811	.000	.000	.000	.000	.000	

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Creedmoor, NC
Weather: Sunny Note:
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File Name : Site# 4 Creedmoor
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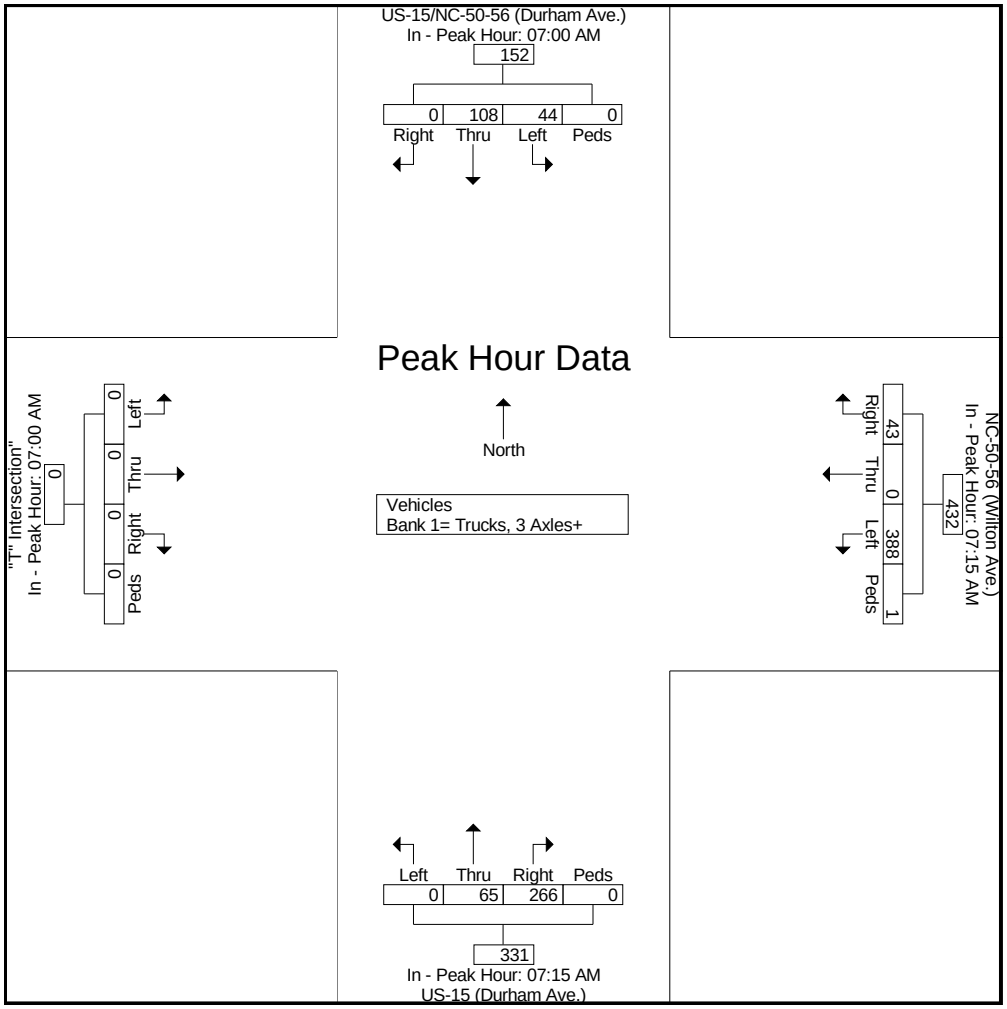

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Creedmoor, NC
Weather: Sunny Note:
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Site Code : Site# 4
Start Date : 5/24/2011
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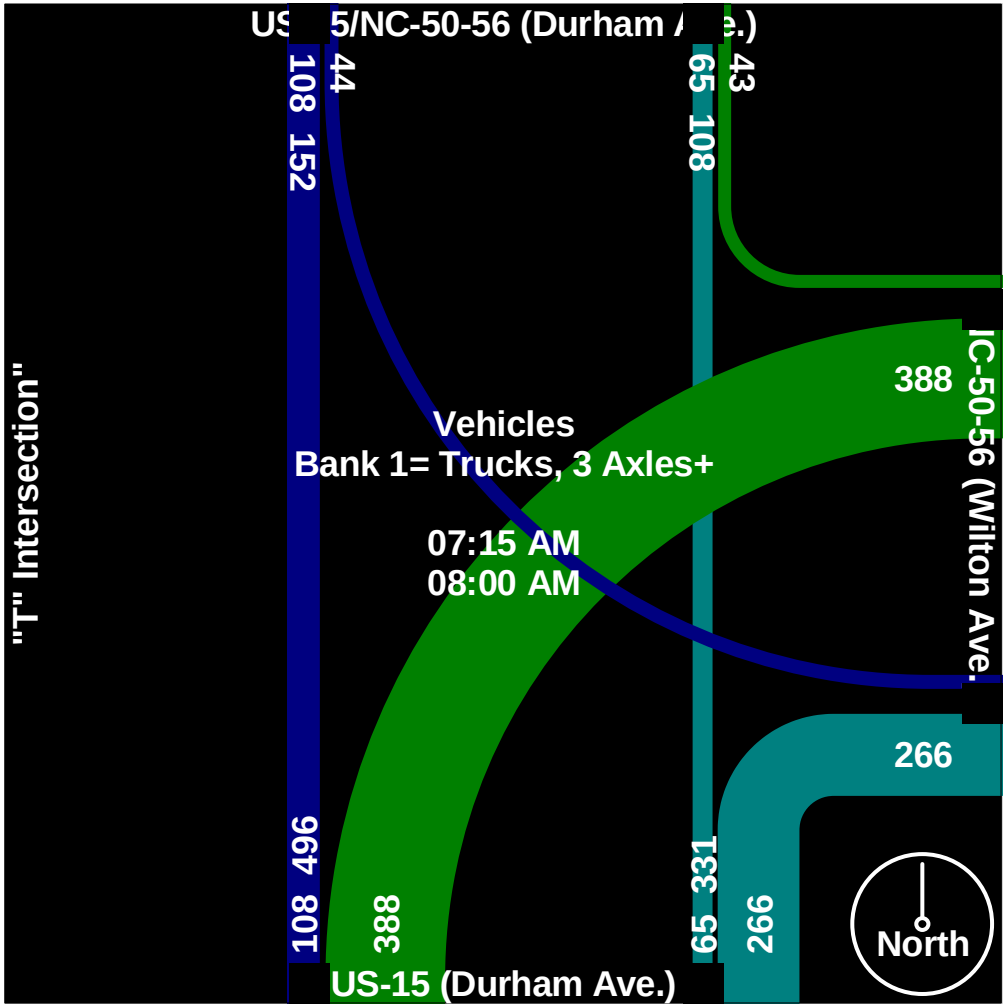

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US-15/NC-50-56 @ NC-50-56 (Wilton Ave.)
Creedmoor, NC
Weather: Sunny Note:
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Site Code : Site# 4
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	US-15/NC-50-56 (Durham Ave.) Southbound					NC-50-56 (Wilton Ave.) Westbound					US-15 (Durham Ave.) Northbound					"T" Intersection" Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	6	13	0	0	19	**44**	0	8	0	52	0	**23**	38	0	61	0	0	0	0	0	132
12:15 PM	5	**18**	0	0	23	40	0	**15**	0	**55**	0	17	**47**	0	**64**	0	0	0	0	0	**142**
12:30 PM	2	13	0	0	15	36	0	8	0	44	0	16	46	0	62	0	0	0	0	0	121
12:45 PM	**10**	16	0	0	**26**	42	0	7	0	49	**1**	11	42	0	54	0	0	0	0	0	129
Total Volume	23	60	0	0	83	162	0	38	0	200	1	67	173	0	241	0	0	0	0	0	524
% App. Total	27.7	72.3	0	0		81	0	19	0		0.4	27.8	71.8	0		0	0	0	0		
PHF	.575	.833	.000	.000	.798	.920	.000	.633	.000	.909	.250	.728	.920	.000	.941	.000	.000	.000	.000	.000	.923

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Creedmoor, NC
Weather: Sunny Note:
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Site Code : Site# 4
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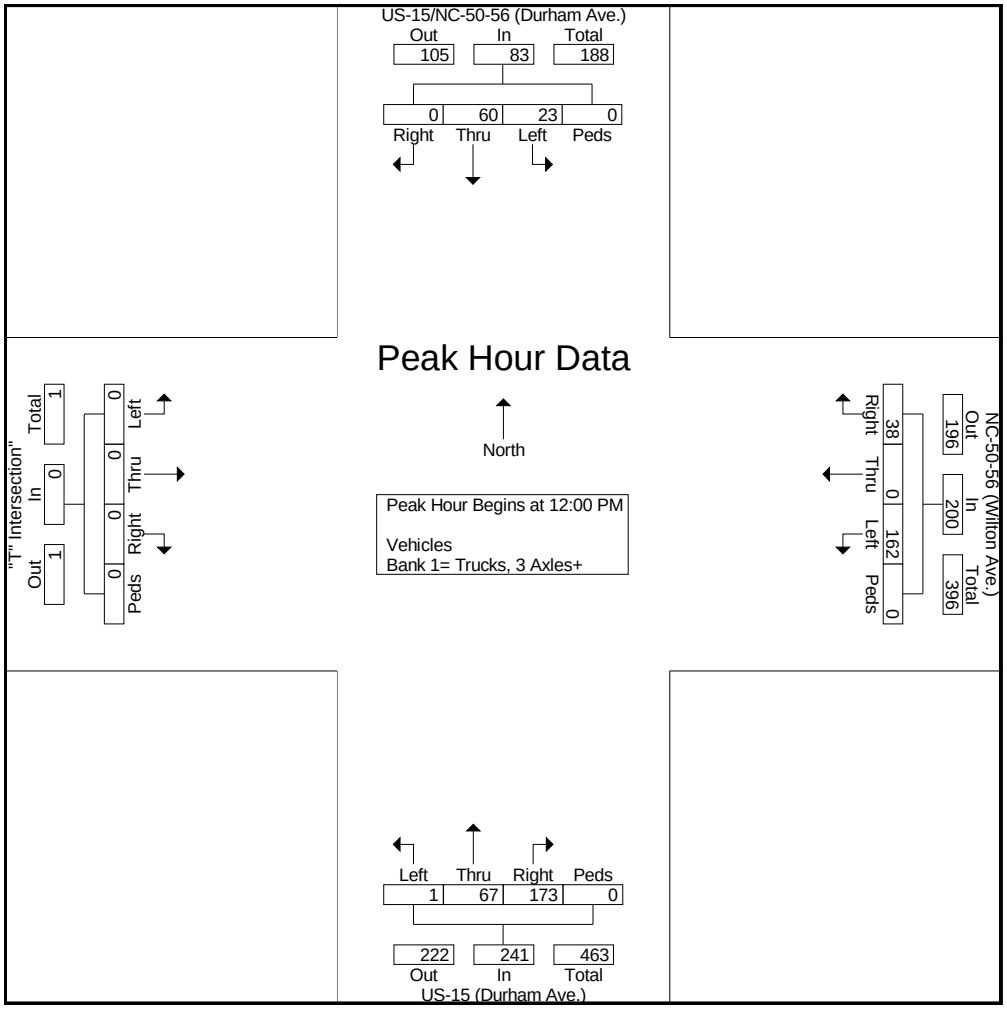

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US-15/NC-50-56 @ NC-50-56 (Wilton Ave.)
Creedmoor, NC
Weather: Sunny Note:
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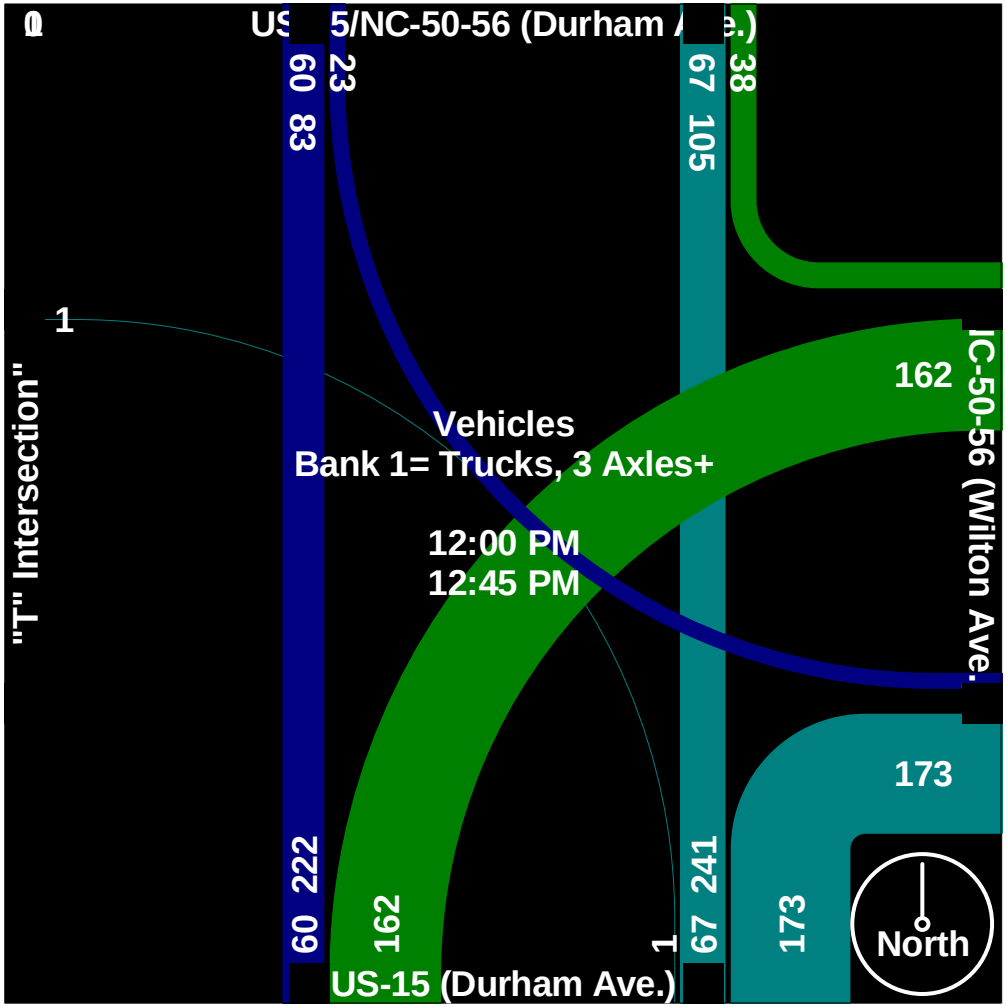

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Creedmoor, NC
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File Name : Site# 4 Creedmoor
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Start Date : 5/24/2011

	US-15/NC-50-56 (Durham Ave.) Southbound					NC-50-56 (Wilton Ave.) Westbound					US-15 (Durham Ave.) Northbound					"T" Intersection" Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	11:00 AM					11:30 AM					12:00 PM					10:00 AM					
+0 mins.	6	**20**	0	0	**26**	39	0	10	0	49	0	**23**	38	0	61	0	0	0	0	0	
+15 mins.	5	16	0	0	21	36	0	10	0	46	0	17	**47**	0	**64**	0	0	0	0	0	
+30 mins.	4	11	0	**1**	16	**44**	0	8	0	52	0	16	46	0	62	0	0	0	0	0	
+45 mins.	**11**	10	0	0	21	40	0	**15**	0	**55**	**1**	11	42	0	54	0	0	0	0	0	
Total Volume	26	57	0	1	84	159	0	43	0	202	1	67	173	0	241	0	0	0	0	0	
% App. Total	31	67.9	0	1.2		78.7	0	21.3	0		0.4	27.8	71.8	0		0	0	0	0		
PHF	.591	.713	.000	.250	.808	.903	.000	.717	.000	.918	.250	.728	.920	.000	.941	.000	.000	.000	.000	.000	

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Creedmoor, NC
Weather: Sunny Note:
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File Name : Site# 4 Creedmoor
Site Code : Site# 4
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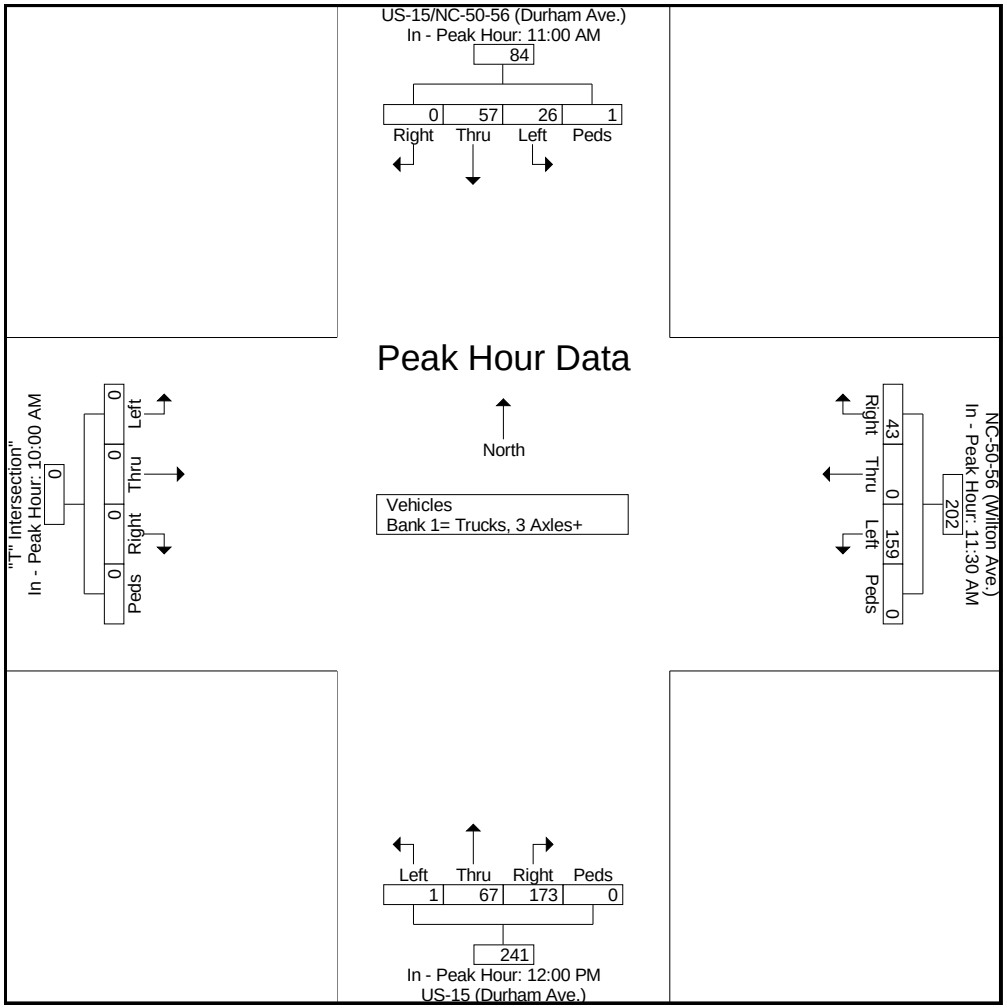

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File Name : Site# 4 Creedmoor
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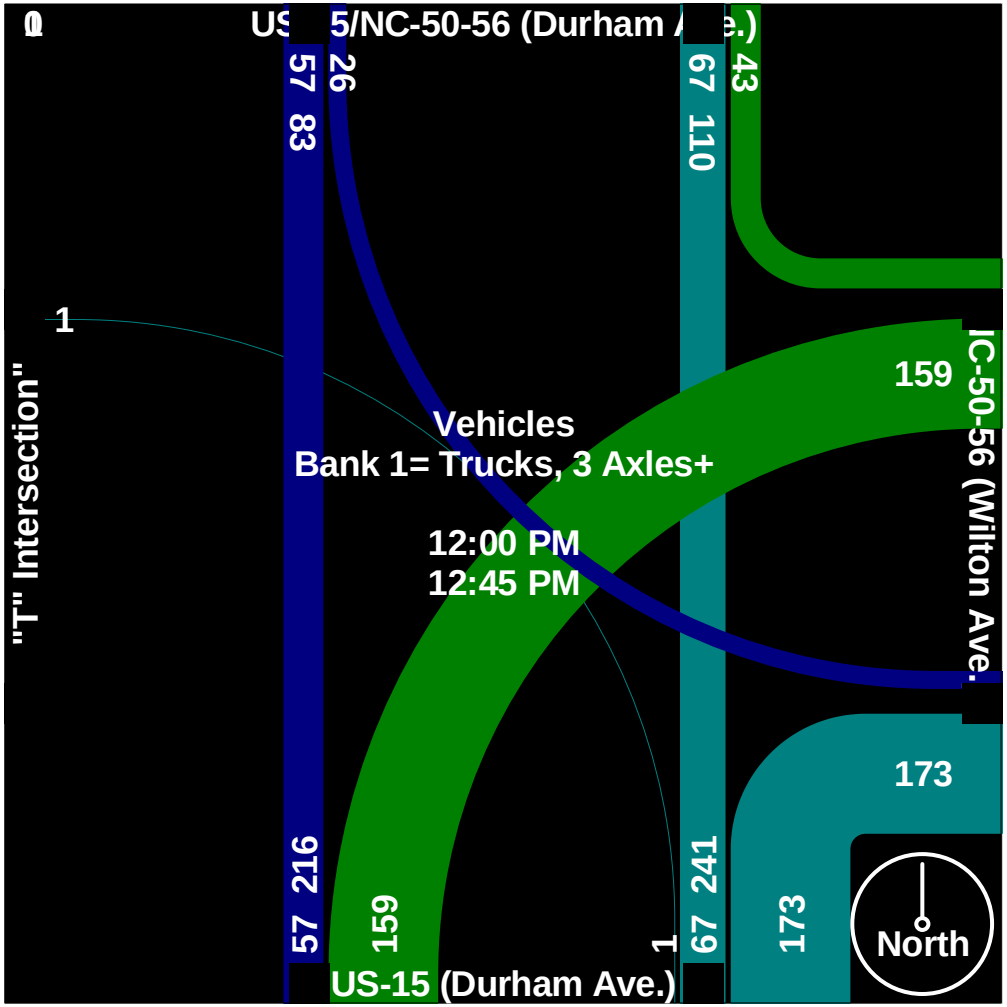

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Creedmoor, NC
Weather: Sunny Note:
Counted By: Chris

File Name : Site# 4 Creedmoor
Site Code : Site# 4
Start Date : 5/24/2011

	US-15/NC-50-56 (Durham Ave.) Southbound					NC-50-56 (Wilton Ave.) Westbound					US-15 (Durham Ave.) Northbound					"T" Intersection" Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	14	17	0	0	31	51	1	**13**	0	65	0	32	**146**	0	**178**	0	0	0	0	0	274
05:15 PM	11	**24**	0	0	35	60	**3**	7	0	70	0	**39**	108	**1**	148	0	0	0	0	0	253
05:30 PM	**16**	22	0	0	**38**	**71**	0	11	0	**82**	0	38	139	1	178	0	0	0	0	0	**298**
05:45 PM	9	18	0	0	27	43	0	13	0	56	0	19	129	0	148	0	0	0	0	0	231
Total Volume	50	81	0	0	131	225	4	44	0	273	0	128	522	2	652	0	0	0	0	0	1056
% App. Total	38.2	61.8	0	0		82.4	1.5	16.1	0		0	19.6	80.1	0.3		0	0	0	0		
PHF	.781	.844	.000	.000	.862	.792	.333	.846	.000	.832	.000	.821	.894	.500	.916	.000	.000	.000	.000	.000	.886

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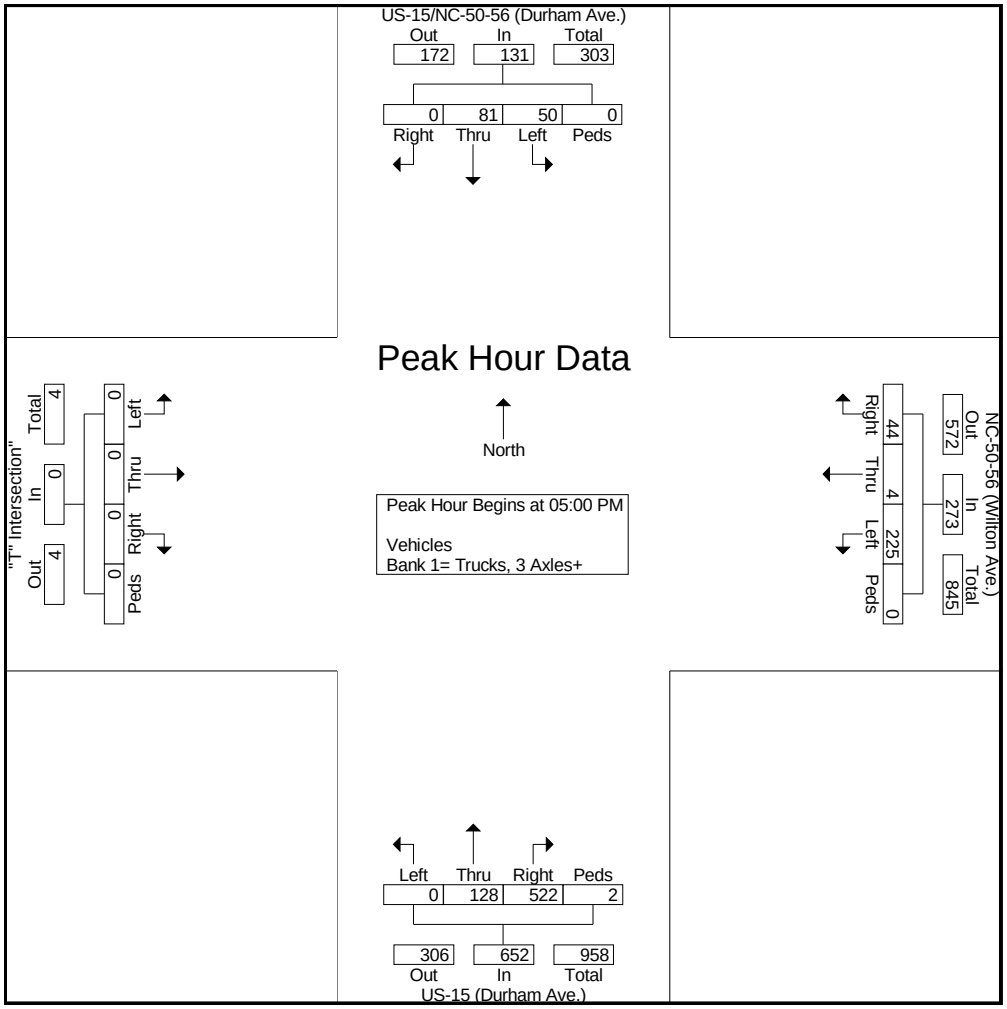

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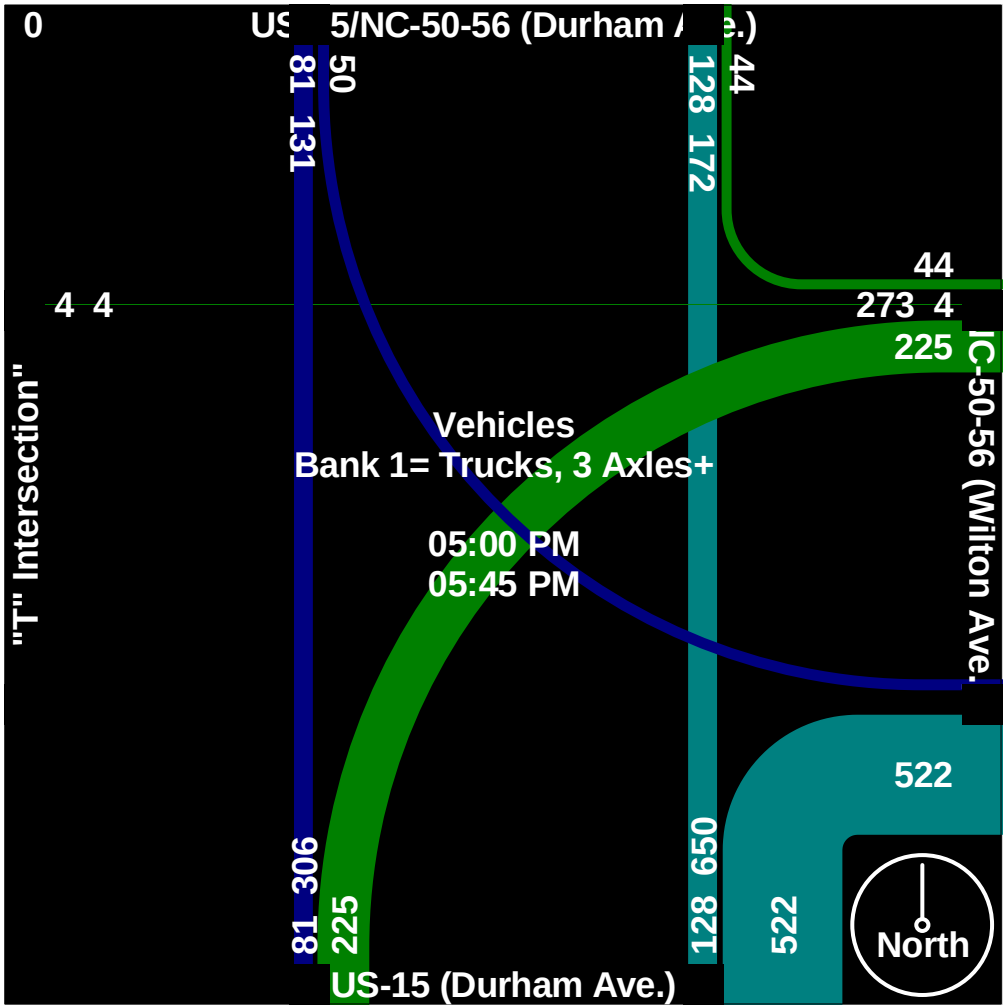

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	US-15/NC-50-56 (Durham Ave.) Southbound					NC-50-56 (Wilton Ave.) Westbound					US-15 (Durham Ave.) Northbound					"T" Intersection" Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	05:00 PM					05:00 PM					04:45 PM					02:00 PM					
+0 mins.	14	17	0	0	31	51	1	**13**	0	65	0	25	125	**1**	151	0	0	0	0	0	
+15 mins.	11	**24**	0	0	35	60	**3**	7	0	70	0	32	**146**	0	**178**	0	0	0	0	0	
+30 mins.	**16**	22	0	0	**38**	**71**	0	11	0	**82**	0	**39**	108	1	148	0	0	0	0	0	
+45 mins.	9	18	0	0	27	43	0	13	0	56	0	38	139	1	178	0	0	0	0	0	
Total Volume	50	81	0	0	131	225	4	44	0	273	0	134	518	3	655	0	0	0	0	0	
% App. Total	38.2	61.8	0	0		82.4	1.5	16.1	0		0	20.5	79.1	0.5		0	0	0	0		
PHF	.781	.844	.000	.000	.862	.792	.333	.846	.000	.832	.000	.859	.887	.750	.920	.000	.000	.000	.000	.000	

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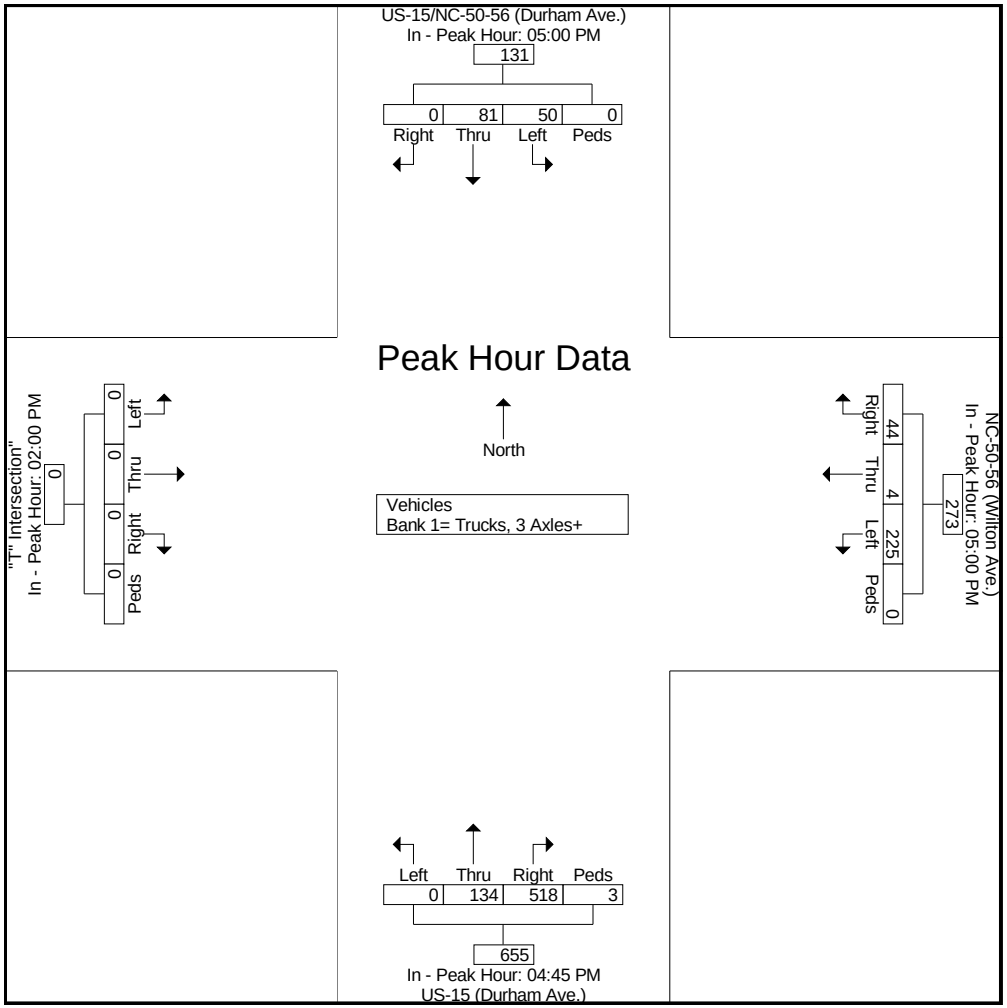

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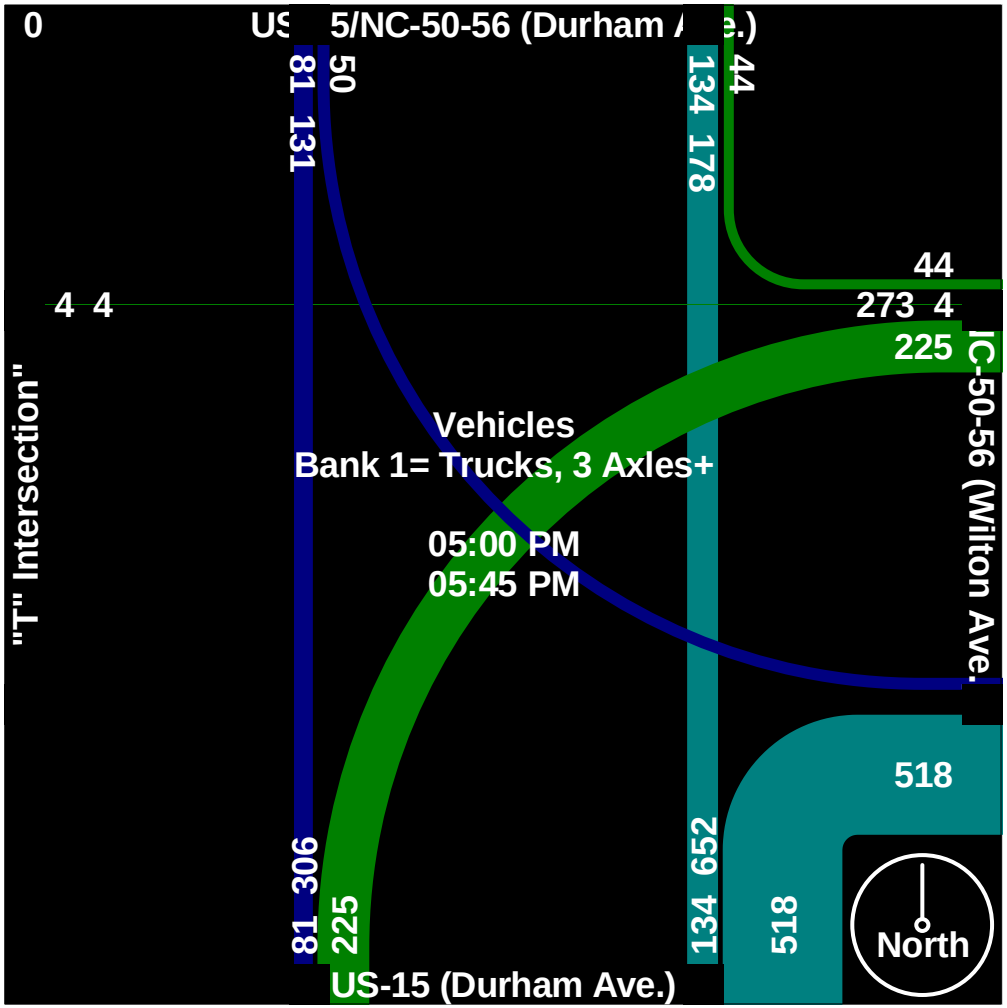

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US-15/NC-50-56 @ NC-50-56 (Wilton Ave.)
Creedmoor, NC
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Southbound on US-15

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Creedmoor, NC
Weather: Sunny Note:
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File Name : Site# 4 Creedmoor
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Westbound on NC-50-56

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Creedmoor, NC
Weather: Sunny Note:
Counted By: Chris

File Name : Site# 4 Creedmoor
Site Code : Site# 4
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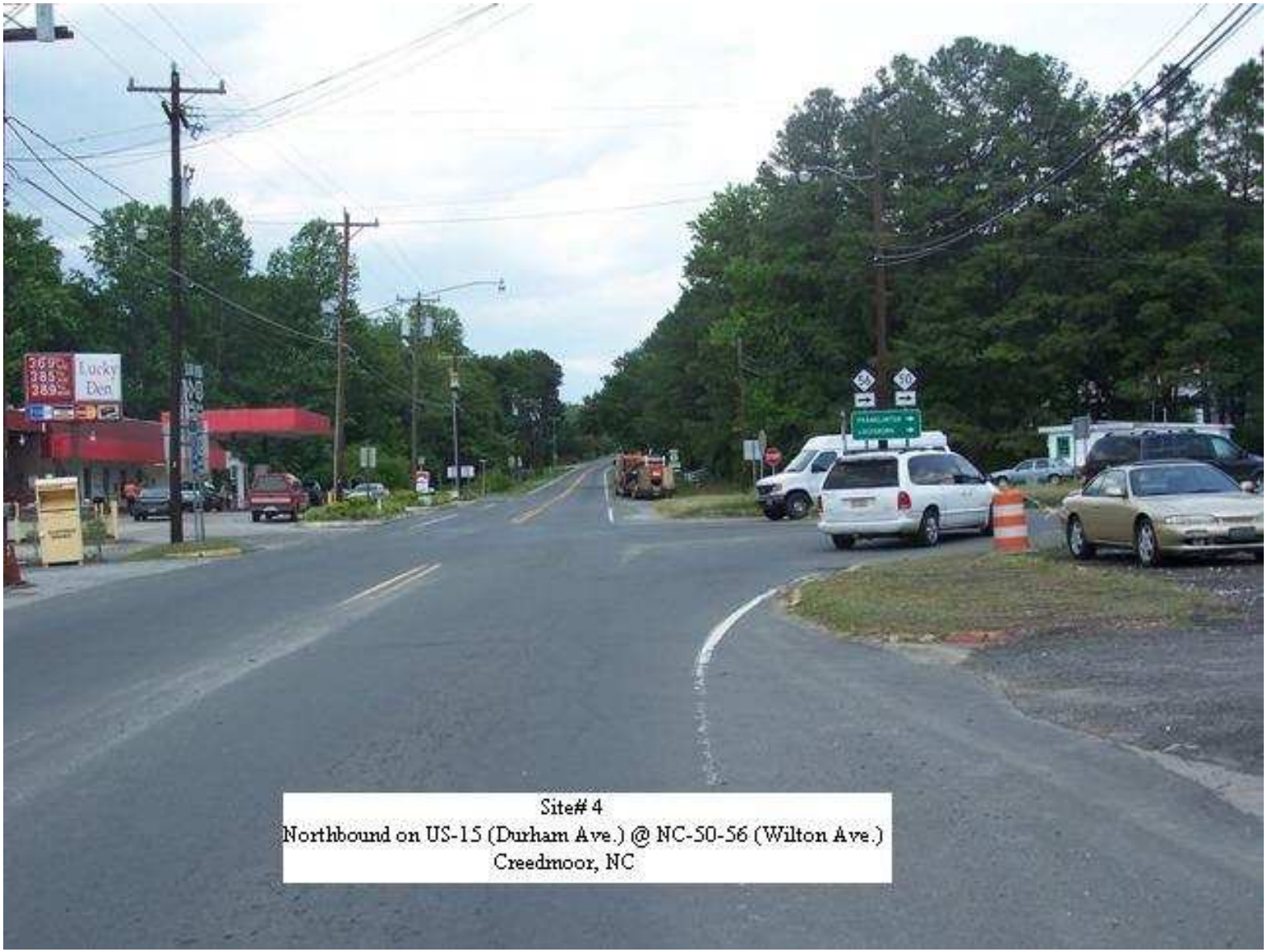
Northbound on US-15



Site# 4
Northbound on US-15 (Durham Ave.) @ NC-50-56 (Wilton Ave.)
Creedmoor, NC

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Creedmoor, NC
Weather: Sunny Note:
Counted By: Chris

File Name : Site# 4 Creedmoor
Site Code : Site# 4
Start Date : 5/24/2011
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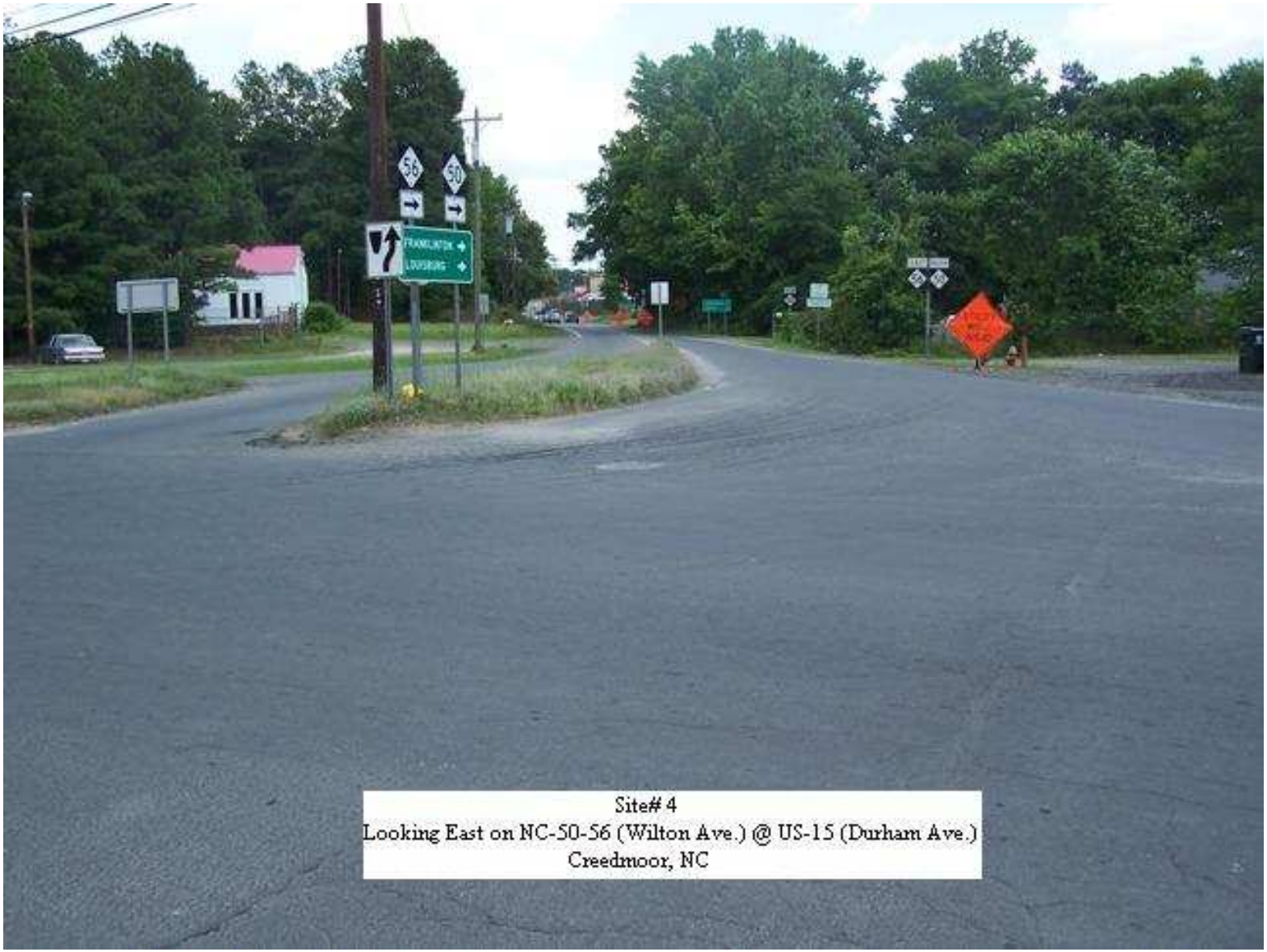
Looking East @ NC-50-56

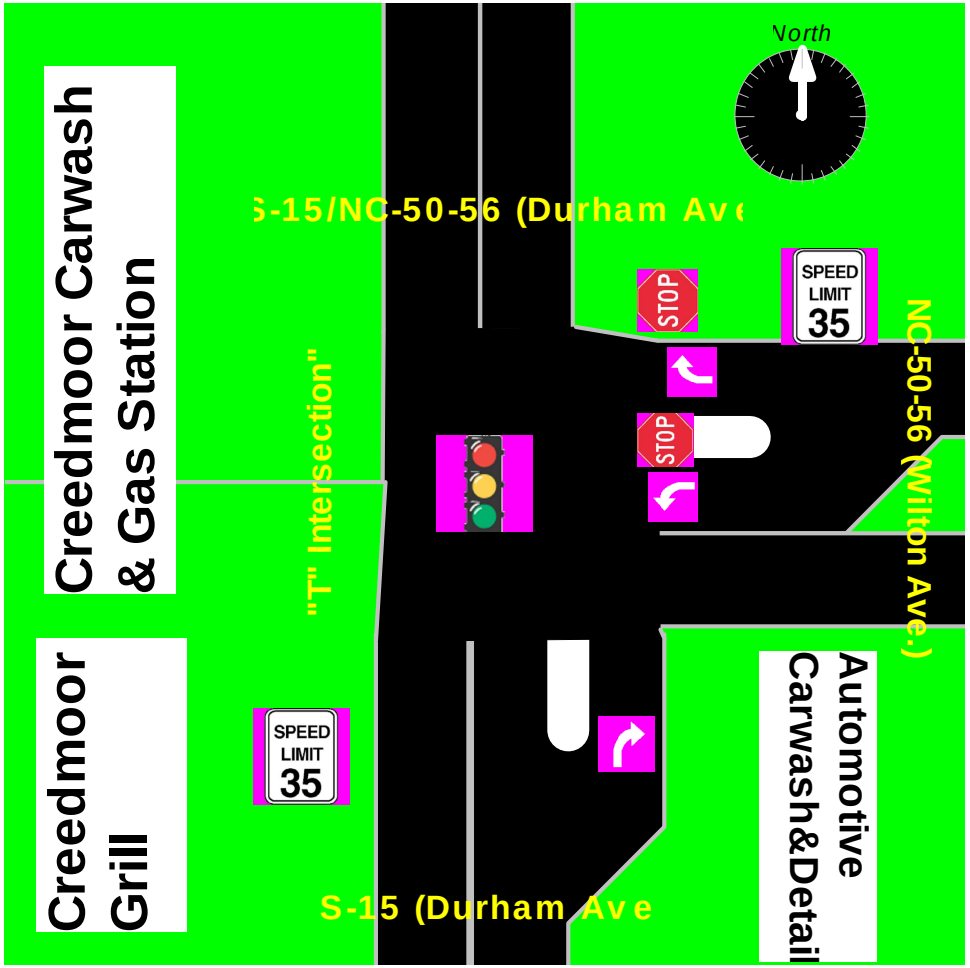


Site# 4
Looking East on NC-50-56 (Wilton Ave.) @ US-15 (Durham Ave.)
Creedmoor, NC

1. *Green Light Traffic Services, Inc.*
- *P.O. Box 1364 Garner, NC 27529*
- *Benny R. Johnson, President*
- *(919) 632-1779*

US-15/NC-50-56 @ NC-50-56 (Wilton Ave.)
Creedmoor, NC
Weather: Sunny Note:
Counted By: Chris

File Name : Site# 4 Creedmoor
Site Code : Site# 4
Start Date : 5/24/2011
Page No : 25



APPENDIX C:

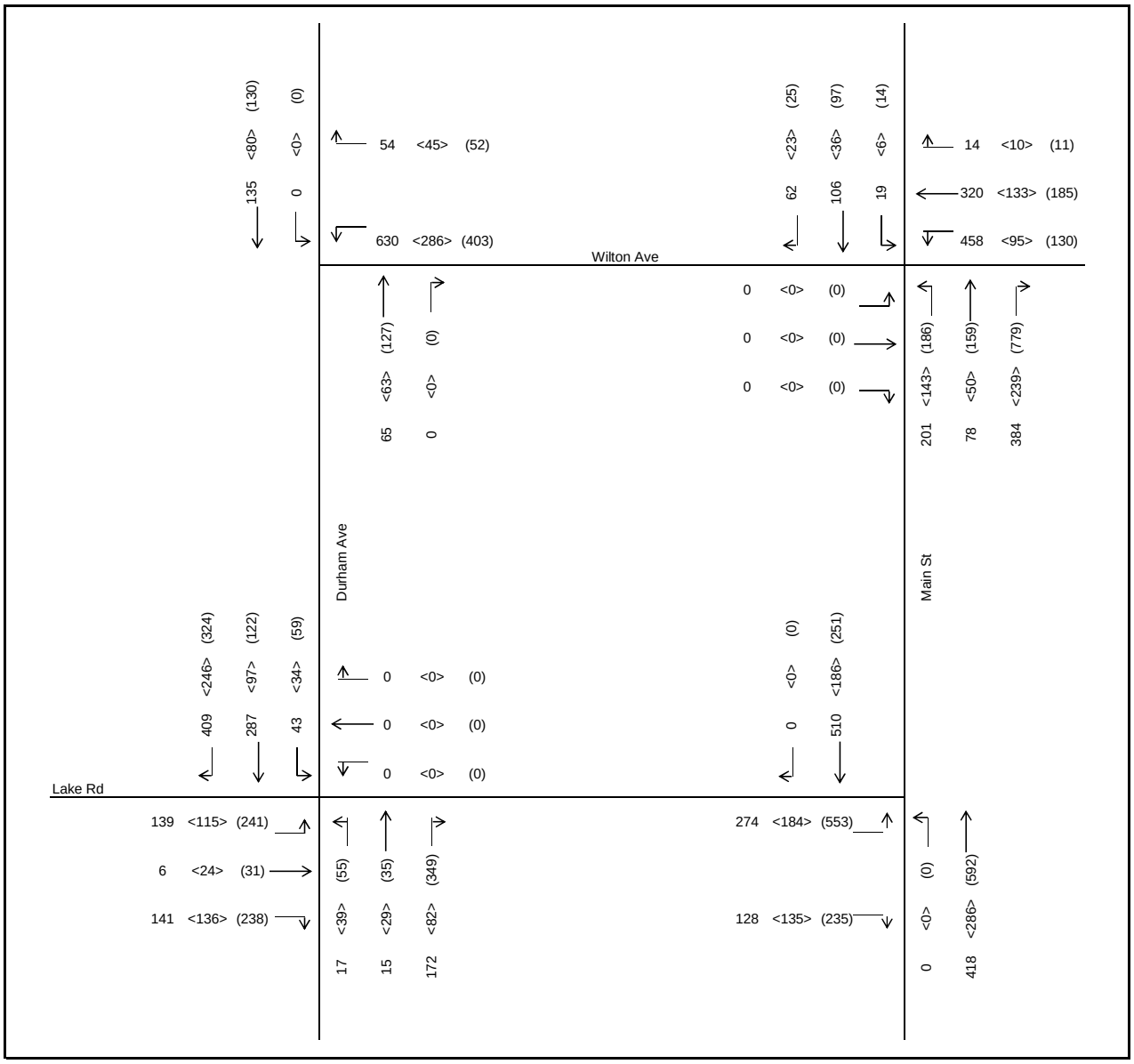
CAPACITY ANALYSIS

Volume Figures

Creedmoor Intersection Feasibility

2011 Existing Volume

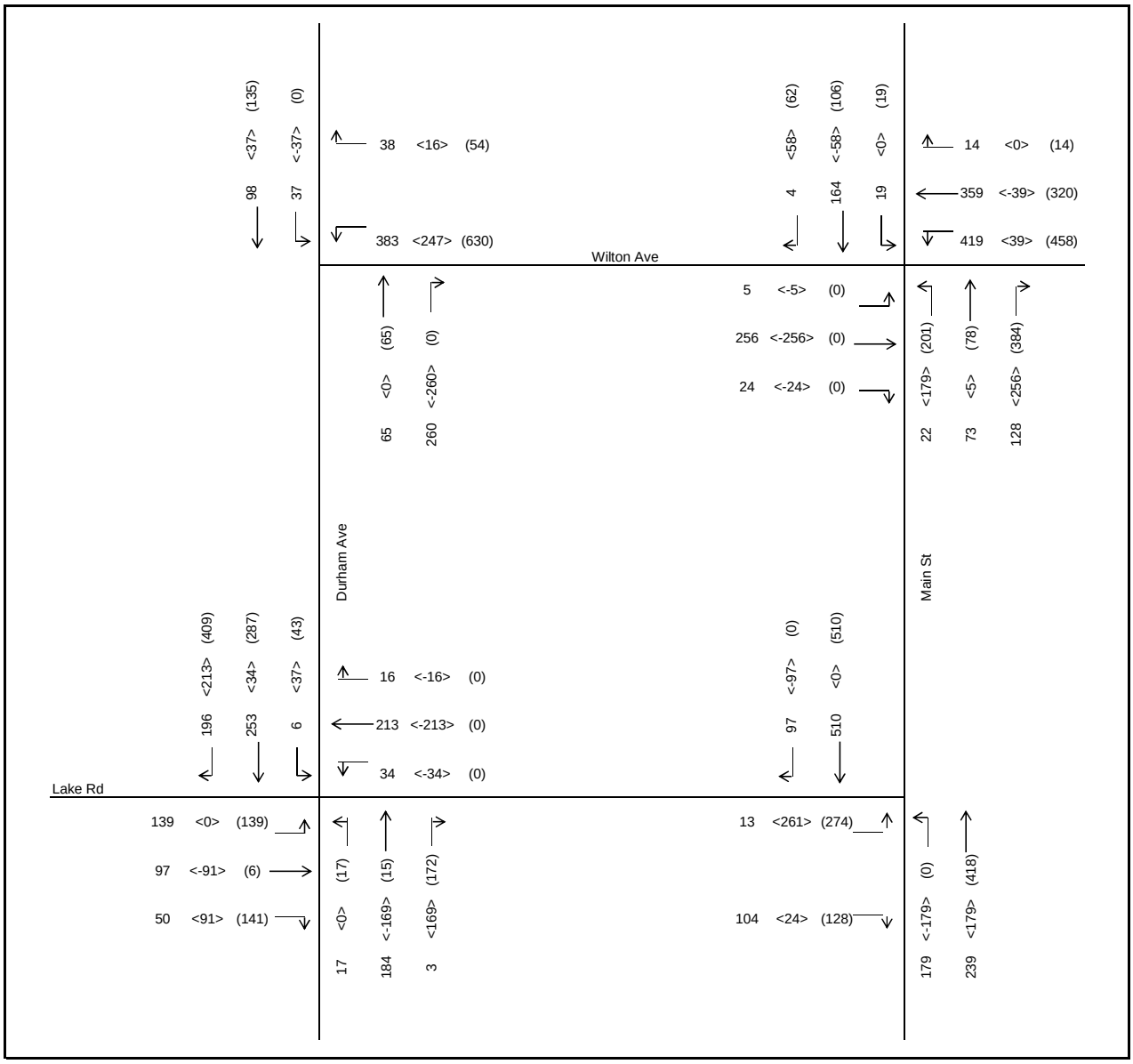
LEGEND	
XX	AM Peak Hour
<XX>	Midday Peak Hour
(XX)	PM Peak Hour



Creedmoor Intersection Feasibility

2011 Existing Volume - AM Peak Hour

LEGEND	
XX	Original Counts
<XX>	One-Way Pair Redistribution
(XX)	Projected Volumes

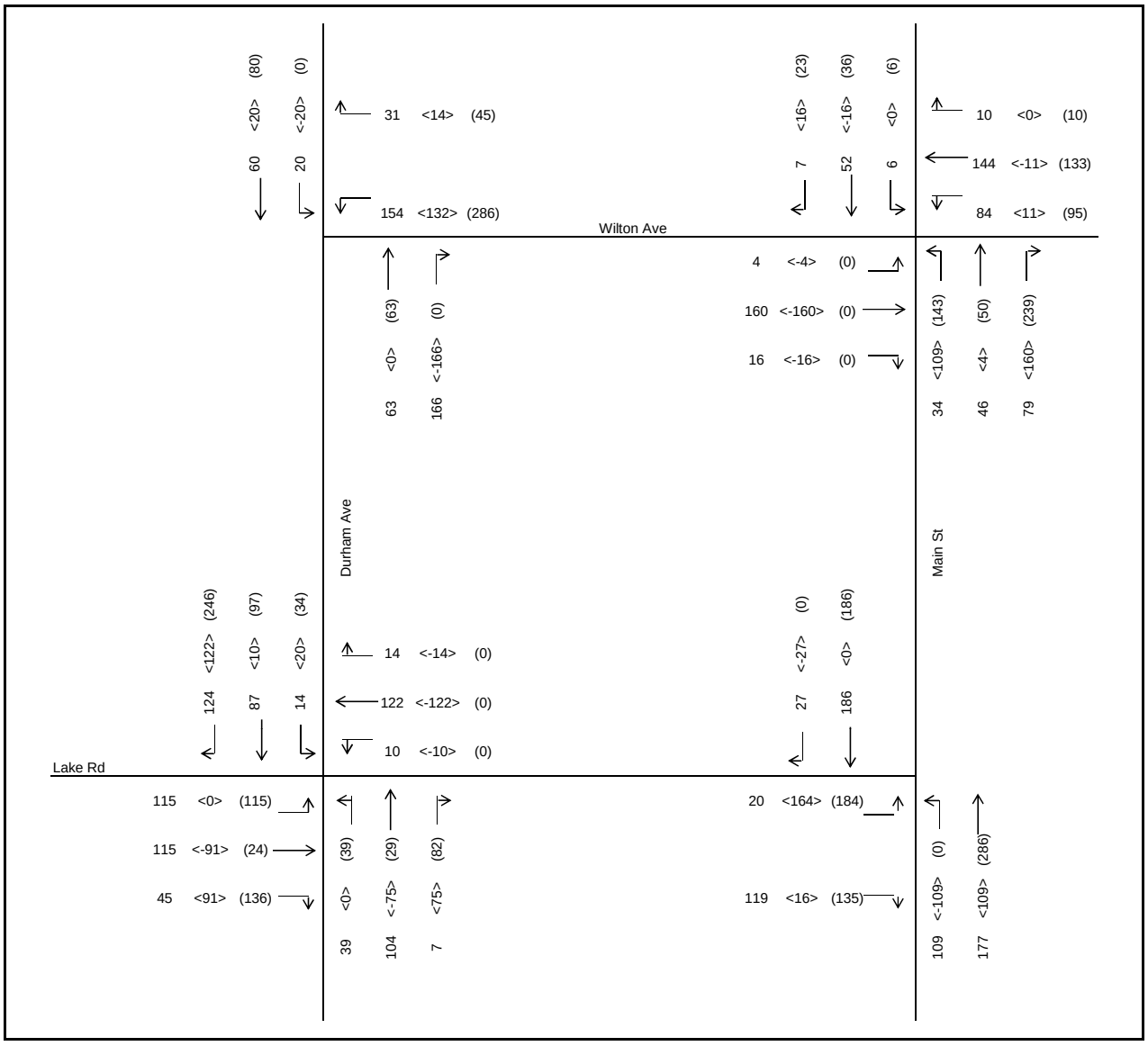


Creedmoor Intersection Feasibility

2011 Existing Volume - Midday Peak Hour

HDR | ONE COMPANY *Many Solutions*®

LEGEND	
XX	Original Counts
<XX>	One-Way Pair Redistribution
(XX)	Projected Volumes

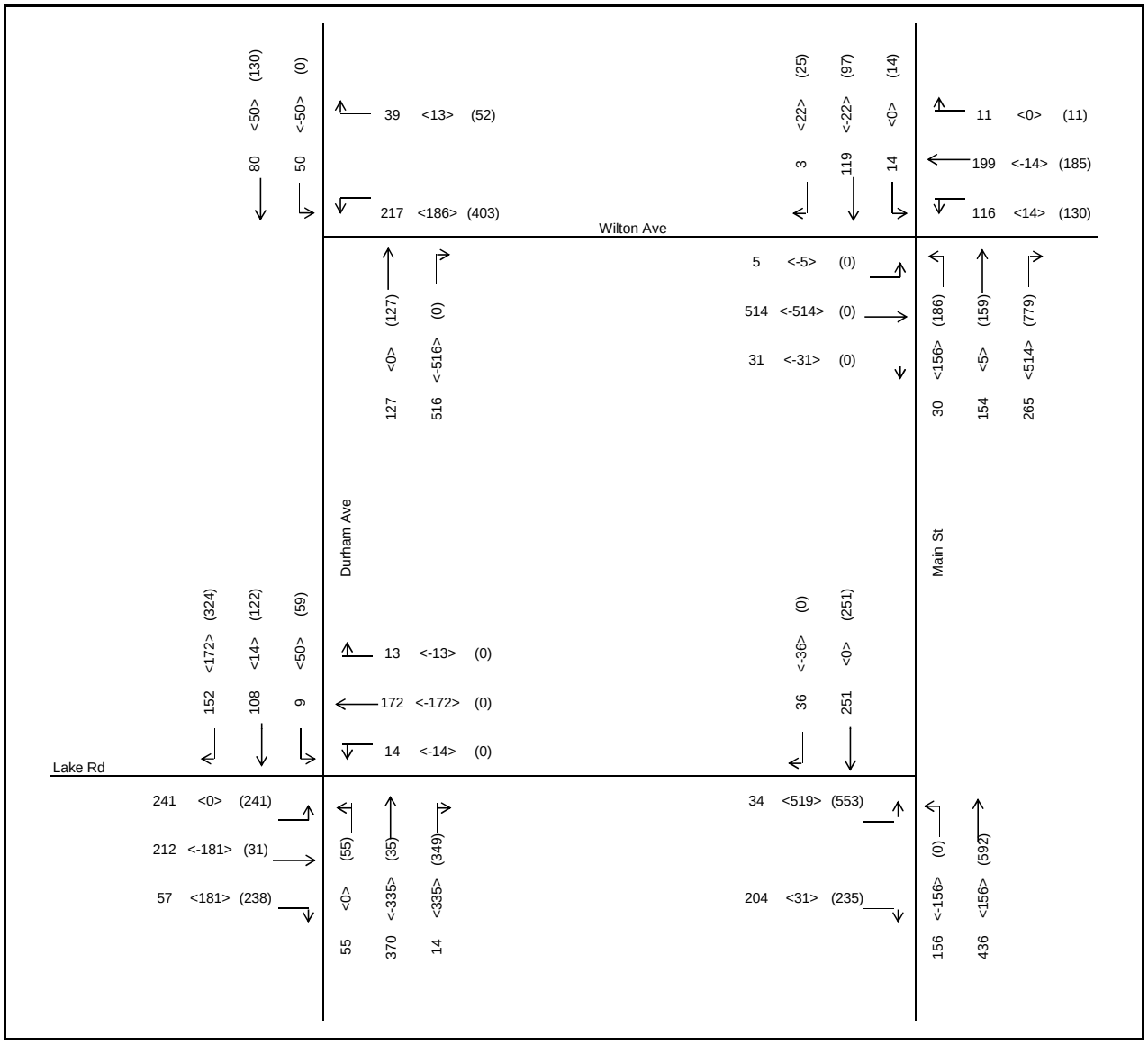


Creedmoor Intersection Feasibility

2011 Existing Volume - PM Peak Hour

HDR | ONE COMPANY *Many Solutions*

LEGEND	
XX	Original Counts
<XX>	One-Way Pair Redistribution
(XX)	Projected Volumes



Intersection Volume Development

Intersection Volume Development Worksheet
Durham Ave and Wilton Ave
HDR Engineering, Inc.

AM Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			- Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	0	65	260	37	98	0	0	0	0	383	0	38
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	16%	2%	2%	2%	2%	2%	2%	2%	13%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	0	153	613	87	231	0	0	0	0	903	0	90

Midday Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			- Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	0	63	166	20	60	0	0	0	0	154	0	31
Peak Hour Factor	0.96	0.96	0.96	0.9	0.9	0.9	0.9	0.9	0.9	0.91	0.91	0.91
Heavy Vehicle %	2%	6%	4%	15%	2%	2%	2%	2%	2%	5%	2%	23%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	0	148	391	47	141	0	0	0	0	363	0	73

PM Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			- Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	0	127	516	50	80	0	0	0	0	217	0	39
Peak Hour Factor	0.92	0.92	0.92	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	13%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	0	299	1216	118	189	0	0	0	0	511	0	92

Intersection Volume Development Worksheet
Durham Ave and Lake Rd
HDR Engineering, Inc.

AM Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			Lake Rd Eastbound			Lake Rd Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	17	184	3	6	253	196	139	97	50	34	213	16
Peak Hour Factor	0.9	0.9	0.9	0.94	0.94	0.94	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	3%	2%	2%	2%	2%	2%	4%	2%	2%	2%	2%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	40	434	7	14	596	462	328	229	118	80	502	38

Midday Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			Lake Rd Eastbound			Lake Rd Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	39	104	7	14	87	124	115	115	45	10	122	14
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.92	0.92	0.92	0.9	0.9	0.9
Heavy Vehicle %	2%	8%	2%	2%	3%	4%	3%	2%	2%	2%	2%	2%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	92	245	16	33	205	292	271	271	106	24	288	33

PM Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			Lake Rd Eastbound			Lake Rd Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	55	370	14	9	108	152	241	212	57	14	172	13
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	130	872	33	21	255	358	568	500	134	33	405	31

Intersection Volume Development Worksheet
Main St and Wilton Ave
HDR Engineering, Inc.

AM Peak Hour

Description	Main St Northbound			Main St Southbound			Wilton Ave Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	22	73	128	19	164	4	5	256	24	419	359	14
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	18%	2%	2%	2%	3%	2%	2%	5%	8%	2%	2%	2%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	52	172	302	45	386	9	12	603	57	987	846	33

Midday Peak Hour

Description	Main St Northbound			Main St Southbound			Wilton Ave Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	34	46	79	6	52	7	4	160	16	84	144	10
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.94	0.94	0.94	0.96	0.96	0.96
Heavy Vehicle %	6%	2%	2%	2%	12%	2%	2%	9%	25%	2%	9%	2%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357
2040 Background Volumes	80	108	186	14	123	16	9	377	38	198	339	24

PM Peak Hour

Description	Main St Northbound			Main St Southbound			Wilton Ave Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	30	154	265	14	119	3	5	514	31	116	199	11
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.95	0.95	0.95	0.9	0.9	0.9
Heavy Vehicle %	10%	2%	2%	2%	2%	2%	2%	2%	3%	2%	5%	2%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	71	363	625	33	280	7	12	1211	73	273	469	26

Intersection Volume Development Worksheet
Main St and Lake Rd
HDR Engineering, Inc.

AM Peak Hour

Description	Main St			Main St			Lake Rd			-		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	179	239	0	0	510	97	13	0	104	0	0	0
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	422	563	0	0	1202	229	31	0	245	0	0	0

Midday Peak Hour

Description	Main St			Main St			Lake Rd			-		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	109	177	0	0	186	27	20	0	119	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357
2040 Background Volumes	257	417	0	0	438	64	47	0	280	0	0	0

PM Peak Hour

Description	Main St			Main St			Lake Rd			-		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	156	436	0	0	251	36	34	0	204	0	0	0
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.92	0.92	0.92	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	368	1027	0	0	591	85	80	0	481	0	0	0

Intersection Volume Development

One Way Pair

Intersection Volume Development Worksheet
Durham Ave and Wilton Ave
HDR Engineering, Inc.

One Way Pair

AM Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			- Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	0	65	260	37	98	0	0	0	0	383	0	38
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	16%	2%	2%	2%	2%	2%	2%	2%	13%
Volume Balancing	0	0	-260	-37	37	0	0	0	0	247	0	16
2011 Exisitng Volumes	0	65	0	0	135	0	0	0	0	630	0	54
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	0	153	0	0	318	0	0	0	0	1485	0	127

Midday Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			- Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	0	63	166	20	60	0	0	0	0	154	0	31
Peak Hour Factor	0.96	0.96	0.96	0.9	0.9	0.9	0.9	0.9	0.9	0.91	0.91	0.91
Heavy Vehicle %	2%	6%	4%	15%	2%	2%	2%	2%	2%	5%	2%	23%
Volume Balancing	0	0	-166	-20	20	0	0	0	0	132	0	14
2011 Exisitng Volumes	0	63	0	0	80	0	0	0	0	286	0	45
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Grown Volumes	0	148	0	0	189	0	0	0	0	674	0	106

PM Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			- Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	0	127	516	50	80	0	0	0	0	217	0	39
Peak Hour Factor	0.92	0.92	0.92	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	13%
Volume Balancing	0	0	-516	-50	50	0	0	0	0	186	0	13
2011 Exisitng Volumes	0	127	0	0	130	0	0	0	0	403	0	52
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Grown Volumes	0	299	0	0	306	0	0	0	0	950	0	123

Intersection Volume Development Worksheet
Durham Ave and Lake Rd
HDR Engineering, Inc.

One Way Pair

AM Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			Lake Rd Eastbound			Lake Rd Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	17	184	3	6	253	196	139	97	50	34	213	16
Peak Hour Factor	0.9	0.9	0.9	0.94	0.94	0.94	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	3%	2%	2%	2%	2%	2%	4%	2%	2%	2%	2%
Volume Balancing	0	-169	169	37	34	213	0	-91	91	-34	-213	-16
2011 Exisitng Volumes	17	15	172	43	287	409	139	6	141	0	0	0
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	40	35	405	101	676	964	328	14	332	0	0	0

Midday Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			Lake Rd Eastbound			Lake Rd Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	39	104	7	14	87	124	115	115	45	10	122	14
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.92	0.92	0.92	0.9	0.9	0.9
Heavy Vehicle %	2%	8%	2%	2%	3%	4%	3%	2%	2%	2%	2%	2%
Volume Balancing	0	-75	75	20	10	122	0	-91	91	-10	-122	-14
2011 Exisitng Volumes	39	29	82	34	97	246	115	24	136	0	0	0
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Grown Volumes	92	68	193	80	229	580	271	57	320	0	0	0

PM Peak Hour

Description	Durham Ave Northbound			Durham Ave Southbound			Lake Rd Eastbound			Lake Rd Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	55	370	14	9	108	152	241	212	57	14	172	13
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Volume Balancing	0	-335	335	50	14	172	0	-181	181	-14	-172	-13
Exisitng Volumes	55	35	349	59	122	324	241	31	238	0	0	0
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Grown Volumes	130	82	822	139	288	764	568	73	561	0	0	0

Intersection Volume Development Worksheet
Main St and Wilton Ave
HDR Engineering, Inc.

One Way Pair

AM Peak Hour

Description	Main St Northbound			Main St Southbound			Wilton Ave Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	22	73	128	19	164	4	5	256	24	419	359	14
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	18%	2%	2%	2%	3%	2%	2%	5%	8%	2%	2%	2%
Volume Balancing	179	5	256	0	-58	58	-5	-256	-24	39	-39	0
2011 Exisitng Volumes	201	78	384	19	106	62	0	0	0	458	320	14
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	474	184	905	45	250	146	0	0	0	1079	754	33

Midday Peak Hour

Description	Main St Northbound			Main St Southbound			Wilton Ave Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	34	46	79	6	52	7	4	160	16	84	144	10
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.94	0.94	0.94	0.96	0.96	0.96
Heavy Vehicle %	6%	2%	2%	2%	12%	2%	2%	9%	25%	2%	9%	2%
Volume Balancing	109	4	160	0	-16	16	-4	-160	-16	11	-11	0
2011 Exisitng Volumes	143	50	239	6	36	23	0	0	0	95	133	10
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357
2040 Grown Volumes	337	118	563	14	85	54	0	0	0	224	313	24

PM Peak Hour

Description	Main St Northbound			Main St Southbound			Wilton Ave Eastbound			Wilton Ave Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	30	154	265	14	119	3	5	514	31	116	199	11
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.95	0.95	0.95	0.9	0.9	0.9
Heavy Vehicle %	10%	2%	2%	2%	2%	2%	2%	2%	3%	2%	5%	2%
Volume Balancing	156	5	514	0	-22	22	-5	-514	-31	14	-14	0
Exisitng Volumes	186	159	779	14	97	25	0	0	0	130	185	11
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Grown Volumes	438	375	1837	33	229	59	0	0	0	306	436	26

Intersection Volume Development Worksheet
Main St and Lake Rd
HDR Engineering, Inc.

One Way Pair

AM Peak Hour

Description	Main St			Main St			Lake Rd			-		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	179	239	0	0	510	97	13	0	104	0	0	0
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Volume Balancing	-179	179	0	0	0	-97	261	0	24	0	0	0
2011 Exisitng Volumes	0	418	0	0	510	0	274	0	128	0	0	0
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Background Volumes	0	985	0	0	1202	0	646	0	302	0	0	0

Midday Peak Hour

Description	Main St			Main St			Lake Rd			-		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	109	177	0	0	186	27	20	0	119	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Volume Balancing	-109	109	0	0	0	-27	164	0	16	0	0	0
2011 Exisitng Volumes	0	286	0	0	186	0	184	0	135	0	0	0
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357	2.357
2040 Grown Volumes	0	674	0	0	438	0	434	0	318	0	0	0

PM Peak Hour

Description	Main St			Main St			Lake Rd			-		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
2011 Observed Volumes	156	436	0	0	251	36	34	0	204	0	0	0
Peak Hour Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.92	0.92	0.92	0.9	0.9	0.9
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Volume Balancing	-156	156	0	0	0	-36	519	0	31	0	0	0
Exisitng Volumes	0	592	0	0	251	0	553	0	235	0	0	0
Growth Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Growth Factor	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566	2.3566
2040 Grown Volumes	0	1395	0	0	591	0	1303	0	554	0	0	0

Signal Plans

19-AUG-2005 14:38
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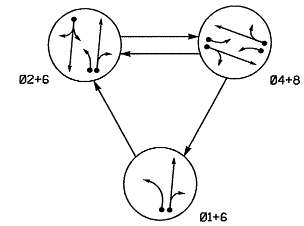
cecarter

PROJECT REFERENCE NO.	SHEET NO.
N/A	Sig. 2

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

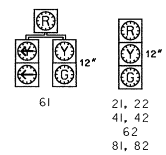
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	PHASE Ø2+6	PHASE Ø4+8	FLASH
21, 22	R	G	R	Y
41, 42	R	R	G	R
61	←G	G	R	Y
62	G	G	R	Y
81, 82	R	R	G	R

SIGNAL FACE I.D.

Denotes L.E.D.



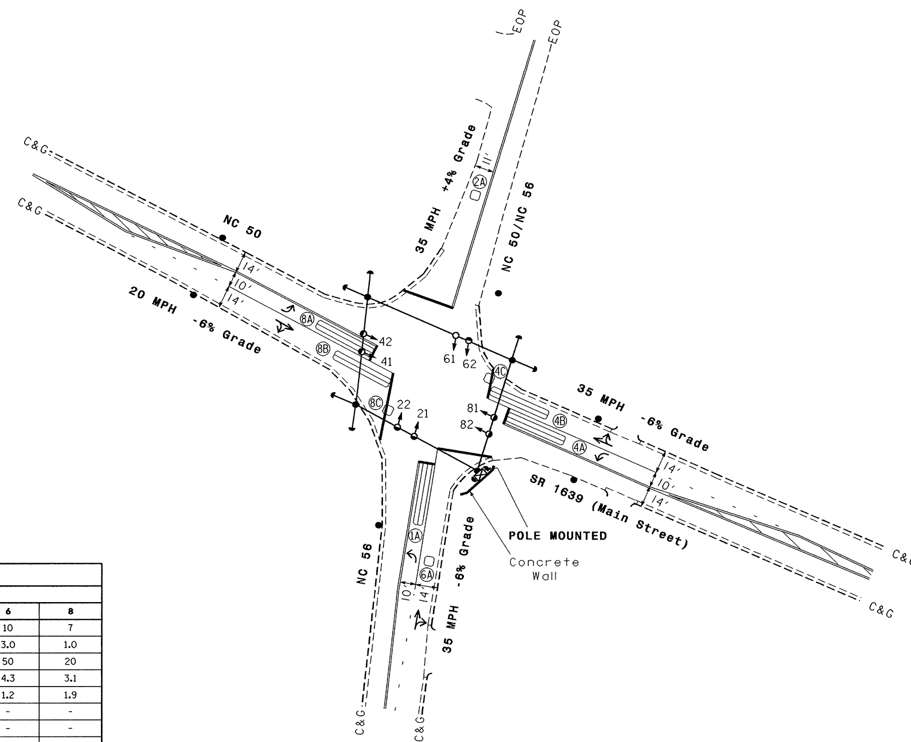
2070L LOOP & DETECTOR INSTALLATION

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

3 Phase
Fully Actuated
(Isolated)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2002 and "Standard Specifications for Roads and Structures" dated January 2002.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Omit phase 1 during phase 2 on.
4. Program controller to clear from phase 2+6 to phase 1+6 by progressing through phase 4+8 (see Electrical Details).
5. Reposition existing signal heads numbered 21, 22, 41, 42, 62, 81, and 82.
6. Set all detector units to presence mode.
7. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
8. Clearance Interval timings may be adjusted incrementally until required values are reached.
9. See Sig. 1 plan for stopbar locations.



PLAN QUANTITIES

Pay Item	Feet
Signal Cable	200
Messenger Cable	0
Lead-in Cable	1400

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way with Marker	
	Directional Arrow	
	Pavement Marking Arrow	

2070L TIMING CHART

FEATURE	PHASE 1	2	4	6	8
Min Green 1 *	7	10	7	10	7
Extension 1 *	1.0	3.0	1.0	3.0	1.0
Max Green 1 *	15	50	20	50	20
Yellow Clearance	3.1	3.6	4.3	4.3	3.1
Red Clearance	2.4	2.0	1.2	1.2	1.9
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	YELLOW	-
Dual Entry	-	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

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

Signal Upgrade

Prepared in the Offices of: Traffic Engineering and Safety Systems Branch, Signals and Geometrics Section, 122 N. McDowell St., Raleigh, NC 27603

NC 50/NC 56 at NC 50/SR 1639 (Main Street)

Division 5 Granville County Creedmoor

PLAN DATE:	June 2005	REVIEWED BY:	M. Mahbooba
PREPARED BY:	C.E. Carter	REVIEWED BY:	

REVISIONS	INIT.	DATE

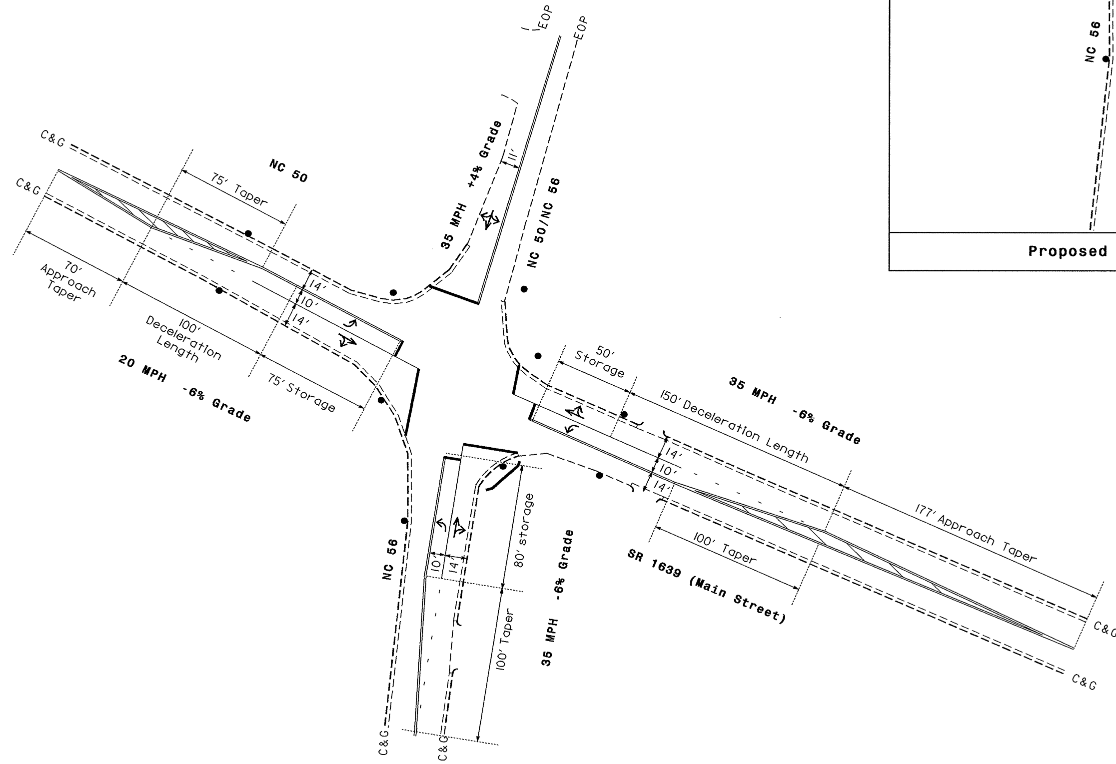
SCALE 0 40
1"=40'

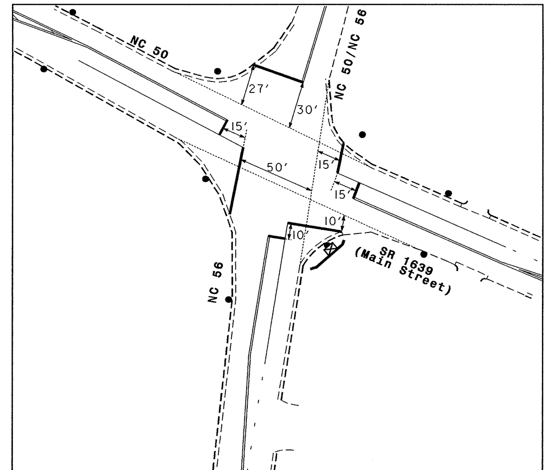
SEAL
North Carolina Professional Engineer Seal 25475 Boniface Maduabuchukwu
Signature 8/25/05 Date

SIG. INVENTORY NO. 05-0591

19-AUG-2005 13:47
D:#050591_sig_dsn_2005mmdd.dgn
cecarter

PROJECT REFERENCE NO.	SHEET NO.
N/A	Sig. 1





Proposed Stopbar Locations

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2002 and "Standard Specifications for Roads and Structures" dated January 2002.

LEGEND

PROPOSED		EXISTING
N/A	Right of Way	—△—
→	Directional Arrow	→
○	Utility Pole	●

Pavement Marking Plan

Prepared in the Offices of: Traffic Engineering and Safety Systems Branch, Signals and Geometrics Section, 122 N. McDowell St., Raleigh, NC 27603

NC 50/NC 56
at
NC 50/SR 1639 (Main Street)

Division 5 | Granville County | Creedmoor

PLAN DATE:	July 2005	REVIEWED BY:	M. Mahbooba
PREPARED BY:	C.E. Carter	REVIEWED BY:	MM

SCALE 0 40 1"=40'

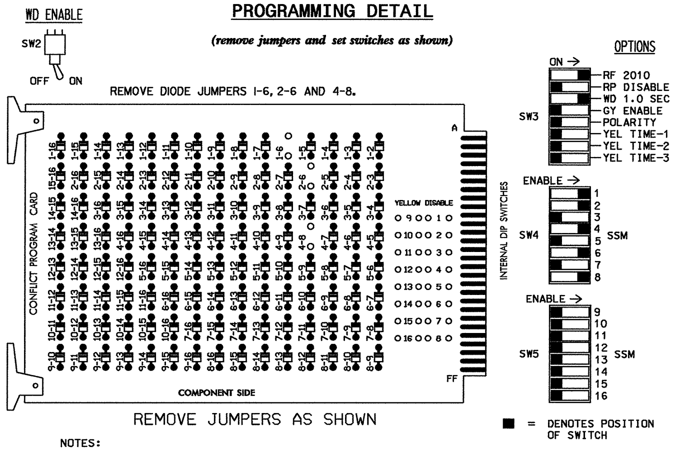
REVISIONS	INIT.	DATE

SEAL
North Carolina Professional Engineer Seal 25475 Boniface Maduabuchukwu
Boniface Madu 8/25/05
SIGNATURE DATE
SIG. INVENTORY NO. 05-0591

PROJECT REFERENCE NO.	SHEET NO.
N/A	Sig.

EDI MODEL 2010ECL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL1-SEL5 are present on the monitor board.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. To prevent red failures on unused monitor channels, see Red Monitor Board Programming Detail this sheet.
3. Program phases 2 and 6, on the controller unit, for Start Up In Green.
4. Enable Simultaneous Gap-Out, on the controller unit, for all phases.
5. Program phases 4 and 8, on the controller unit, for Dual Entry.

EQUIPMENT INFORMATION

CONTROLLER..............EAGLE TYPE 2070L
CABINET.................McCAIN/CONTROL TECHNOLOGIES
(DWG.NO.9500-336-NCDOT)
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........POLE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S4,S6,S8
PHASES USED.............1,2,4,6,8
OVERLAPS................NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	61	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU
RED	✱	128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW	126											
GREEN ARROW	127											

NU = Not Used

✱ Denotes install load resistor. See load resistor installation detail this sheet.

DYNAMIC BACK-UP CONTROL PROGRAMMING

(program controller as shown below)

1. From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Scroll to the bottom of the menu and enable Dynamic/Backup Control Function 1.
2. From Phase Control Functions Menu press '2' (Dynamic/Backup Control Functions).

```
DYNAMIC/BACKUP CONTROL FUNCTION #01
           OVERLAPS:¦ABCDEFGHIJKLMNOP
IF OVERLAPS ARE ACTIVE ¦
OR          PHASES:¦12345678910111213141516
IF PHASES ARE ON¦ X
OMIT PHASES     ¦X
CALL PHASES     ¦  X
```

BACKUP PROTECTION PROGRAMMING COMPLETE

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	ø1 1A	ø2 2A	NOT USED	ø4 4A	SLOT EMPTY	ø6 6A	NOT USED	ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
L	ø6 1A	NOT USED	ø4 4C	ø4 4B		NOT USED	ø8 8C	ø8 8B						ST DC ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

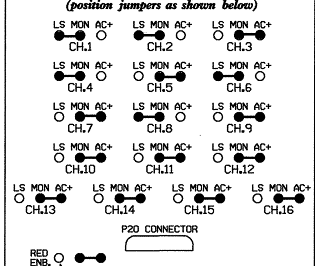
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB21-1,2	I1U	56	18	1	1	Y	Y			15
	TB23-1,2	I1L	47	9	22	6	Y	Y	Y		3
2A	TB21-3,4	I2U	39	1	2	2	Y	Y			
4C	TB23-5,6	I3L	49	11	24	4	Y	Y			15
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			3
4B	TB23-7,8	I4L	45	7	14	4	Y	Y			10
6A	TB21-11,12	I6U	40	2	6	6	Y	Y			
8C	TB23-13,14	I7L	50	12	28	8	Y	Y			15
8A	TB22-1,2	I8U	42	4	8	8	Y	Y			3
8B	TB24-1,2	I8L	46	8	18	8	Y	Y			10

[1] Add jumpers from TB21-1 to TB23-1, and from TB21-2 to TB23-2.

INPUT FILE POSITION LEGEND: I2L
FILE I
SLOT 2
LOWER

RED MONITOR BOARD PROGRAMMING

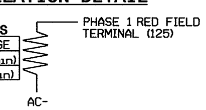
(position jumpers as shown below)



This pin clipped at the factory.

LOAD RESISTOR INSTALLATION DETAIL

ACCEPTABLE VALUES	
VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



NOTE: The purpose of this resistor is to load the channel red monitor input in order for the Signal Sequence Monitor to use the full signal sequence monitoring capability on this channel which does not use the red display in the field.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-0591
DESIGNED: JUNE 2005
SEALED: 8/25/05
REVISED: N/A

Signal Upgrade

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Signals Management Section
122 N. McDowell St., Raleigh, NC 27603

NC 50/NC 56
at
NC 50/SR 1639 (Main Street)

Division 5 | Granville County | Creedmoor

PLAN DATE: August 2005	REVIEWED BY:
PREPARED BY: A.A. Klooz	REVIEWED BY:

REVISIONS	INIT.	DATE

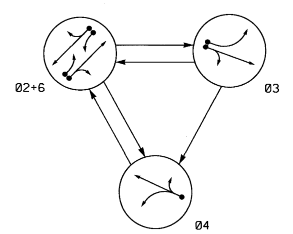
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 008453 JOHN T. ROWE, JR.

SIGNATURE 9-2-05 DATE

SIG. INVENTORY NO. 05-0591

PROJECT REFERENCE NO.	SHEET NO.
MOE	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

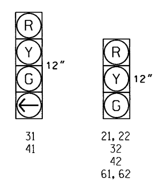
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	Ø3	Ø4	FLASH
21, 22	G	R	R	Y
31	R	G	R	R
32	R	G	R	R
41	R	R	G	R
42	R	R	G	R
61, 62	G	R	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



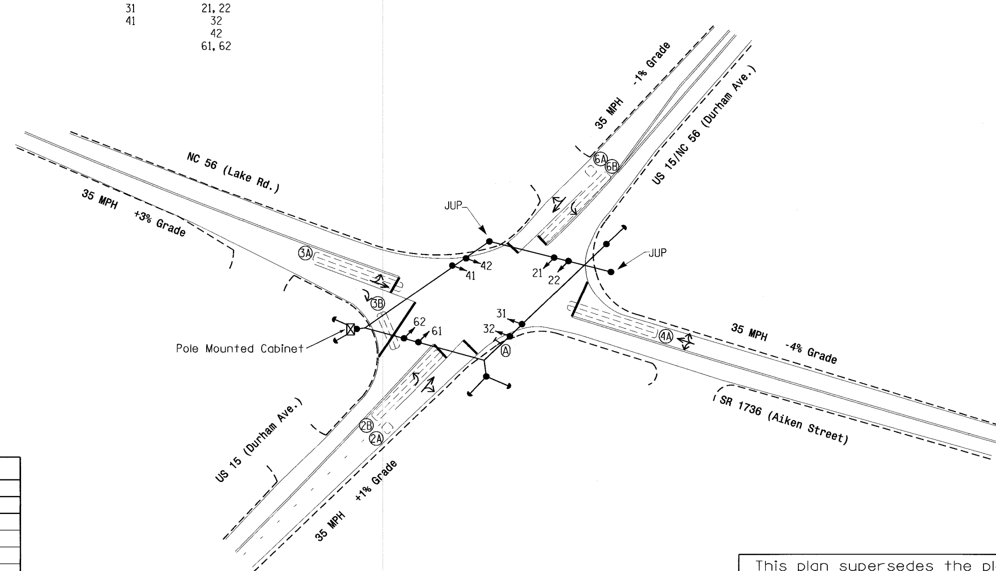
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	70	EXIST	-	2	Y	Y	-	-	-	-	Y
2B	6X60	0	2-4-2	-	2	Y	Y	-	-	-	-	Y
3A	6X60	+5	2-4-2	-	3	Y	Y	-	-	3	-	Y
3B	6X25	+5	2-4-2	-	3	Y	Y	-	-	15	-	Y
4A	6X60	+5	2-4-2	-	4	Y	Y	-	-	5	-	Y
6A	6X6	70	EXIST	-	6	Y	Y	-	-	-	-	Y
6B	6X60	0	2-4-2	-	6	Y	Y	-	-	-	-	Y

3 Phase
Fully Actuated
(Isolated)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. The order of phase 3 and phase 4 may be reversed.
4. Set all detector units to presence mode.
5. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Existing Right Arrow "ONLY" sign (R3-5R) may be removed.
8. Pavement markings are existing.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
Ⓐ	Right Arrow "Only" Sign (R3-5R)	Ⓐ

This plan supersedes the plan signed and sealed on 7/1/10.

OASIS 2070L TIMING CHART

FEATURE	PHASE 2	3	4	6
Min Green 1 *	10	7	7	10
Extension 1 *	3.0	1.0	1.0	3.0
Max Green 1 *	60	25	25	60
Yellow Clearance	3.8	3.7	4.1	3.9
Red Clearance	1.3	2.4	2.2	1.9
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	MIN RECALL	-	-	MIN RECALL
Recall Mode	YELLOW	-	-	YELLOW
Vehicle Call Memory	-	-	-	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

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

Signal Upgrade

Prepared in the Offices of: Transportation Mobility and Safety Division, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40
1"=40'

US 15/NC 56 (Durham Ave.)
at
NC 56 (Lake Road) and
SR 1736 (Aiken Street)

Division 5 Granville County Creedmoor

PLAN DATE:	June 2010	REVIEWED BY:	R. Hough
PREPARED BY:	E. Johnson	REVIEWED BY:	

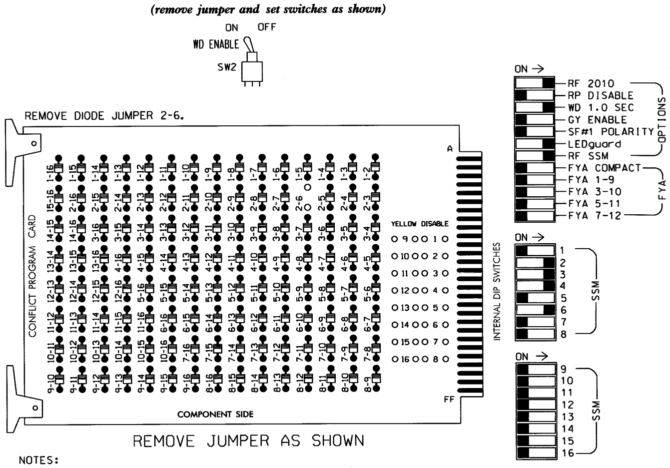
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026486 ROBERT J. ZIEMBA
7/16/10
SIGNATURE DATE
SIG. INVENTORY NO. 05-0590

16-JUL-2010 12:48
S:\ITS Signals\LIB Turn In\Sig_Complete\050590_sig_dsn_20100716.dgn
rziemba

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumper and set switches as shown)



REMOVE JUMPER AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,5, 7,8,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.

EQUIPMENT INFORMATION

CONTROLLER..............2070L
CABINET.................336
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........POLE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S2,S3,S4,S6
PHASES USED.............2,3,4,6
OVERLAPS................NONE

PROJECT REFERENCE NO.	SHEET NO.
MOE	Sig. 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3		S4		S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3		4		4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	31	32	41	42	NU	NU	61,62	NU	NU	NU	NU
RED		128		116	116	101	101			134				
YELLOW		129		117	117	102	102			135				
GREEN		130		118	118	103	103			136				
RED ARROW														
YELLOW ARROW														
GREEN ARROW				118		103								

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	SLOT	Ø2 2A	Ø3 3A	Ø4 4A	SLOT	Ø6 6A	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	FS DC ISOLATOR
L	EMPTY	Ø2 2B	Ø3 3B	NOT USED	EMPTY	Ø6 6B	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	ST DC ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB21-3,4	I2U	39	1	2	2	Y	Y			
2B	TB23-3,4	I2L	43	5	12	2	Y	Y			
3A	TB21-5,6	I3U	58	20	3	3	Y	Y			3
3B	TB23-5,6	I3L	49	11	24	3	Y	Y			15
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			5
6A	TB21-11,12	I6U	40	2	6	6	Y	Y			
6B	TB23-11,12	I6L	44	6	16	6	Y	Y			

INPUT FILE POSITION LEGEND: I2L
FILE I
SLOT 2
LOWER

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL ORIGINALLY SIGNED AND SEALED ON 7/2/10.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-0590
DESIGNED: June 2010
SEALED: 7/16/10
REVISED: N/A

Signal Upgrade

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 15/NC 56 (Durham Ave.)
at
NC 56 (Lake Road) and
SR 1736 (Aiken Street)

Division 5 Granville County Creedmoor

PLAN DATE: July 2010 REVIEWED BY: T. Joy
PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS INIT. DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022013 ENGINEER GEORGE C. BROWN

SIGNATURE 7/22/10 DATE

SIG. INVENTORY NO. 05-0590

19-JUL-2010 11:38
S:*ITS Signals*Workgroups*Sig Man*Armstrong*050590_sm_ele_xxx.dgn
sarmstrong

Synchro Capacity Analysis

2011 Existing Conditions

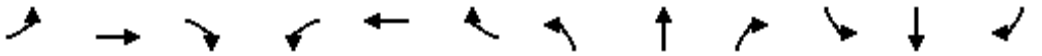
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	383	38	65	260	37	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.892			
Flt Protected	0.950					0.987
Satd. Flow (prot)	1770	1429	1662	0	0	1772
Flt Permitted	0.950					0.987
Satd. Flow (perm)	1770	1429	1662	0	0	1772
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	13%	2%	2%	16%	2%
Adj. Flow (vph)	426	42	72	289	41	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	426	42	361	0	0	150
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	383	38	65	260	37	98
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	426	42	72	289	41	109
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked	0.93	0.93			0.93	
vC, conflicting volume	408	217			361	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	320	114			270	
tC, single (s)	6.4	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	29	95			96	
cM capacity (veh/h)	601	842			1127	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	468	361	150
Volume Left	426	0	41
Volume Right	42	289	0
cSH	660	1700	1127
Volume to Capacity	0.71	0.21	0.04
Queue Length 95th (ft)	147	0	3
Control Delay (s)	22.9	0.0	2.5
Lane LOS	C		A
Approach Delay (s)	22.9	0.0	2.5
Approach LOS	C		

Intersection Summary			
Average Delay	11.3		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	97	50	34	213	16	17	184	3	6	253	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.992			0.998			0.934	
Flt Protected		0.971			0.994		0.950			0.950		
Satd. Flow (prot)	0	1767	1560	0	1873	0	1761	1832	0	1778	1749	0
Flt Permitted		0.267			0.916		0.221			0.577		
Satd. Flow (perm)	0	486	1560	0	1726	0	410	1832	0	1080	1749	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	154	108	56	38	237	18	19	204	3	6	269	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	262	56	0	293	0	19	207	0	6	478	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		3			4			2			6	
Permitted Phases	3		3	4			2			6	6	
Detector Phase	3	3	3	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1	16.3	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	0.0	60.0	60.0	0.0	60.0	60.0	0.0
Total Split (%)	22.7%	22.7%	22.7%	22.7%	22.7%	0.0%	54.5%	54.5%	0.0%	54.5%	54.5%	0.0%
Maximum Green (s)	18.9	18.9	18.9	18.7	18.7		54.9	54.9		54.2	54.2	
Yellow Time (s)	3.7	3.7	3.7	4.1	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4	2.2	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	6.3	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Act Effct Green (s)		19.1	19.1		18.7		26.4	26.4		25.7	25.7	
Actuated g/C Ratio		0.23	0.23		0.23		0.32	0.32		0.31	0.31	
v/c Ratio		2.32	0.15		0.74		0.14	0.35		0.02	0.87	
Control Delay		637.0	29.2		44.3		21.4	22.3		17.8	43.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		637.0	29.2		44.3		21.4	22.3		17.8	43.4	
LOS		F	C		D		C	C		B	D	
Approach Delay		530.0			44.3			22.2			43.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			D			C			D	
Queue Length 50th (ft)		~219	23		138		7	80		2	228	
Queue Length 95th (ft)		#416	62		#307		23	132		10	343	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		113	364		398		277	1240		722	1169	
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		2.32	0.15		0.74		0.07	0.17		0.01	0.41	

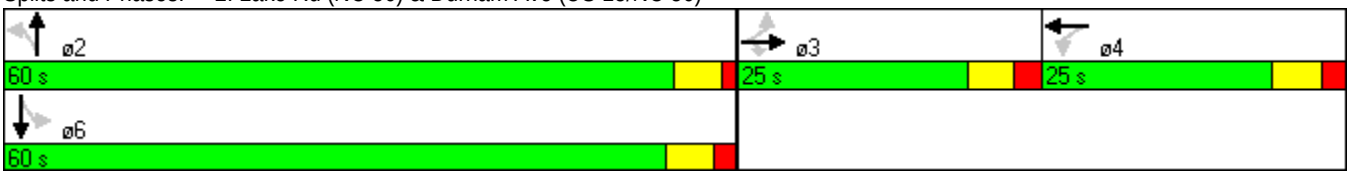
Intersection Summary

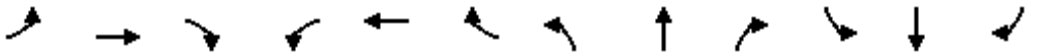
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 81.8
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.32
Intersection Signal Delay: 157.0 Intersection LOS: F
Intersection Capacity Utilization 67.3% ICU Level of Service C
Analysis Period (min) 15

~ 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.

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





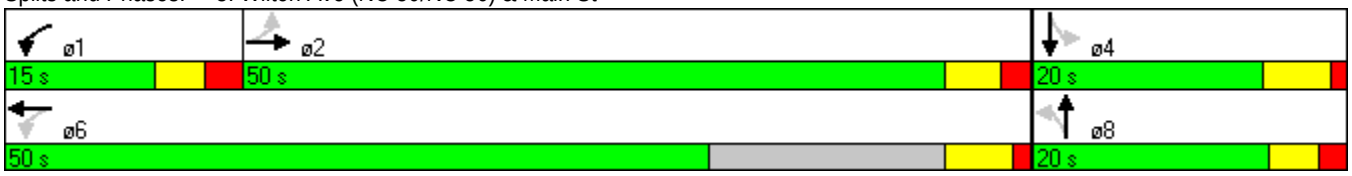
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	256	24	419	359	14	22	73	128	19	164	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.994			0.904			0.997	
Flt Protected		0.999		0.950			0.950			0.950		
Satd. Flow (prot)	0	1777	0	1701	2034	0	1399	1760	0	1701	2021	0
Flt Permitted		0.989		0.369			0.640			0.577		
Satd. Flow (perm)	0	1759	0	661	2034	0	943	1760	0	1033	2021	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	8%	2%	2%	2%	18%	2%	2%	2%	3%	2%
Adj. Flow (vph)	6	284	27	466	399	16	24	81	142	21	182	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	0	466	415	0	24	223	0	21	186	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	50.0	50.0		15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	50.0	50.0	0.0	15.0	50.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	17.6%	58.8%	0.0%	23.5%	23.5%	0.0%	23.5%	23.5%	0.0%
Maximum Green (s)	44.4	44.4		9.5	44.5		15.0	15.0		14.5	14.5	
Yellow Time (s)	3.6	3.6		3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)	2.0	2.0		2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	-0.6	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	5.6	5.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Act Effct Green (s)		14.9		29.1	29.6		9.1	9.1		8.6	9.1	
Actuated g/C Ratio		0.31		0.60	0.61		0.19	0.19		0.18	0.19	
v/c Ratio		0.59		0.79	0.34		0.14	0.68		0.12	0.49	
Control Delay		19.7		19.2	5.8		20.2	31.1		20.2	24.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		19.7		19.2	5.8		20.2	31.1		20.2	24.0	
LOS		B		B	A		C	C		C	C	

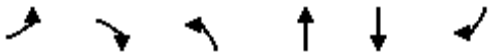
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		19.7			12.9			30.1			23.6	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)		73		57	45		6	59		5	48	
Queue Length 95th (ft)		149		#181	100		24	133		22	109	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)		1609		599	2034		295	550		312	632	
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		0.78	0.20		0.08	0.41		0.07	0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 48.8			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 69.2%		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.

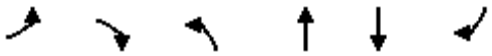
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	13	104	179	239	510	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.978	
Flt Protected	0.950			0.979		
Satd. Flow (prot)	1770	1583	0	1824	1822	0
Flt Permitted	0.950			0.979		
Satd. Flow (perm)	1770	1583	0	1824	1822	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	116	199	266	567	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	116	0	465	675	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.5%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	13	104	179	239	510	97
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	116	199	266	567	108
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked	0.86	0.86	0.86			
vC, conflicting volume	1284	621	674			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1248	473	536			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	77	77			
cM capacity (veh/h)	127	506	884			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	464	674
Volume Left	14	199	0
Volume Right	116	0	108
cSH	570	884	1700
Volume to Capacity	0.23	0.23	0.40
Queue Length 95th (ft)	22	22	0
Control Delay (s)	16.7	6.0	0.0
Lane LOS	C	A	
Approach Delay (s)	16.7	6.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

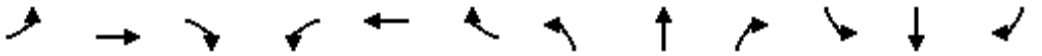
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	154	31	63	166	20	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.902			
Flt Protected	0.950					0.988
Satd. Flow (prot)	1719	1313	1639	0	0	1784
Flt Permitted	0.950					0.988
Satd. Flow (perm)	1719	1313	1639	0	0	1784
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Heavy Vehicles (%)	5%	23%	6%	4%	15%	2%
Adj. Flow (vph)	169	34	66	173	22	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	169	34	239	0	0	89
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	154	31	63	166	20	60
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	169	34	66	173	22	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked	0.99	0.99			0.99	
vC, conflicting volume	263	152			239	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	252	140			228	
tC, single (s)	6.4	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.3	
p0 queue free %	76	96			98	
cM capacity (veh/h)	711	847			1257	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	203	239	89
Volume Left	169	0	22
Volume Right	34	173	0
cSH	854	1700	1257
Volume to Capacity	0.24	0.14	0.02
Queue Length 95th (ft)	23	0	1
Control Delay (s)	11.3	0.0	2.1
Lane LOS	B		A
Approach Delay (s)	11.3	0.0	2.1
Approach LOS	B		

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	115	45	10	122	14	39	104	7	14	87	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.987			0.990			0.912	
Flt Protected		0.976			0.997		0.950			0.950		
Satd. Flow (prot)	0	1782	1560	0	1870	0	1761	1739	0	1778	1681	0
Flt Permitted		0.244			0.957		0.545			0.677		
Satd. Flow (perm)	0	446	1560	0	1795	0	1010	1739	0	1267	1681	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	8%	2%	2%	3%	4%
Adj. Flow (vph)	125	125	49	11	136	16	43	116	8	16	97	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	250	49	0	163	0	43	124	0	16	235	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		3			4			2			6	
Permitted Phases	3		3	4			2			6	6	
Detector Phase	3	3	3	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1	16.3	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	0.0	60.0	60.0	0.0	60.0	60.0	0.0
Total Split (%)	22.7%	22.7%	22.7%	22.7%	22.7%	0.0%	54.5%	54.5%	0.0%	54.5%	54.5%	0.0%
Maximum Green (s)	18.9	18.9	18.9	18.7	18.7		54.9	54.9		54.2	54.2	
Yellow Time (s)	3.7	3.7	3.7	4.1	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4	2.2	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	6.3	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Act Effct Green (s)		19.0	19.0		10.5		12.3	12.3		11.6	11.6	
Actuated g/C Ratio		0.32	0.32		0.18		0.21	0.21		0.20	0.20	
v/c Ratio		1.76	0.10		0.51		0.20	0.34		0.06	0.71	
Control Delay		389.3	16.3		29.2		21.9	22.9		19.8	35.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		389.3	16.3		29.2		21.9	22.9		19.8	35.3	
LOS		F	B		C		C	C		B	D	
Approach Delay		328.2			29.2			22.6			34.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			C			C			C	
Queue Length 50th (ft)		~132	12		52		13	38		5	78	
Queue Length 95th (ft)		#290	38		113		37	80		18	149	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		142	499		568		938	1615		1162	1541	
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		1.76	0.10		0.29		0.05	0.08		0.01	0.15	

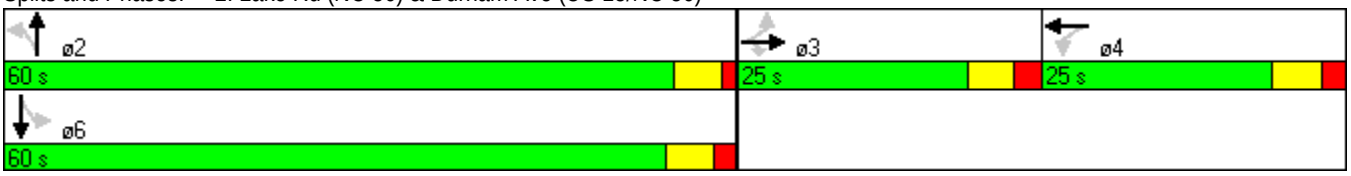
Intersection Summary

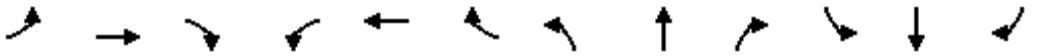
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 59.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.76
Intersection Signal Delay: 131.0 Intersection LOS: F
Intersection Capacity Utilization 60.7% ICU Level of Service B
Analysis Period (min) 15

~ 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: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)



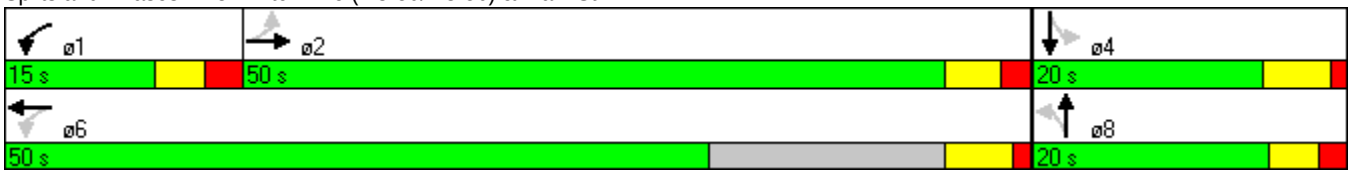


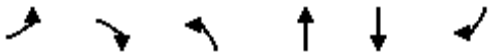
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	160	16	84	144	10	34	46	79	6	52	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.991			0.905			0.982	
Flt Protected		0.999		0.950			0.950			0.950		
Satd. Flow (prot)	0	1693	0	1701	1906	0	1558	1762	0	1701	1850	0
Flt Permitted		0.994		0.554			0.714			0.727		
Satd. Flow (perm)	0	1685	0	992	1906	0	1171	1762	0	1302	1850	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.94	0.94	0.94	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	9%	25%	2%	9%	2%	6%	2%	2%	2%	12%	2%
Adj. Flow (vph)	4	170	17	88	150	10	38	51	88	7	58	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	191	0	88	160	0	38	139	0	7	66	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	50.0	50.0		15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	50.0	50.0	0.0	15.0	50.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	17.6%	58.8%	0.0%	23.5%	23.5%	0.0%	23.5%	23.5%	0.0%
Maximum Green (s)	44.4	44.4		9.5	44.5		15.0	15.0		14.5	14.5	
Yellow Time (s)	3.6	3.6		3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)	2.0	2.0		2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	-0.6	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	5.6	5.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Act Effct Green (s)		16.4		21.3	23.0		7.6	7.6		7.2	7.7	
Actuated g/C Ratio		0.44		0.58	0.62		0.21	0.21		0.20	0.21	
v/c Ratio		0.25		0.12	0.13		0.16	0.38		0.03	0.17	
Control Delay		12.4		4.7	4.6		16.6	18.4		15.5	15.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		12.4		4.7	4.6		16.6	18.4		15.5	15.8	
LOS		B		A	A		B	B		B	B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.4			4.6			18.0			15.7	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)		36		8	14		7	28		1	13	
Queue Length 95th (ft)		76		19	30		27	71		9	39	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)		1685		762	1906		492	740		528	777	
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		0.11		0.12	0.08		0.08	0.19		0.01	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 36.9			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 39.0%		ICU Level of Service A	
Analysis Period (min) 15			

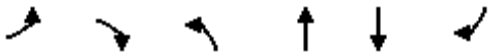
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	20	119	109	177	186	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.983	
Flt Protected	0.950			0.981		
Satd. Flow (prot)	1770	1583	0	1827	1831	0
Flt Permitted	0.950			0.981		
Satd. Flow (perm)	1770	1583	0	1827	1831	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Adj. Flow (vph)	22	132	112	182	207	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	132	0	294	237	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.1%		ICU Level of Service A	
Analysis Period (min) 15			



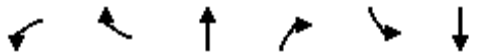
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	20	119	109	177	186	27
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Hourly flow rate (vph)	22	132	112	182	207	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked						
vC, conflicting volume	629	222	237			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	629	222	237			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	84	92			
cM capacity (veh/h)	409	818	1330			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	154	295	237
Volume Left	22	112	0
Volume Right	132	0	30
cSH	955	1330	1700
Volume to Capacity	0.16	0.08	0.14
Queue Length 95th (ft)	14	7	0
Control Delay (s)	10.8	3.5	0.0
Lane LOS	B	A	
Approach Delay (s)	10.8	3.5	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	217	39	127	516	50	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.892			
Flt Protected	0.950					0.981
Satd. Flow (prot)	1736	1429	1662	0	0	1827
Flt Permitted	0.950					0.981
Satd. Flow (perm)	1736	1429	1662	0	0	1827
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Heavy Vehicles (%)	4%	13%	2%	2%	2%	2%
Adj. Flow (vph)	241	43	138	561	56	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	241	43	699	0	0	145
Sign Control	Stop		Free			Free

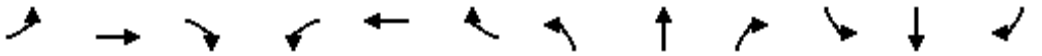
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	217	39	127	516	50	80
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	241	43	138	561	56	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	618	418			699	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	387	135			489	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	47	94			93	
cM capacity (veh/h)	453	702			851	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	284	699	144
Volume Left	241	0	56
Volume Right	43	561	0
cSH	535	1700	851
Volume to Capacity	0.53	0.41	0.07
Queue Length 95th (ft)	78	0	5
Control Delay (s)	19.9	0.0	4.1
Lane LOS	C		A
Approach Delay (s)	19.9	0.0	4.1
Approach LOS	C		

Intersection Summary			
Average Delay		5.5	
Intersection Capacity Utilization		67.4%	ICU Level of Service
Analysis Period (min)		15	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	241	212	57	14	172	13	55	370	14	9	108	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.991			0.994			0.912	
Flt Protected		0.974			0.996		0.950			0.950		
Satd. Flow (prot)	0	1787	1560	0	1875	0	1761	1842	0	1778	1707	0
Flt Permitted		0.235			0.929		0.482			0.268		
Satd. Flow (perm)	0	431	1560	0	1749	0	893	1842	0	502	1707	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	268	236	63	16	191	14	61	411	16	10	120	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	504	63	0	221	0	61	427	0	10	289	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		3			4			2			6	
Permitted Phases	3		3	4			2			6	6	
Detector Phase	3	3	3	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1	16.3	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	0.0	60.0	60.0	0.0	60.0	60.0	0.0
Total Split (%)	22.7%	22.7%	22.7%	22.7%	22.7%	0.0%	54.5%	54.5%	0.0%	54.5%	54.5%	0.0%
Maximum Green (s)	18.9	18.9	18.9	18.7	18.7		54.9	54.9		54.2	54.2	
Yellow Time (s)	3.7	3.7	3.7	4.1	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4	2.2	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	6.3	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Act Effct Green (s)		19.3	19.3		13.3		22.6	22.6		21.9	21.9	
Actuated g/C Ratio		0.26	0.26		0.18		0.31	0.31		0.30	0.30	
v/c Ratio		4.42	0.15		0.69		0.22	0.75		0.07	0.56	
Control Delay		1574.9	25.8		41.6		20.8	31.5		19.3	26.1	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		1574.9	25.8		41.6		20.8	31.5		19.3	26.1	
LOS		F	C		D		C	C		B	C	
Approach Delay		1402.8			41.6			30.2			25.9	
Approach LOS		F			D			C			C	

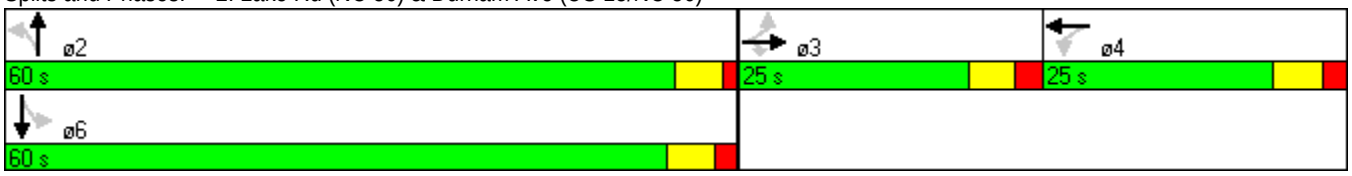
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		~385	21		93		20	167		3	106	
Queue Length 95th (ft)		#701	64		187		52	288		15	193	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		114	412		456		685	1412		380	1292	
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		4.42	0.15		0.48		0.09	0.30		0.03	0.22	

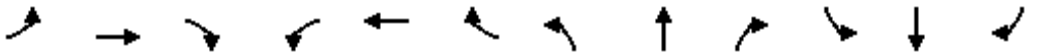
Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 73			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.42			
Intersection Signal Delay: 525.1		Intersection LOS: F	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
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.

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





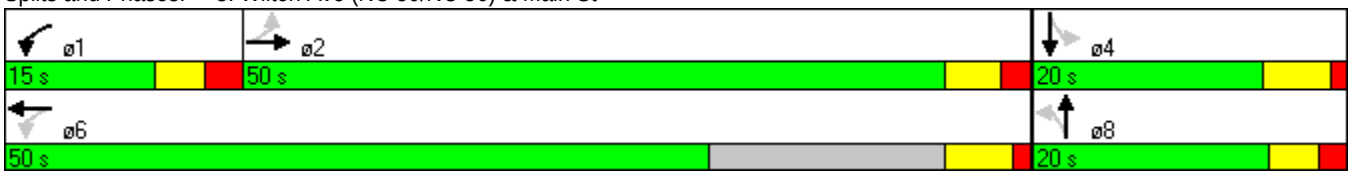
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	514	31	116	199	11	30	154	265	14	119	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.992			0.905			0.997	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1839	0	1701	1975	0	1501	1762	0	1701	2040	0
Flt Permitted		0.998		0.271			0.671			0.265		
Satd. Flow (perm)	0	1835	0	485	1975	0	1060	1762	0	475	2040	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	2%	5%	2%	10%	2%	2%	2%	2%	2%
Adj. Flow (vph)	5	541	33	129	221	12	33	171	294	16	132	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	579	0	129	233	0	33	465	0	16	135	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	50.0	50.0		15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	50.0	50.0	0.0	15.0	50.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	17.6%	58.8%	0.0%	23.5%	23.5%	0.0%	23.5%	23.5%	0.0%
Maximum Green (s)	44.4	44.4		9.5	44.5		15.0	15.0		14.5	14.5	
Yellow Time (s)	3.6	3.6		3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)	2.0	2.0		2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	-0.6	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	5.6	5.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Act Effct Green (s)		25.8		34.6	35.1		15.6	15.6		15.1	15.6	
Actuated g/C Ratio		0.42		0.57	0.57		0.25	0.25		0.25	0.25	
v/c Ratio		0.75		0.31	0.21		0.12	1.03		0.14	0.26	
Control Delay		22.2		7.2	5.9		24.0	81.8		27.0	24.2	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		22.2		7.2	5.9		24.0	81.8		27.0	24.2	
LOS		C		A	A		C	F		C	C	

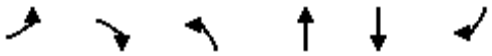
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		22.2			6.4			78.0			24.5	
Approach LOS		C			A			E			C	
Queue Length 50th (ft)		185		19	35		10	~210		5	42	
Queue Length 95th (ft)		292		37	59		37	#464		24	104	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)		1375		471	1830		271	450		117	521	
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		0.42		0.27	0.13		0.12	1.03		0.14	0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 61.2			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 36.3		Intersection LOS: D	
Intersection Capacity Utilization 77.8%		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.

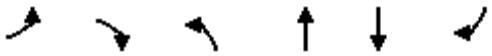
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	34	204	156	436	251	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.983	
Flt Protected	0.950			0.987		
Satd. Flow (prot)	1770	1583	0	1839	1831	0
Flt Permitted	0.950			0.987		
Satd. Flow (perm)	1770	1583	0	1839	1831	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	37	222	173	484	279	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	222	0	657	319	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.3%		ICU Level of Service B	
Analysis Period (min) 15			



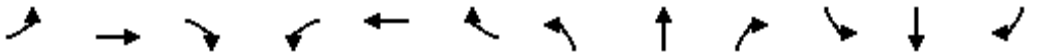
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	34	204	156	436	251	36
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	37	222	173	484	279	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked	1.00	1.00	1.00			
vC, conflicting volume	1130	299	319			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1130	298	318			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	70	86			
cM capacity (veh/h)	194	741	1241			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	259	658	319
Volume Left	37	173	0
Volume Right	222	0	40
cSH	864	1241	1700
Volume to Capacity	0.30	0.14	0.19
Queue Length 95th (ft)	32	12	0
Control Delay (s)	14.2	3.4	0.0
Lane LOS	B	A	
Approach Delay (s)	14.2	3.4	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

Synchro Capacity Analysis

2011 Existing Conditions - Improved

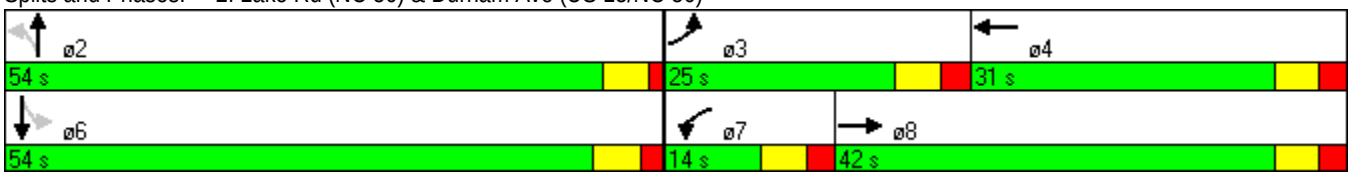


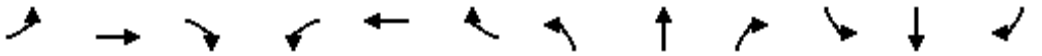
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	97	50	34	213	16	17	184	3	6	253	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	1		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt		0.949			0.989			0.998			0.934	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1719	0	1805	1879	0	1761	1832	0	1778	1749	0
Flt Permitted	0.950			0.950			0.278			0.609		
Satd. Flow (perm)	1743	1719	0	1805	1879	0	515	1832	0	1140	1749	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	154	108	56	38	237	18	19	204	3	6	269	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	164	0	38	255	0	19	207	0	6	478	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		
Detector Phase	3	8		7	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1		13.1	13.1		15.1	15.1		12.8	12.8	
Total Split (s)	25.0	42.0	0.0	14.0	31.0	0.0	54.0	54.0	0.0	54.0	54.0	0.0
Total Split (%)	22.7%	38.2%	0.0%	12.7%	28.2%	0.0%	49.1%	49.1%	0.0%	49.1%	49.1%	0.0%
Maximum Green (s)	18.9	35.9		7.9	24.9		48.9	48.9		48.2	48.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4		2.4	2.4		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	4.0	6.1	6.1	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	10.7	23.7		7.7	13.4		24.5	24.5		23.8	23.8	
Actuated g/C Ratio	0.16	0.35		0.11	0.20		0.36	0.36		0.35	0.35	
v/c Ratio	0.56	0.27		0.18	0.68		0.10	0.31		0.01	0.77	
Control Delay	38.5	21.9		37.6	37.3		17.6	17.6		16.2	29.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.5	21.9		37.6	37.3		17.6	17.6		16.2	29.6	
LOS	D	C		D	D		B	B		B	C	
Approach Delay		30.0			37.4			17.6			29.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	56	52		14	91		5	55		1	158	
Queue Length 95th (ft)	153	130		56	226		23	137		10	356	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)							50			65		
Base Capacity (vph)	529	990		229	751		394	1402		863	1324	
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	0.29	0.17		0.17	0.34		0.05	0.15		0.01	0.36	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 67.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 29.3		Intersection LOS: C	
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)



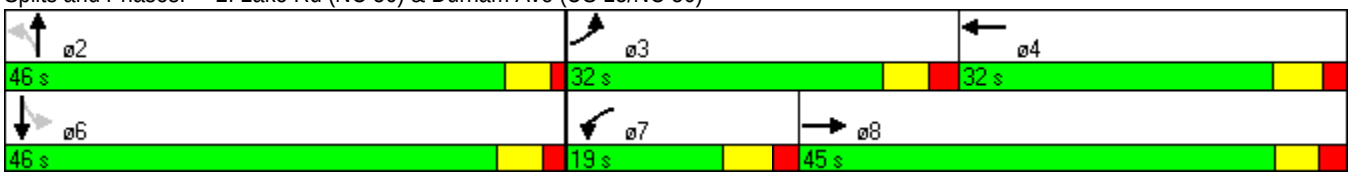


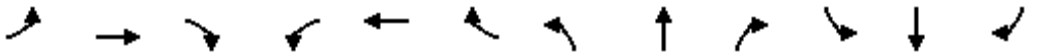
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	115	45	10	122	14	39	104	7	14	87	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	1		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.984			0.990			0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1726	1758	0	1805	1870	0	1761	1739	0	1778	1681	0
Flt Permitted	0.950			0.950			0.612			0.677		
Satd. Flow (perm)	1726	1758	0	1805	1870	0	1134	1739	0	1267	1681	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	8%	2%	2%	3%	4%
Adj. Flow (vph)	125	125	49	11	136	16	43	116	8	16	97	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	174	0	11	152	0	43	124	0	16	235	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6	6	
Detector Phase	3	8		7	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		10.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1		16.3	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	32.0	45.0	0.0	19.0	32.0	0.0	46.0	46.0	0.0	46.0	46.0	0.0
Total Split (%)	29.1%	40.9%	0.0%	17.3%	29.1%	0.0%	41.8%	41.8%	0.0%	41.8%	41.8%	0.0%
Maximum Green (s)	25.9	38.9		12.7	25.7		40.9	40.9		40.2	40.2	
Yellow Time (s)	3.7	3.7		4.1	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4		2.2	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	4.0	6.3	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	9.3	18.5		12.0	12.2		17.2	17.2		16.8	16.8	
Actuated g/C Ratio	0.22	0.43		0.28	0.29		0.40	0.40		0.39	0.39	
v/c Ratio	0.33	0.23		0.02	0.28		0.09	0.18		0.03	0.36	
Control Delay	21.6	12.2		17.9	19.2		15.1	15.7		14.9	18.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.6	12.2		17.9	19.2		15.1	15.7		14.9	18.0	
LOS	C	B		B	B		B	B		B	B	
Approach Delay		16.1			19.2			15.6			17.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	30	21		2	34		9	27		3	55	
Queue Length 95th (ft)	79	101		14	91		31	67		16	124	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)							50			65		
Base Capacity (vph)	1082	1479		645	1166		992	1520		1093	1450	
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	0.12		0.02	0.13		0.04	0.08		0.01	0.16	

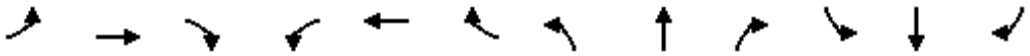
Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 42.6			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	241	212	57	14	172	13	55	370	14	9	108	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	1		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.990			0.994			0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1776	0	1805	1881	0	1761	1842	0	1778	1707	0
Flt Permitted	0.950			0.950			0.486			0.275		
Satd. Flow (perm)	1743	1776	0	1805	1881	0	901	1842	0	515	1707	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	268	236	63	16	191	14	61	411	16	10	120	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	299	0	16	205	0	61	427	0	10	289	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6	6	
Detector Phase	3	8		7	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	11.0	13.1		11.0	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	33.0	50.0	0.0	11.0	28.0	0.0	49.0	49.0	0.0	49.0	49.0	0.0
Total Split (%)	30.0%	45.5%	0.0%	10.0%	25.5%	0.0%	44.5%	44.5%	0.0%	44.5%	44.5%	0.0%
Maximum Green (s)	29.0	43.9		7.0	21.7		43.9	43.9		43.2	43.2	
Yellow Time (s)	3.5	3.7		3.5	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	0.5	2.4		0.5	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	6.1	4.0	4.0	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	16.9	33.1		7.5	13.2		22.7	22.7		22.0	22.0	
Actuated g/C Ratio	0.24	0.48		0.11	0.19		0.33	0.33		0.32	0.32	
v/c Ratio	0.63	0.35		0.08	0.57		0.21	0.71		0.06	0.53	
Control Delay	32.8	15.4		38.6	36.2		20.5	28.4		19.9	24.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.8	15.4		38.6	36.2		20.5	28.4		19.9	24.4	
LOS	C	B		D	D		C	C		B	C	
Approach Delay		23.6			36.4			27.4			24.2	
Approach LOS		C			D			C			C	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	92	66		6	75		17	142		3	90	
Queue Length 95th (ft)	234	210		32	196		57	326		16	218	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)							50			65		
Base Capacity (vph)	782	1206		195	632		612	1251		344	1141	
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	0.34	0.25		0.08	0.32		0.10	0.34		0.03	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 69.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 26.7		Intersection LOS: C	
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			

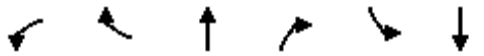
Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)

Synchro Capacity Analysis

2011 Existing Conditions – One Way Pair

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	630	54	65	0	0	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1429	1863	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1429	1863	0	0	1863
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	13%	2%	2%	16%	2%
Adj. Flow (vph)	700	60	72	0	0	150
Shared Lane Traffic (%)						
Lane Group Flow (vph)	700	60	72	0	0	150
Sign Control	Stop		Free			Free

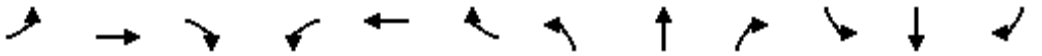
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	630	54	65	0	0	135
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	700	60	72	0	0	150
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked						
vC, conflicting volume	222	72			72	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	72			72	
tC, single (s)	6.4	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	9	94			100	
cM capacity (veh/h)	766	960			1443	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	760	72	150
Volume Left	700	0	0
Volume Right	60	0	0
cSH	818	1700	1443
Volume to Capacity	0.93	0.04	0.00
Queue Length 95th (ft)	341	0	0
Control Delay (s)	39.1	0.0	0.0
Lane LOS	E		
Approach Delay (s)	39.1	0.0	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	30.3		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

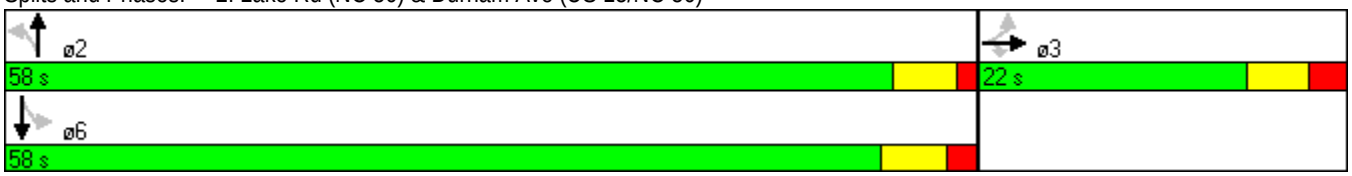


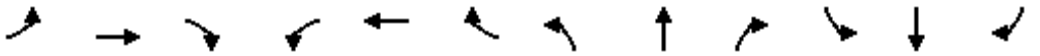
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	6	141	0	0	0	17	15	172	43	287	409
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.862			0.912	
Flt Protected		0.954					0.950			0.950		
Satd. Flow (prot)	0	1749	1560	0	0	0	1761	1596	0	1778	1707	0
Flt Permitted		0.954					0.269			0.628		
Satd. Flow (perm)	0	1749	1560	0	0	0	499	1596	0	1176	1707	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	154	7	157	0	0	0	19	17	191	46	305	435
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	161	157	0	0	0	19	208	0	46	740	0
Turn Type	Perm		Perm				Perm			Perm		
Protected Phases		3						2			6	
Permitted Phases	3		3				2			6	6	
Detector Phase	3	3	3				2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0				10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1				15.1	15.1		12.8	12.8	
Total Split (s)	22.0	22.0	22.0	0.0	0.0	0.0	58.0	58.0	0.0	58.0	58.0	0.0
Total Split (%)	27.5%	27.5%	27.5%	0.0%	0.0%	0.0%	72.5%	72.5%	0.0%	72.5%	72.5%	0.0%
Maximum Green (s)	15.9	15.9	15.9				52.9	52.9		52.2	52.2	
Yellow Time (s)	3.7	3.7	3.7				3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4				1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	4.0	4.0	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	1.0				3.0	3.0		3.0	3.0	
Recall Mode	None	None	None				Min	Min		Min	Min	
Act Effct Green (s)		9.7	9.7				30.9	30.9		30.1	30.1	
Actuated g/C Ratio		0.18	0.18				0.59	0.59		0.57	0.57	
v/c Ratio		0.50	0.54				0.06	0.22		0.07	0.76	
Control Delay		27.7	29.8				5.4	5.8		5.3	14.2	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		27.7	29.8				5.4	5.8		5.3	14.2	
LOS		C	C				A	A		A	B	
Approach Delay		28.7						5.7			13.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C						A			B	
Queue Length 50th (ft)		40	40				2	23		5	131	
Queue Length 95th (ft)		125	125				10	62		18	318	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		564	503				467	1495		1099	1596	
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	0.31				0.04	0.14		0.04	0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 52.5			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 15.9		Intersection LOS: B	
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





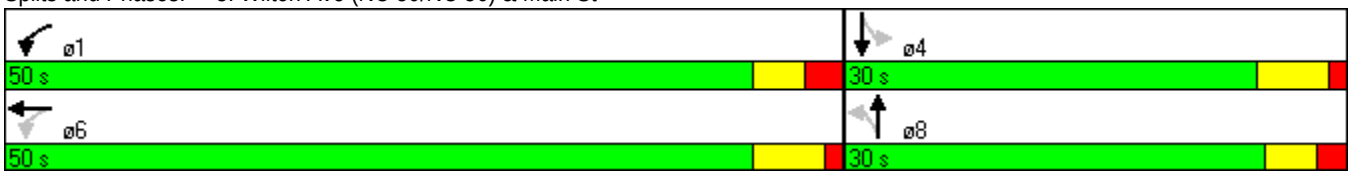
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	458	320	14	201	78	384	19	106	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt					0.994			0.875			0.945	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	0	0	1701	2034	0	1399	1704	0	1701	1922	0
Flt Permitted				0.950			0.640			0.327		
Satd. Flow (perm)	0	0	0	1701	2034	0	943	1704	0	586	1922	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	8%	2%	2%	2%	18%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	509	356	16	223	87	427	21	118	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	509	372	0	223	514	0	21	187	0
Turn Type				pm+pt			Perm			Perm		
Protected Phases				1	6			8			4	
Permitted Phases				6			8			4		
Detector Phase				1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)				7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	0.0	0.0	0.0	50.0	50.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	62.5%	62.5%	0.0%	37.5%	37.5%	0.0%	37.5%	37.5%	0.0%
Maximum Green (s)				44.5	44.5		25.0	25.0		24.5	24.5	
Yellow Time (s)				3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)				2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	4.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode				None	Min		None	None		None	None	
Act Effct Green (s)				18.8	19.3		22.2	22.2		21.7	22.2	
Actuated g/C Ratio				0.36	0.37		0.43	0.43		0.42	0.43	
v/c Ratio				0.83	0.49		0.55	0.70		0.09	0.23	
Control Delay				27.7	15.1		19.2	20.5		12.5	11.7	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				27.7	15.1		19.2	20.5		12.5	11.7	
LOS				C	B		B	C		B	B	

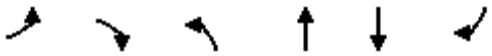
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay					22.4			20.1			11.8	
Approach LOS					C			C			B	
Queue Length 50th (ft)				141	87		47	118		4	33	
Queue Length 95th (ft)				249	152		137	#319		19	88	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)				1449	1747		470	850		286	959	
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				0.35	0.21		0.47	0.60		0.07	0.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 51.8			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 71.9%		ICU Level of Service C	
Analysis Period (min) 15			

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

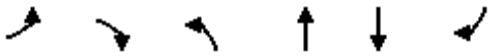
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	274	128	0	418	510	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	304	142	0	464	567	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	304	142	0	464	567	0
Sign Control	Stop			Free	Free	

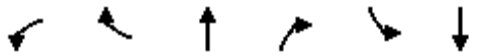
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	274	128	0	418	510	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	304	142	0	464	567	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked	0.77	0.77	0.77			
vC, conflicting volume	1031	567	567			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	890	286	286			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	75	100			
cM capacity (veh/h)	241	579	981			

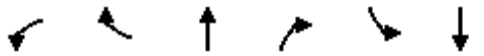
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	447	464	567
Volume Left	304	0	0
Volume Right	142	0	0
cSH	299	981	1700
Volume to Capacity	1.49	0.00	0.33
Queue Length 95th (ft)	628	0	0
Control Delay (s)	270.6	0.0	0.0
Lane LOS	F		
Approach Delay (s)	270.6	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	81.8		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	286	45	63	0	0	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1719	1313	1792	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1719	1313	1792	0	0	1863
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Heavy Vehicles (%)	5%	23%	6%	4%	15%	2%
Adj. Flow (vph)	314	49	66	0	0	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	314	49	66	0	0	89
Sign Control	Stop		Free			Free

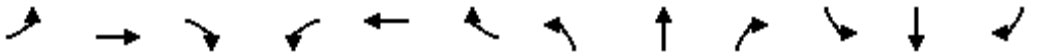
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	286	45	63	0	0	80
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	314	49	66	0	0	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked						
vC, conflicting volume	155	66			66	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	155	66			66	
tC, single (s)	6.4	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.3	
p0 queue free %	62	95			100	
cM capacity (veh/h)	830	942			1457	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	364	66	89
Volume Left	314	0	0
Volume Right	49	0	0
cSH	961	1700	1457
Volume to Capacity	0.38	0.04	0.00
Queue Length 95th (ft)	45	0	0
Control Delay (s)	11.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.6	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

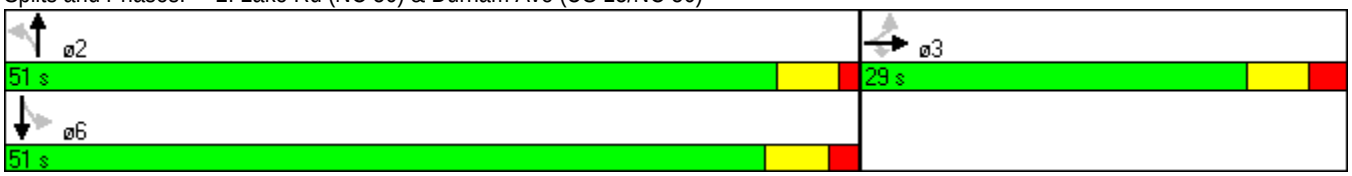


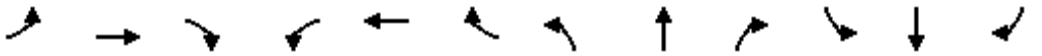
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	24	136	0	0	0	39	29	82	34	97	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.889			0.893	
Flt Protected		0.960					0.950			0.950		
Satd. Flow (prot)	0	1747	1560	0	0	0	1761	1623	0	1778	1644	0
Flt Permitted		0.960					0.536			0.678		
Satd. Flow (perm)	0	1747	1560	0	0	0	993	1623	0	1269	1644	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	8%	2%	2%	3%	4%
Adj. Flow (vph)	125	26	148	0	0	0	43	32	91	38	108	273
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	151	148	0	0	0	43	123	0	38	381	0
Turn Type	Perm		Perm				Perm			Perm		
Protected Phases		3						2			6	
Permitted Phases	3		3				2			6	6	
Detector Phase	3	3	3				2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0				10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1				15.1	15.1		12.8	12.8	
Total Split (s)	29.0	29.0	29.0	0.0	0.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Total Split (%)	36.3%	36.3%	36.3%	0.0%	0.0%	0.0%	63.8%	63.8%	0.0%	63.8%	63.8%	0.0%
Maximum Green (s)	22.9	22.9	22.9				45.9	45.9		45.2	45.2	
Yellow Time (s)	3.7	3.7	3.7				3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4				1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	4.0	4.0	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	1.0				3.0	3.0		3.0	3.0	
Recall Mode	None	None	None				Min	Min		Min	Min	
Act Effct Green (s)		8.1	8.1				16.7	16.7		16.0	16.0	
Actuated g/C Ratio		0.22	0.22				0.46	0.46		0.44	0.44	
v/c Ratio		0.39	0.43				0.09	0.16		0.07	0.53	
Control Delay		15.5	16.6				6.4	6.6		6.4	10.7	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		15.5	16.6				6.4	6.6		6.4	10.7	
LOS		B	B				A	A		A	B	
Approach Delay		16.0						6.5			10.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B						A			B	
Queue Length 50th (ft)		21	21				4	11		4	45	
Queue Length 95th (ft)		68	69				16	35		15	113	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		1128	1008				993	1623		1269	1644	
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		0.13	0.15				0.04	0.08		0.03	0.23	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 36.2			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 11.5		Intersection LOS: B	
Intersection Capacity Utilization 49.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)



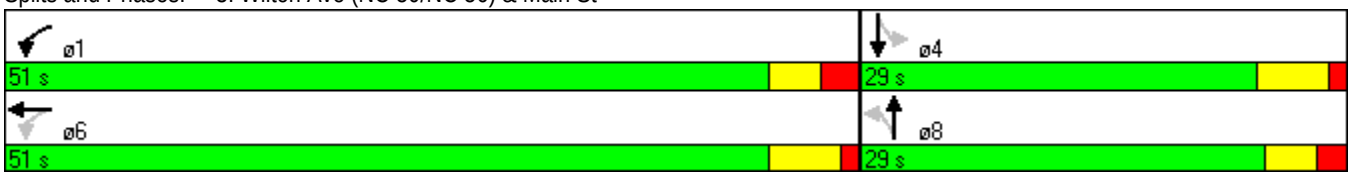


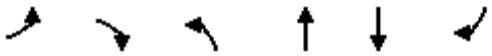
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	95	133	10	143	50	239	6	36	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt					0.990			0.876			0.941	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	0	0	1701	1904	0	1558	1706	0	1701	1818	0
Flt Permitted				0.950			0.714			0.566		
Satd. Flow (perm)	0	0	0	1701	1904	0	1171	1706	0	1014	1818	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.94	0.94	0.94	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	9%	25%	2%	9%	2%	6%	2%	2%	2%	12%	2%
Adj. Flow (vph)	0	0	0	99	139	10	159	56	266	7	40	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	99	149	0	159	322	0	7	66	0
Turn Type				pm+pt			Perm			Perm		
Protected Phases				1	6			8			4	
Permitted Phases				6			8			4		
Detector Phase				1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)				7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	0.0	0.0	0.0	51.0	51.0	0.0	29.0	29.0	0.0	29.0	29.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	63.8%	63.8%	0.0%	36.3%	36.3%	0.0%	36.3%	36.3%	0.0%
Maximum Green (s)				45.5	45.5		24.0	24.0		23.5	23.5	
Yellow Time (s)				3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)				2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	4.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode				None	Min		None	None		None	None	
Act Effct Green (s)				10.3	10.8		9.6	9.6		9.1	9.6	
Actuated g/C Ratio				0.34	0.35		0.31	0.31		0.30	0.31	
v/c Ratio				0.17	0.22		0.43	0.60		0.02	0.11	
Control Delay				8.9	8.8		12.1	13.8		7.3	7.6	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				8.9	8.8		12.1	13.8		7.3	7.6	
LOS				A	A		B	B		A	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay					8.8			13.2			7.6	
Approach LOS					A			B			A	
Queue Length 50th (ft)				10	14		19	40		1	7	
Queue Length 95th (ft)				34	45		48	86		5	21	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)				1701	1904		929	1353		787	1442	
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				0.06	0.08		0.17	0.24		0.01	0.05	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 30.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 34.0%		ICU Level of Service A	
Analysis Period (min) 15			

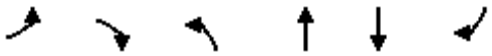
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	184	135	0	286	186	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Adj. Flow (vph)	204	150	0	295	207	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	204	150	0	295	207	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.9%		ICU Level of Service A	
Analysis Period (min) 15			



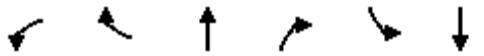
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	184	135	0	286	186	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Hourly flow rate (vph)	204	150	0	295	207	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked						
vC, conflicting volume	502	207	207			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	502	207	207			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	61	82	100			
cM capacity (veh/h)	529	834	1365			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	354	295	207
Volume Left	204	0	0
Volume Right	150	0	0
cSH	772	1365	1700
Volume to Capacity	0.46	0.00	0.12
Queue Length 95th (ft)	61	0	0
Control Delay (s)	13.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.6	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	403	52	127	0	0	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1736	1429	1863	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1736	1429	1863	0	0	1863
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Heavy Vehicles (%)	4%	13%	2%	2%	2%	2%
Adj. Flow (vph)	448	58	138	0	0	144
Shared Lane Traffic (%)						
Lane Group Flow (vph)	448	58	138	0	0	144
Sign Control	Stop		Free			Free

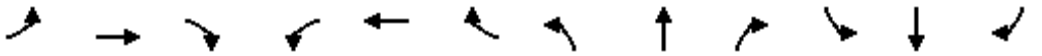
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	403	52	127	0	0	130
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	448	58	138	0	0	144
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked						
vC, conflicting volume	282	138			138	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282	138			138	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	36	93			100	
cM capacity (veh/h)	703	882			1446	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	506	138	144
Volume Left	448	0	0
Volume Right	58	0	0
cSH	794	1700	1446
Volume to Capacity	0.64	0.08	0.00
Queue Length 95th (ft)	116	0	0
Control Delay (s)	17.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	17.6	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	11.3		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

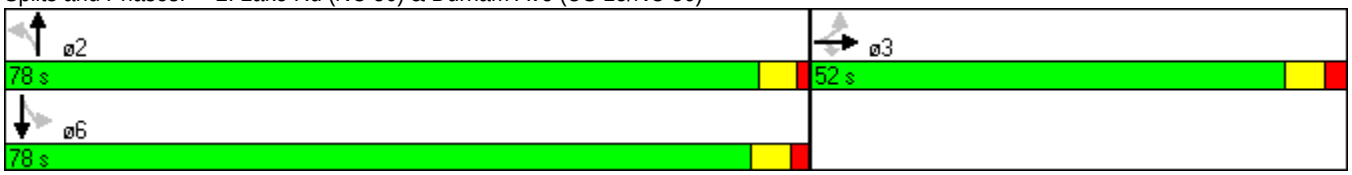


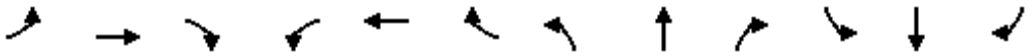
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	241	31	238	0	0	0	55	35	349	59	122	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.864			0.891	
Flt Protected		0.958					0.950			0.950		
Satd. Flow (prot)	0	1758	1560	0	0	0	1761	1601	0	1778	1668	0
Flt Permitted		0.958					0.400			0.453		
Satd. Flow (perm)	0	1758	1560	0	0	0	741	1601	0	848	1668	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	268	34	264	0	0	0	61	39	388	66	136	360
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	302	264	0	0	0	61	427	0	66	496	0
Turn Type	Perm		Perm				Perm			Perm		
Protected Phases		3						2			6	
Permitted Phases	3		3				2			6	6	
Detector Phase	3	3	3				2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0				10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1				15.1	15.1		12.8	12.8	
Total Split (s)	52.0	52.0	52.0	0.0	0.0	0.0	78.0	78.0	0.0	78.0	78.0	0.0
Total Split (%)	40.0%	40.0%	40.0%	0.0%	0.0%	0.0%	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%
Maximum Green (s)	45.9	45.9	45.9				72.9	72.9		72.2	72.2	
Yellow Time (s)	3.7	3.7	3.7				3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4				1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	4.0	4.0	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	1.0				3.0	3.0		3.0	3.0	
Recall Mode	None	None	None				Min	Min		Min	Min	
Act Effct Green (s)		13.6	13.6				23.0	23.0		22.2	22.2	
Actuated g/C Ratio		0.28	0.28				0.47	0.47		0.46	0.46	
v/c Ratio		0.61	0.61				0.17	0.56		0.17	0.65	
Control Delay		22.6	23.2				9.5	13.0		9.6	15.2	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		22.6	23.2				9.5	13.0		9.6	15.2	
LOS		C	C				A	B		A	B	
Approach Delay		22.9						12.5			14.5	
Approach LOS		C						B			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		70	61				8	74		10	93	
Queue Length 95th (ft)		179	162				32	186		35	227	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		1576	1398				741	1601		848	1668	
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		0.19	0.19				0.08	0.27		0.08	0.30	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 48.6			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 16.8		Intersection LOS: B	
Intersection Capacity Utilization 63.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





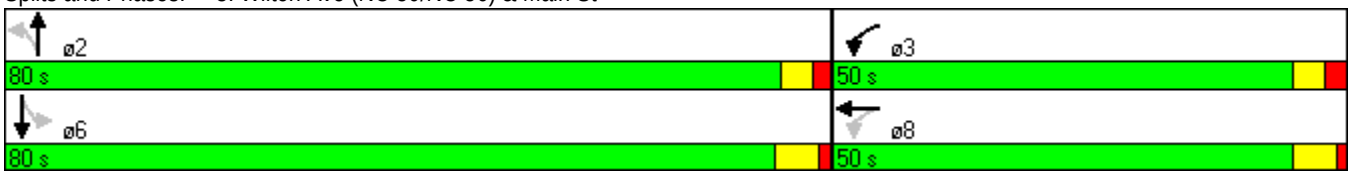
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	130	185	11	186	159	779	14	97	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt					0.992			0.875			0.969	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	0	0	1701	1975	0	1501	1704	0	1701	1983	0
Flt Permitted				0.950			0.670			0.165		
Satd. Flow (perm)	0	0	0	1701	1975	0	1059	1704	0	295	1983	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	2%	5%	2%	10%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	144	206	12	207	177	866	16	108	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	144	218	0	207	1043	0	16	136	0
Turn Type				pm+pt			Perm			Perm		
Protected Phases				3	8			2			6	
Permitted Phases				8			2			6		
Detector Phase				3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	0.0	0.0	0.0	50.0	50.0	0.0	80.0	80.0	0.0	80.0	80.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)				44.5	44.5		75.0	75.0		74.5	74.5	
Yellow Time (s)				3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)				2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	4.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode				None	Min		None	None		None	None	
Act Effct Green (s)				16.4	16.9		75.1	75.1		74.6	75.1	
Actuated g/C Ratio				0.16	0.17		0.74	0.74		0.73	0.74	
v/c Ratio				0.53	0.67		0.27	0.83		0.07	0.09	
Control Delay				46.3	50.2		6.0	17.8		5.9	4.5	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				46.3	50.2		6.0	17.8		5.9	4.5	
LOS				D	D		A	B		A	A	

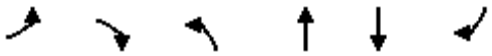
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay					48.7			15.9			4.7	
Approach LOS					D			B			A	
Queue Length 50th (ft)				87	135		37	391		3	21	
Queue Length 95th (ft)				149	211		82	#898		11	47	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)				743	872		780	1255		216	1460	
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				0.19	0.25		0.27	0.83		0.07	0.09	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 102			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 21.6		Intersection LOS: C	
Intersection Capacity Utilization 85.5%		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.

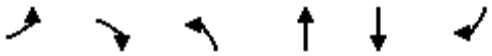
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	553	235	0	592	251	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	601	255	0	658	279	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	601	255	0	658	279	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.5%		ICU Level of Service C	
Analysis Period (min) 15			



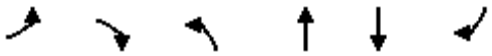
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	553	235	0	592	251	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	601	255	0	658	279	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked	0.95	0.95	0.95			
vC, conflicting volume	937	279	279			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	905	209	209			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	68	100			
cM capacity (veh/h)	291	786	1288			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	857	658	279
Volume Left	601	0	0
Volume Right	255	0	0
cSH	358	1288	1700
Volume to Capacity	2.39	0.00	0.16
Queue Length 95th (ft)	1676	0	0
Control Delay (s)	657.0	0.0	0.0
Lane LOS	F		
Approach Delay (s)	657.0	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	313.8		
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

Synchro Capacity Analysis

2011 Existing Conditions – One Way Pair Improved

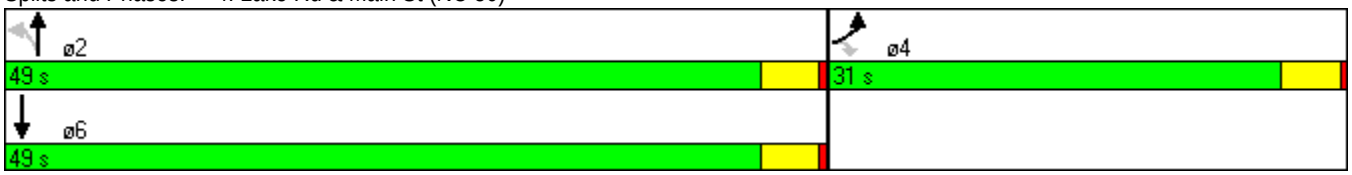


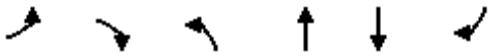
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	274	128	0	418	510	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	304	142	0	464	567	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	304	142	0	464	567	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	31.0	31.0	49.0	49.0	49.0	0.0
Total Split (%)	38.8%	38.8%	61.3%	61.3%	61.3%	0.0%
Maximum Green (s)	27.0	27.0	45.0	45.0	45.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	13.4	13.4		20.6	20.6	
Actuated g/C Ratio	0.31	0.31		0.48	0.48	
v/c Ratio	0.55	0.29		0.51	0.63	
Control Delay	17.9	14.6		10.2	12.1	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	17.9	14.6		10.2	12.1	
LOS	B	B		B	B	
Approach Delay	16.8			10.2	12.1	
Approach LOS	B			B	B	
Queue Length 50th (ft)	55	23		63	83	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 95th (ft)	160	79		166	217	
Internal Link Dist (ft)	951			573	268	
Turn Bay Length (ft)		35				
Base Capacity (vph)	1215	1087		1727	1727	
Starvation Cap Reductn	0	0		0	87	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.25	0.13		0.27	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 42.7			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Lake Rd & Main St (NC 50)



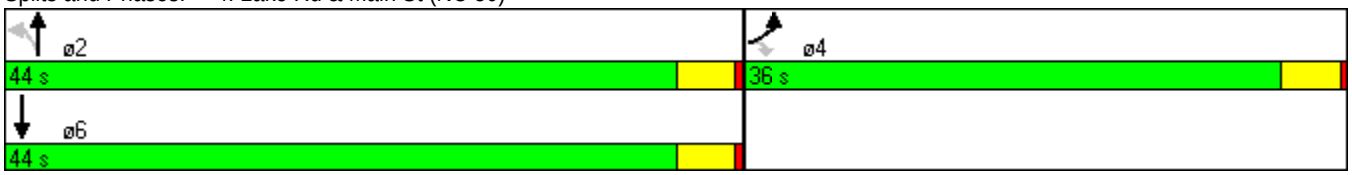


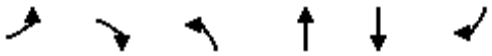
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	184	135	0	286	186	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Adj. Flow (vph)	204	150	0	295	207	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	204	150	0	295	207	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	36.0	36.0	44.0	44.0	44.0	0.0
Total Split (%)	45.0%	45.0%	55.0%	55.0%	55.0%	0.0%
Maximum Green (s)	32.0	32.0	40.0	40.0	40.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	9.1	9.1		11.8	11.8	
Actuated g/C Ratio	0.31	0.31		0.41	0.41	
v/c Ratio	0.37	0.30		0.39	0.27	
Control Delay	9.9	9.3		8.3	7.3	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	9.9	9.3		8.3	7.3	
LOS	A	A		A	A	
Approach Delay	9.6			8.3	7.3	
Approach LOS	A			A	A	
Queue Length 50th (ft)	19	14		26	17	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 95th (ft)	58	45		69	49	
Internal Link Dist (ft)	951			573	268	
Turn Bay Length (ft)		35				
Base Capacity (vph)	1737	1553		1863	1863	
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	0.12	0.10		0.16	0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 29			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 31.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Lake Rd & Main St (NC 50)



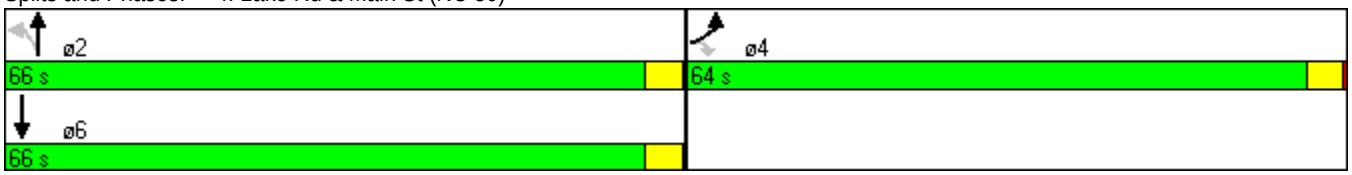


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	553	235	0	592	251	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	601	255	0	658	279	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	601	255	0	658	279	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	64.0	64.0	66.0	66.0	66.0	0.0
Total Split (%)	49.2%	49.2%	50.8%	50.8%	50.8%	0.0%
Maximum Green (s)	60.0	60.0	62.0	62.0	62.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	37.2	37.2		39.1	39.1	
Actuated g/C Ratio	0.44	0.44		0.46	0.46	
v/c Ratio	0.78	0.37		0.77	0.33	
Control Delay	30.2	19.6		28.0	17.5	
Queue Delay	0.0	0.0		0.0	0.1	
Total Delay	30.2	19.6		28.0	17.6	
LOS	C	B		C	B	
Approach Delay	27.1			28.0	17.6	
Approach LOS	C			C	B	
Queue Length 50th (ft)	253	85		269	87	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 95th (ft)	555	203		593	207	
Internal Link Dist (ft)	951			573	268	
Turn Bay Length (ft)		35				
Base Capacity (vph)	1309	1171		1411	1411	
Starvation Cap Reductn	0	0		0	401	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.46	0.22		0.47	0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 85.3			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 25.9		Intersection LOS: C	
Intersection Capacity Utilization 68.5%		ICU Level of Service C	
Analysis Period (min) 15			

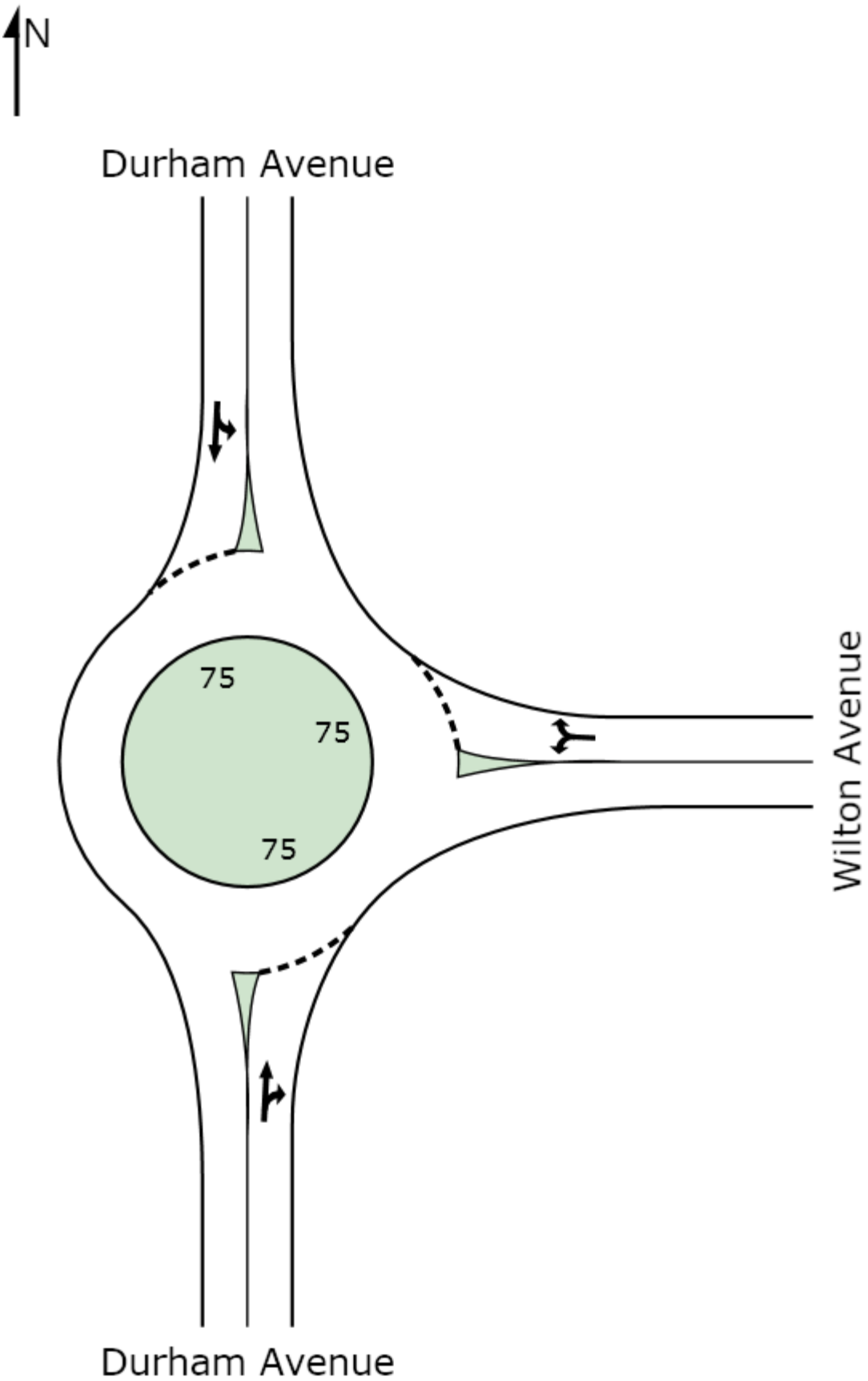
Splits and Phases: 4: Lake Rd & Main St (NC 50)

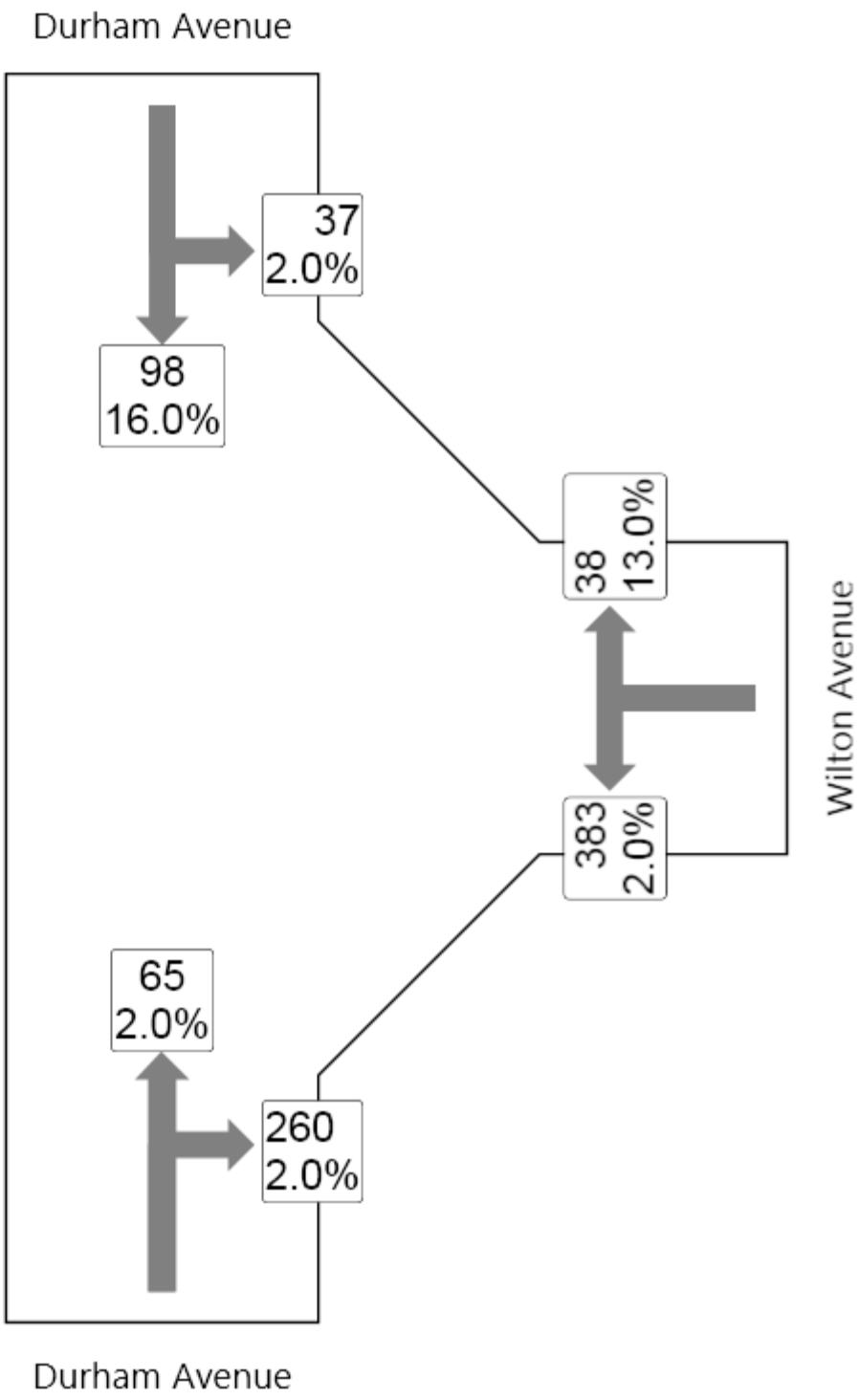


Sidra Capacity Analysis

2011 Existing Conditions

Wilton / Durham


N
Durham Avenue
75
75
75
Wilton Avenue
Durham Avenue


Durham Avenue
37
2.0%
98
16.0%
38
13.0%
Wilton Avenue
383
2.0%
65
2.0%
260
2.0%
Durham Avenue

MOVEMENT SUMMARY

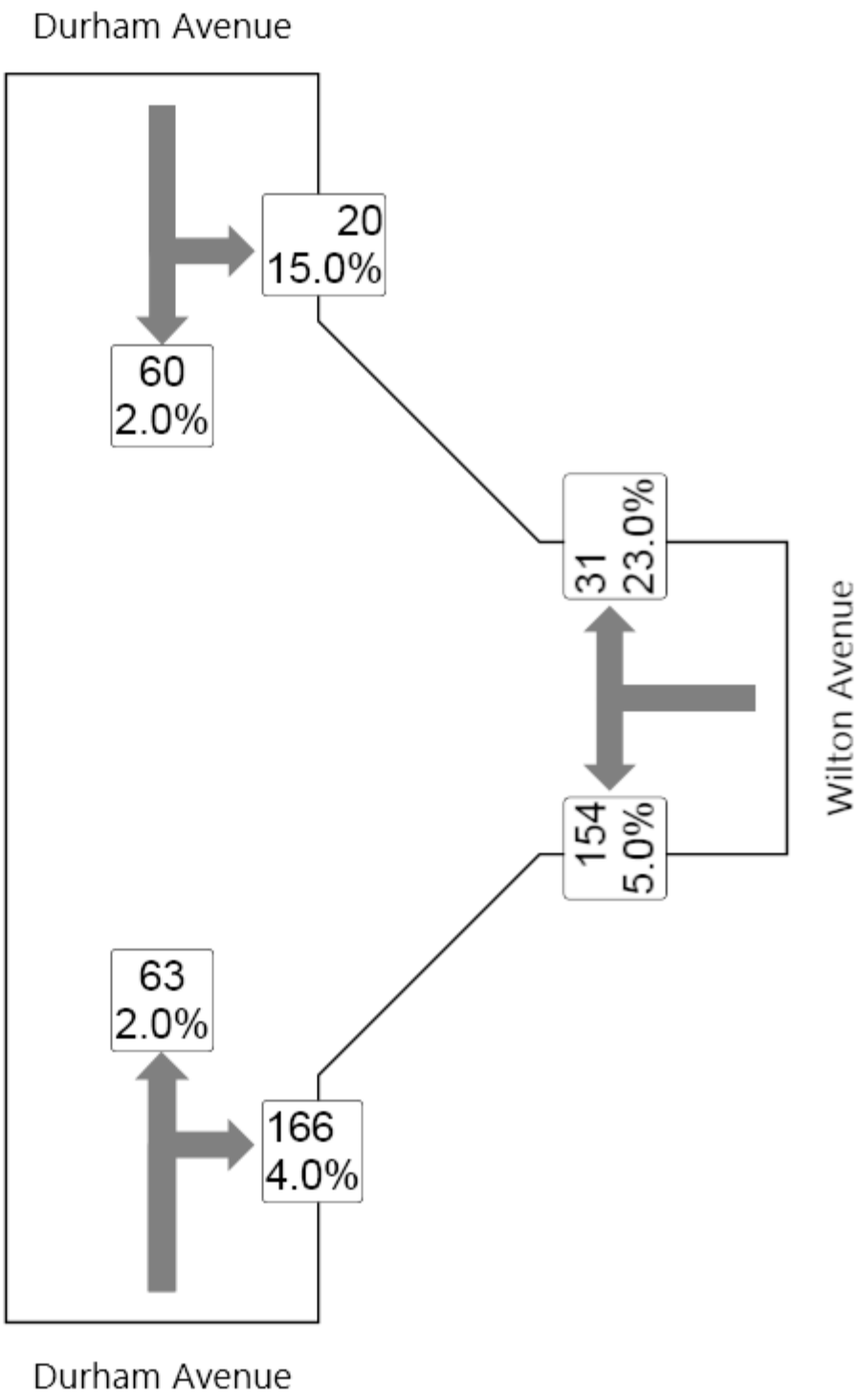
Site: Durham and Wilton - 2011 Existing AM

2011 Existing
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	72	2.0	0.284	6.3	LOS A	2.4	60.2	0.23	0.45	32.8
8R	R	289	2.0	0.284	7.1	LOS A	2.4	60.2	0.23	0.52	32.4
Approach		361	2.0	0.284	6.9	LOS A	2.4	60.2	0.23	0.50	32.5
East: Wilton Avenue											
1L	L	426	2.0	0.385	12.7	LOS B	3.3	83.4	0.30	0.66	29.2
6R	R	42	13.0	0.384	7.8	LOS A	3.3	83.4	0.30	0.50	31.8
Approach		468	3.0	0.385	12.3	LOS B	3.3	83.4	0.30	0.64	29.4
North: Durham Avenue											
7L	L	41	16.0	0.208	16.1	LOS B	1.4	36.6	0.61	0.87	28.5
4T	T	109	2.0	0.207	9.4	LOS A	1.4	36.6	0.61	0.69	31.0
Approach		150	5.8	0.207	11.2	LOS B	1.4	36.6	0.61	0.74	30.2
All Vehicles		979	3.1	0.385	10.1	LOS B	3.3	83.4	0.32	0.61	30.6

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
20
15.0%
60
2.0%
31
23.0%
Wilton Avenue
154
5.0%
63
2.0%
166
4.0%
Durham Avenue

MOVEMENT SUMMARY

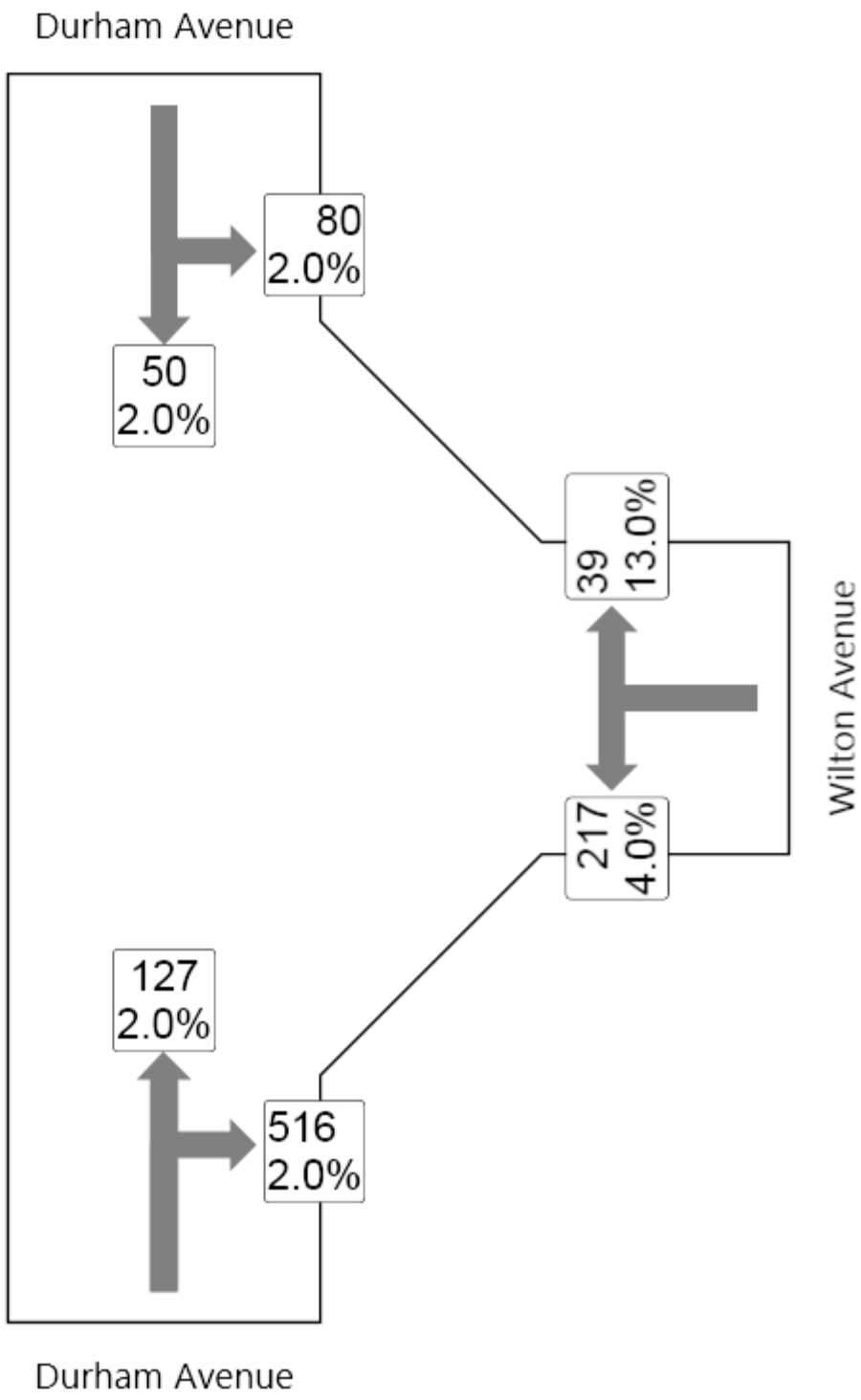
Site: Durham and Wilton - 2011 Existing Midday

2011 Existing
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	66	6.0	0.184	6.2	LOS A	1.3	34.4	0.14	0.44	33.3
8R	R	173	4.0	0.184	7.0	LOS A	1.3	34.4	0.14	0.52	32.8
Approach		239	4.6	0.184	6.8	LOS A	1.3	34.4	0.14	0.50	33.0
East: Wilton Avenue											
1L	L	169	5.0	0.185	12.7	LOS B	1.2	33.0	0.24	0.67	29.4
6R	R	34	23.0	0.185	8.1	LOS A	1.2	33.0	0.24	0.50	32.2
Approach		203	8.0	0.185	12.0	LOS B	1.2	33.0	0.24	0.64	29.8
North: Durham Avenue											
7L	L	22	15.0	0.095	13.8	LOS B	0.6	15.4	0.38	0.79	29.6
4T	T	67	2.0	0.095	7.2	LOS A	0.6	15.4	0.38	0.51	32.1
Approach		89	5.3	0.095	8.8	LOS B	0.6	15.4	0.38	0.58	31.4
All Vehicles		531	6.0	0.185	9.1	LOS A	1.3	34.4	0.22	0.57	31.4

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
80
2.0%
50
2.0%
39
13.0%
Wilton Avenue
217
4.0%
127
2.0%
516
2.0%
Durham Avenue

MOVEMENT SUMMARY

2011 Existing
Roundabout

Movement Performance - Vehicles

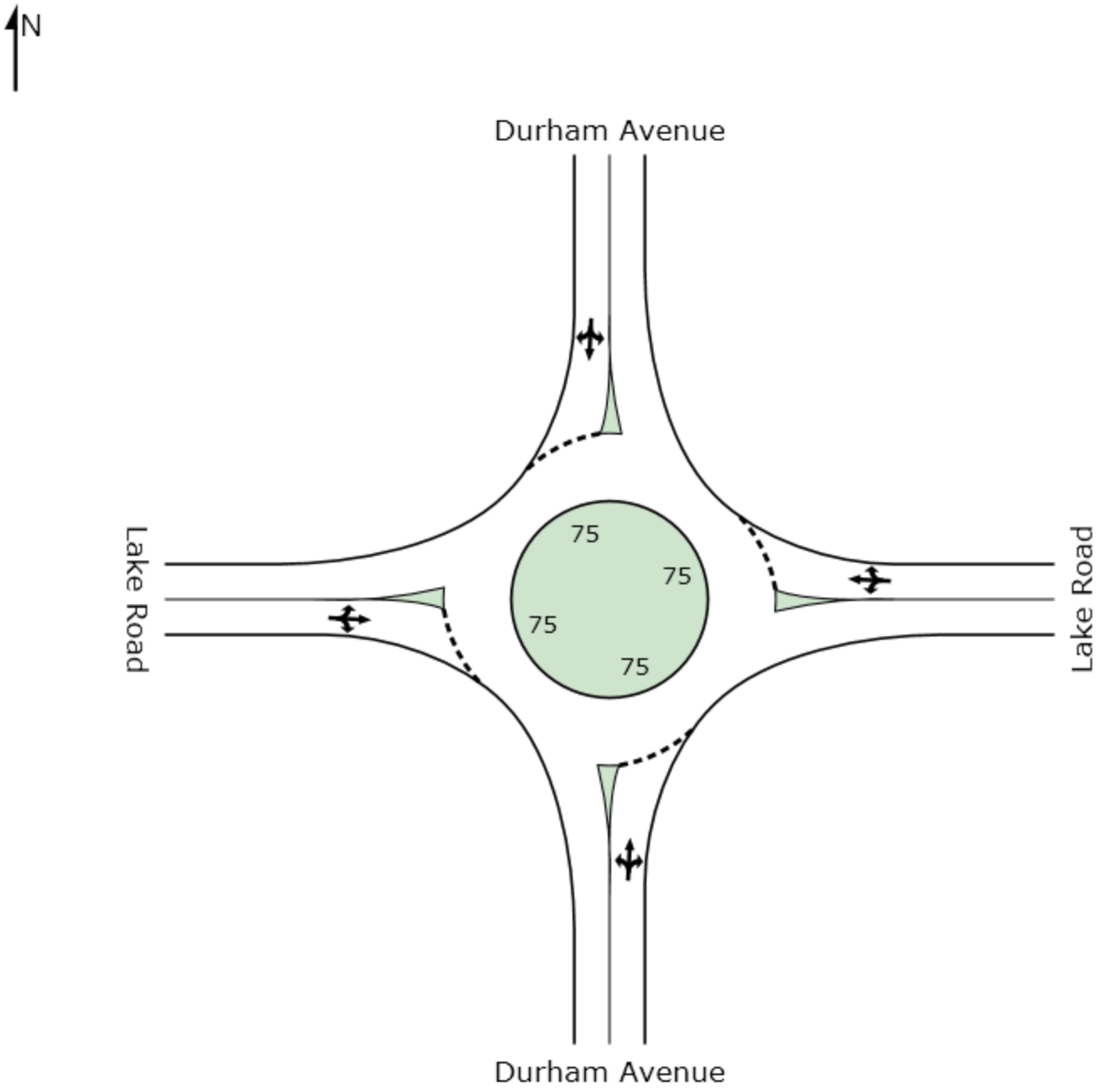
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	138	2.0	0.535	6.5	LOS A	5.9	150.3	0.33	0.45	32.3
8R	R	561	2.0	0.534	7.3	LOS A	5.9	150.3	0.33	0.52	32.0
Approach		699	2.0	0.534	7.2	LOS A	5.9	150.3	0.33	0.50	32.0
East: Wilton Avenue											
1L	L	241	4.0	0.281	13.3	LOS B	2.1	54.6	0.40	0.69	29.0
6R	R	43	13.0	0.281	8.3	LOS A	2.1	54.6	0.40	0.55	31.4
Approach		284	5.4	0.281	12.6	LOS B	2.1	54.6	0.40	0.67	29.3
North: Durham Avenue											
7L	L	56	2.0	0.161	13.9	LOS B	1.1	27.4	0.47	0.78	29.3
4T	T	89	2.0	0.161	7.7	LOS A	1.1	27.4	0.47	0.57	31.5
Approach		144	2.0	0.161	10.1	LOS B	1.1	27.4	0.47	0.65	30.6
All Vehicles		1128	2.9	0.534	8.9	LOS A	5.9	150.3	0.37	0.56	31.1

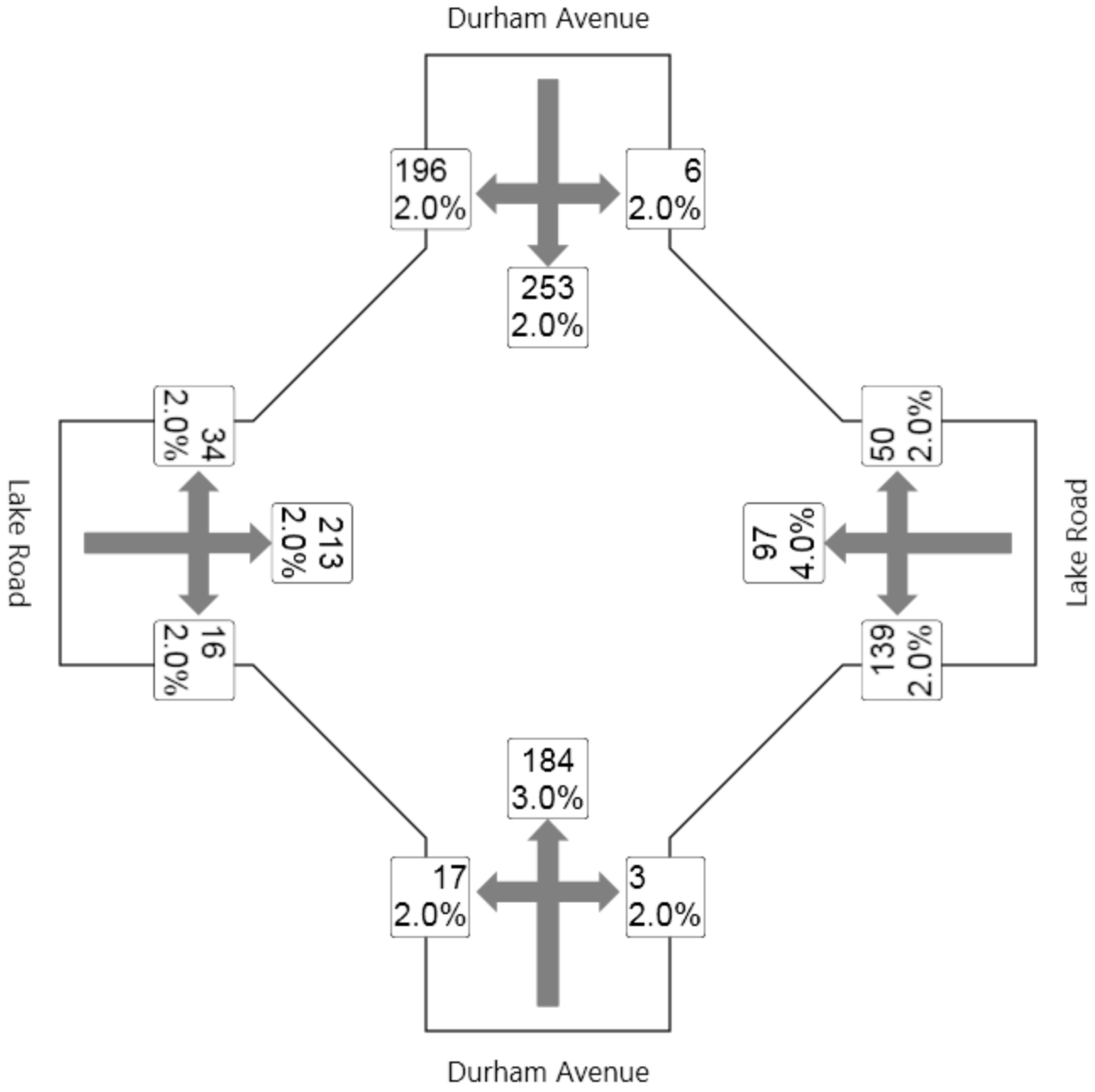
Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.

Sidra Capacity Analysis

2011 Existing Conditions

Lake / Durham


N
Durham Avenue
Lake Road
Lake Road
75
75
75
75
Durham Avenue


Durham Avenue
196
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6
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253
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Lake Road
34
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213
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16
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50
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97
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139
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Lake Road
184
3.0%
17
2.0%
3
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: 2011 Existing AM - Int 2

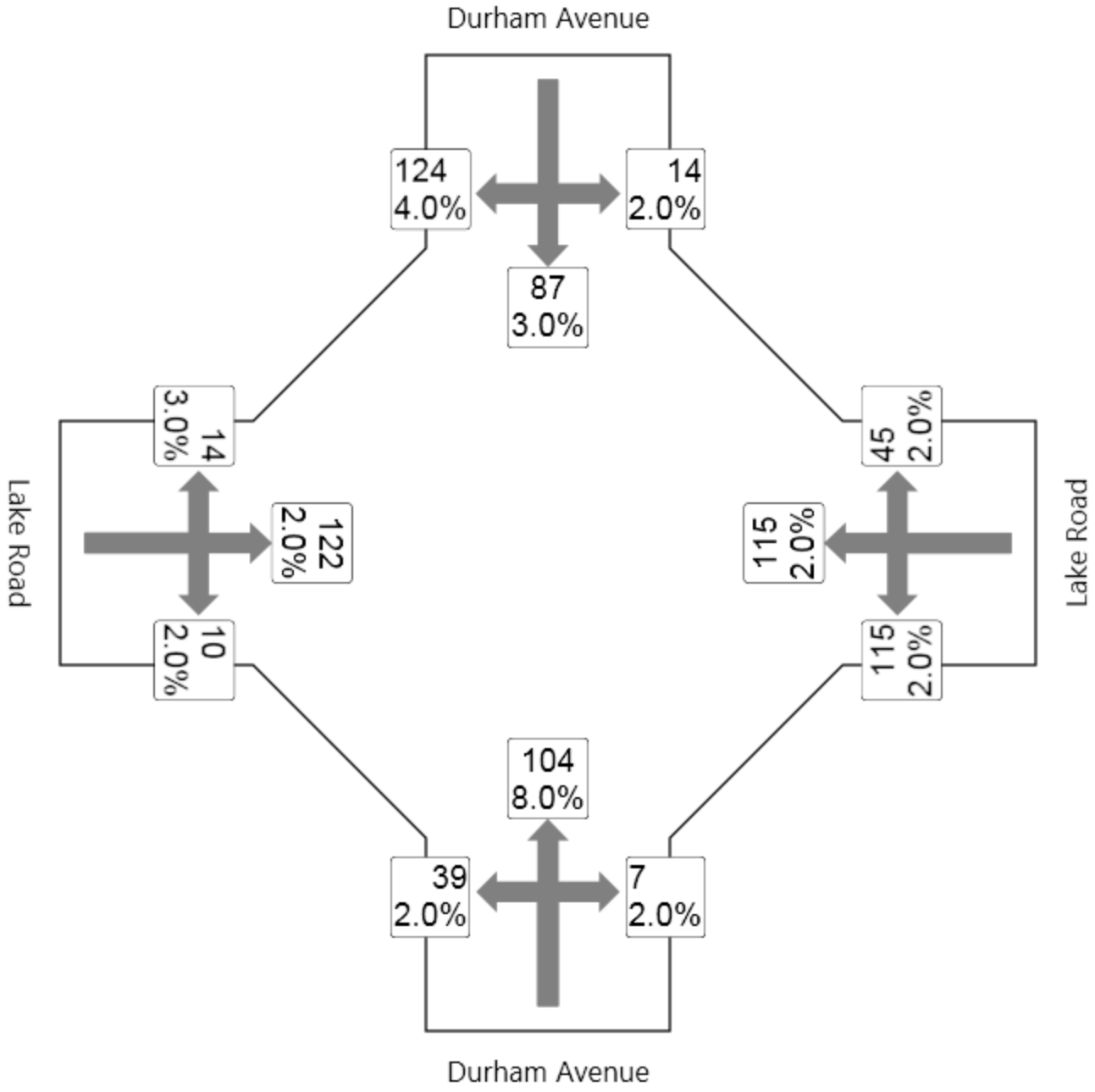
Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
3L	L	19	2.0	0.274	11.4	LOS B	2.1	53.0	0.57	0.83	19.5
8T	T	204	3.0	0.275	5.0	LOS A	2.1	53.0	0.57	0.56	21.4
8R	R	3	2.0	0.278	5.9	LOS A	2.1	53.0	0.57	0.62	21.0
Approach		227	2.9	0.275	5.6	LOS B	2.1	53.0	0.57	0.59	21.2
East: Lake Road											
1L	L	154	2.0	0.349	11.9	LOS B	2.8	70.3	0.56	0.78	28.6
6T	T	108	4.0	0.349	8.2	LOS A	2.8	70.3	0.56	0.62	30.9
6R	R	56	2.0	0.349	8.8	LOS A	2.8	70.3	0.56	0.65	30.9
Approach		318	2.7	0.349	10.1	LOS B	2.8	70.3	0.56	0.70	29.8
North: Durham Avenue											
7L	L	6	2.0	0.532	15.4	LOS B	5.4	136.5	0.70	0.85	28.7
4T	T	269	2.0	0.548	8.0	LOS A	5.4	136.5	0.70	0.70	30.3
4R	R	209	2.0	0.549	10.1	LOS B	5.4	136.5	0.70	0.75	30.7
Approach		484	2.0	0.548	9.0	LOS B	5.4	136.5	0.70	0.73	30.4
West: Lake Road											
5L	L	38	2.0	0.389	16.0	LOS B	3.1	77.5	0.70	0.89	28.4
2T	T	237	2.0	0.391	9.8	LOS A	3.1	77.5	0.70	0.76	30.7
2R	R	18	2.0	0.395	9.6	LOS A	3.1	77.5	0.70	0.78	30.5
Approach		292	2.0	0.391	10.5	LOS B	3.1	77.5	0.70	0.78	30.3
All Vehicles		1321	2.3	0.548	9.0	LOS A	5.4	136.5	0.65	0.71	29.4

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
124
4.0%
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87
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14
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45
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Lake Road
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Lake Road
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115
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104
8.0%
39
2.0%
7
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Durham Avenue

MOVEMENT SUMMARY

Site: 2011 Existing Midday - Int 2

Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
3L	L	43	2.0	0.183	10.4	LOS B	1.2	32.8	0.41	0.76	19.9
8T	T	116	8.0	0.183	4.1	LOS A	1.2	32.8	0.41	0.42	22.3
8R	R	8	2.0	0.181	5.0	LOS A	1.2	32.8	0.41	0.50	21.7
Approach		167	6.2	0.183	5.8	LOS B	1.2	32.8	0.41	0.51	21.5
East: Lake Road											
1L	L	128	2.0	0.299	11.1	LOS B	2.3	57.7	0.45	0.75	29.0
6T	T	128	2.0	0.299	7.4	LOS A	2.3	57.7	0.45	0.54	31.6
6R	R	50	2.0	0.299	8.0	LOS A	2.3	57.7	0.45	0.59	31.5
Approach		306	2.0	0.299	9.0	LOS B	2.3	57.7	0.45	0.64	30.5
North: Durham Avenue											
7L	L	16	2.0	0.299	14.6	LOS B	2.2	56.2	0.57	0.83	28.9
4T	T	97	3.0	0.298	7.3	LOS A	2.2	56.2	0.57	0.62	30.8
4R	R	138	4.0	0.299	9.4	LOS A	2.2	56.2	0.57	0.69	31.1
Approach		250	3.5	0.299	8.9	LOS B	2.2	56.2	0.57	0.67	30.8
West: Lake Road											
5L	L	15	3.0	0.175	13.9	LOS B	1.2	29.5	0.46	0.82	29.4
2T	T	133	2.0	0.175	7.7	LOS A	1.2	29.5	0.46	0.58	31.8
2R	R	11	2.0	0.175	7.5	LOS A	1.2	29.5	0.46	0.61	31.5
Approach		159	2.1	0.175	8.3	LOS B	1.2	29.5	0.46	0.60	31.5
All Vehicles		881	3.2	0.299	8.2	LOS A	2.3	57.7	0.48	0.62	29.8

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
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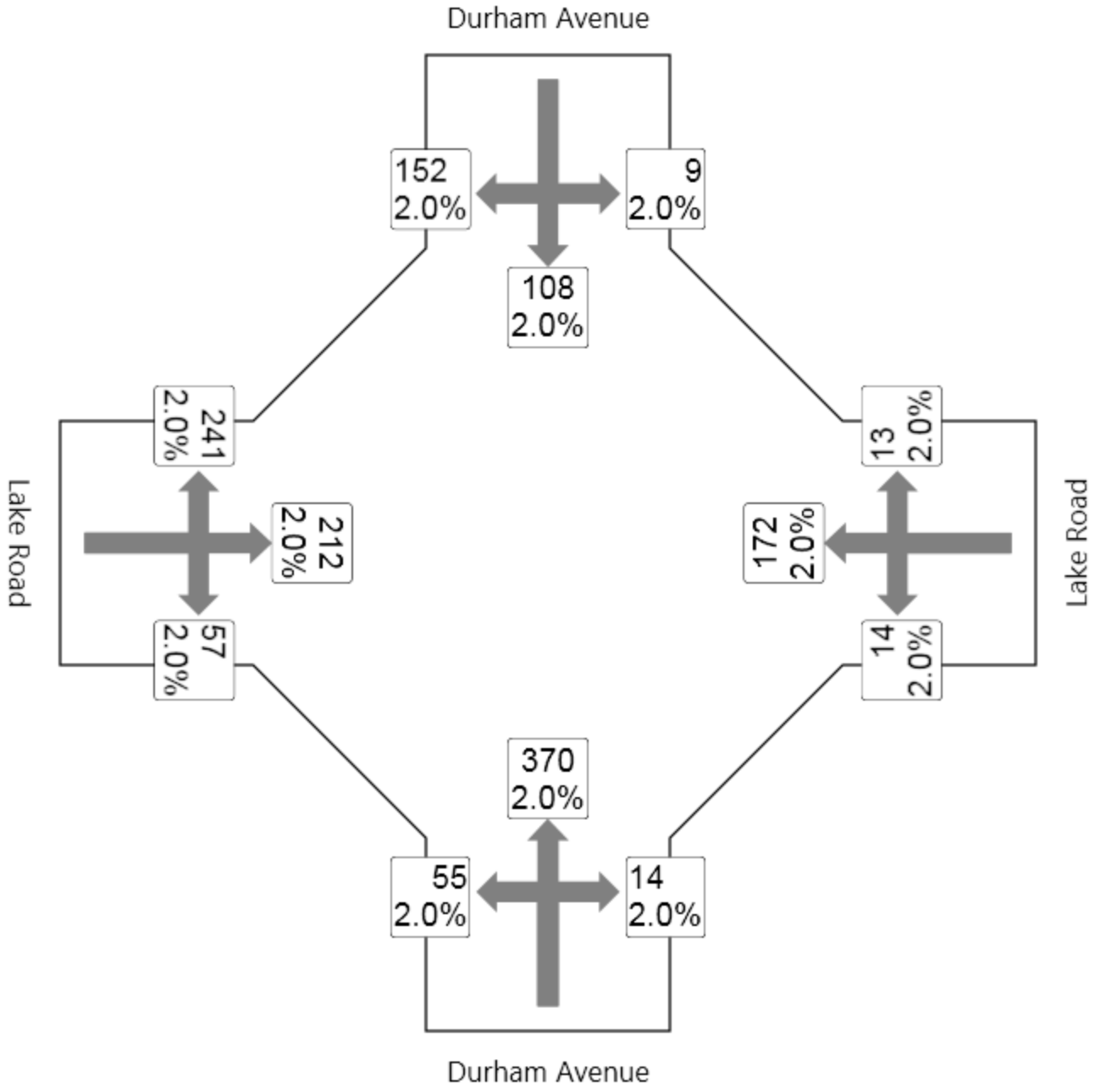
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
152
2.0%
9
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108
2.0%
241
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13
2.0%
Lake Road
212
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172
2.0%
Lake Road
57
2.0%
14
2.0%
370
2.0%
55
2.0%
14
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: 2011 Existing PM - Int 2

Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

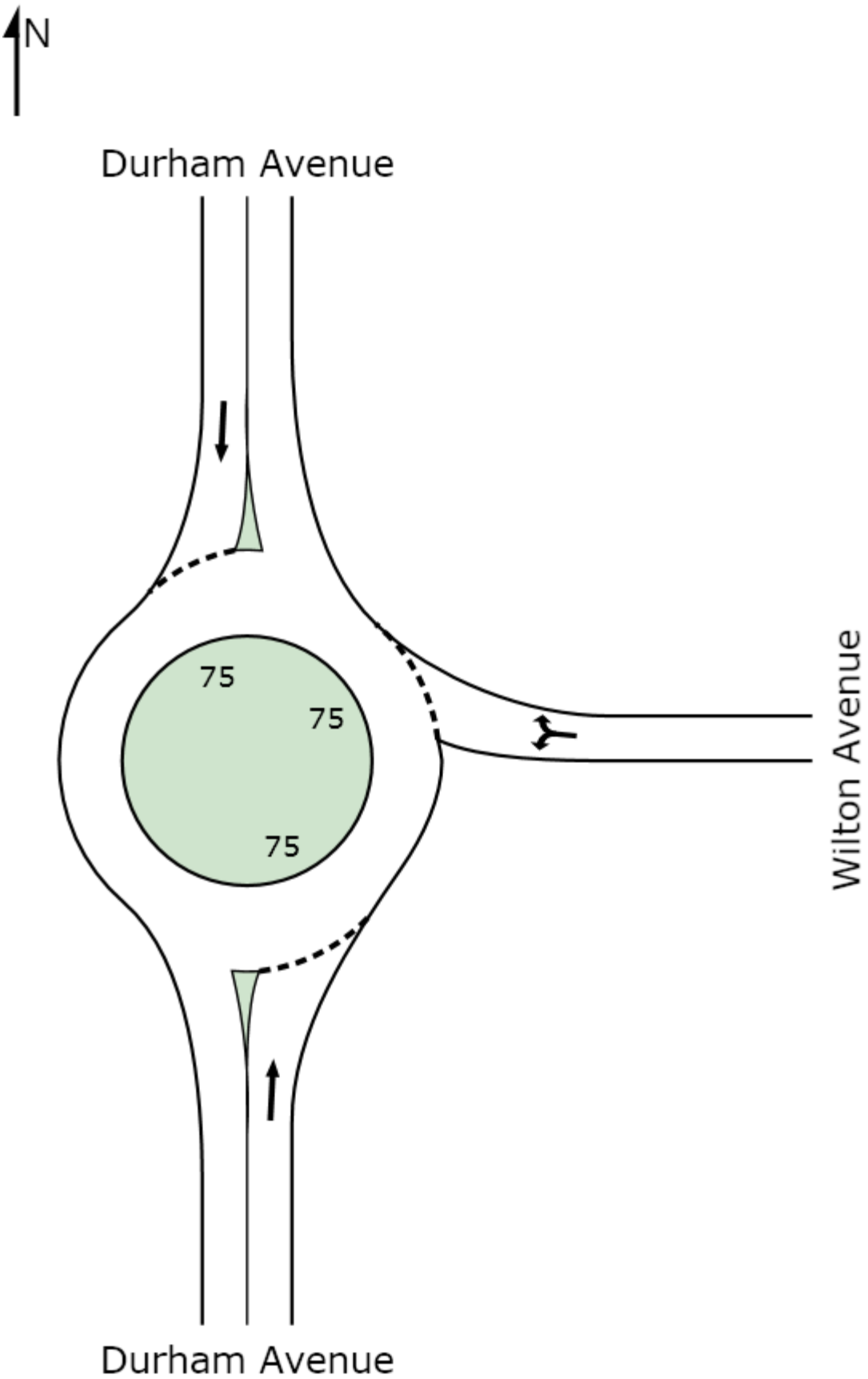
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
3L	L	61	2.0	0.711	19.8	LOS B	9.4	239.3	0.92	1.19	15.1
8T	T	402	2.0	0.712	13.5	LOS B	9.4	239.3	0.92	1.15	15.8
8R	R	15	2.0	0.725	14.4	LOS B	9.4	239.3	0.92	1.16	15.5
Approach		479	2.0	0.712	14.3	LOS B	9.4	239.3	0.92	1.15	15.7
East: Lake Road											
1L	L	15	2.0	0.390	16.6	LOS B	3.3	82.7	0.85	0.99	26.6
6T	T	187	2.0	0.390	12.9	LOS B	3.3	82.7	0.85	0.92	29.0
6R	R	14	2.0	0.393	13.5	LOS B	3.3	82.7	0.85	0.93	29.0
Approach		216	2.0	0.391	13.2	LOS B	3.3	82.7	0.85	0.93	28.9
North: Durham Avenue											
7L	L	10	2.0	0.337	14.4	LOS B	2.7	67.7	0.58	0.82	29.1
4T	T	117	2.0	0.336	7.0	LOS A	2.7	67.7	0.58	0.61	30.8
4R	R	165	2.0	0.336	9.0	LOS A	2.7	67.7	0.58	0.68	31.1
Approach		292	2.0	0.337	8.4	LOS B	2.7	67.7	0.58	0.65	30.9
West: Lake Road											
5L	L	262	2.0	0.510	13.5	LOS B	5.0	127.8	0.52	0.73	29.2
2T	T	230	2.0	0.509	7.3	LOS A	5.0	127.8	0.52	0.54	31.2
2R	R	62	2.0	0.508	7.1	LOS A	5.0	127.8	0.52	0.57	30.8
Approach		554	2.0	0.509	10.2	LOS B	5.0	127.8	0.52	0.63	30.2
All Vehicles		1542	2.0	0.712	11.6	LOS B	9.4	239.3	0.70	0.84	26.8

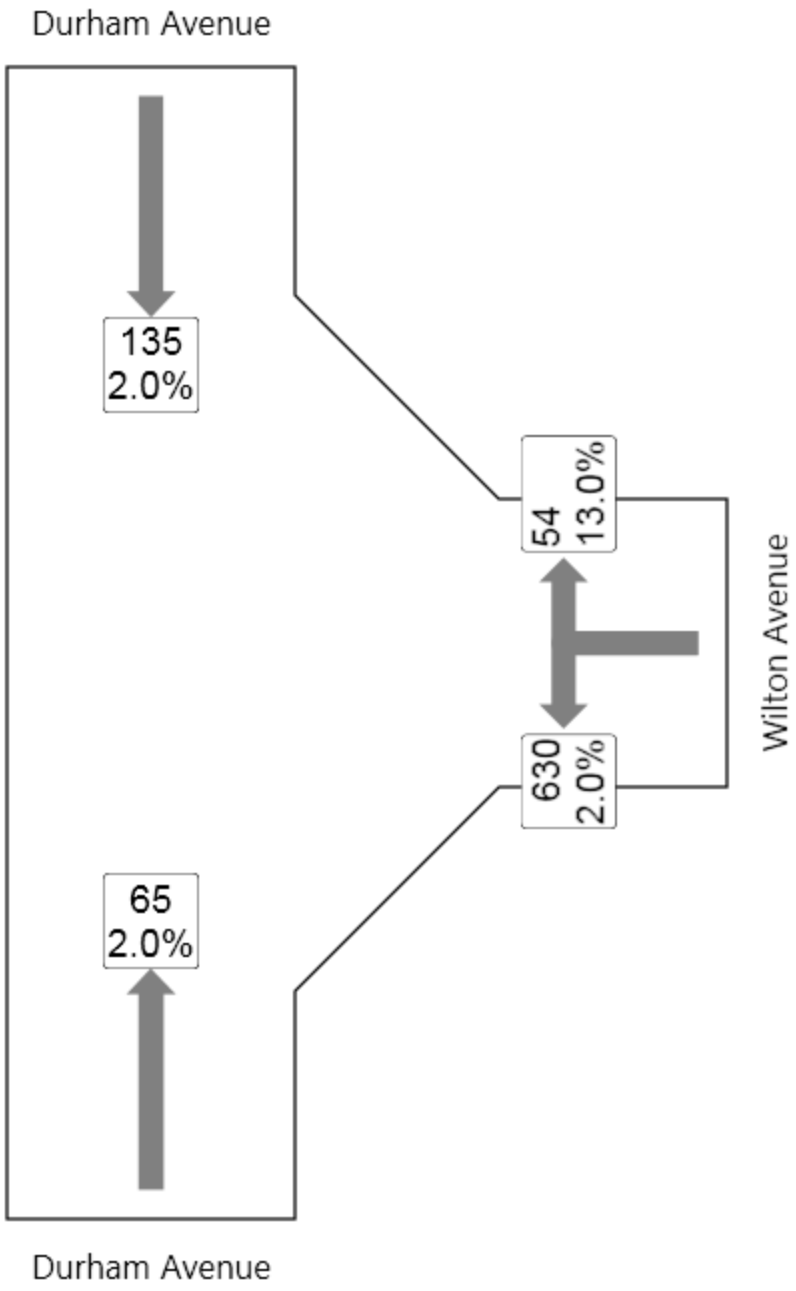
Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.

Sidra Capacity Analysis

2011 Existing Conditions – One Way Pair

Wilton / Durham


N
Durham Avenue
75
75
75
Wilton Avenue
Durham Avenue


Durham Avenue
135
2.0%
54
13.0%
Wilton Avenue
630
2.0%
65
2.0%
Durham Avenue

MOVEMENT SUMMARY

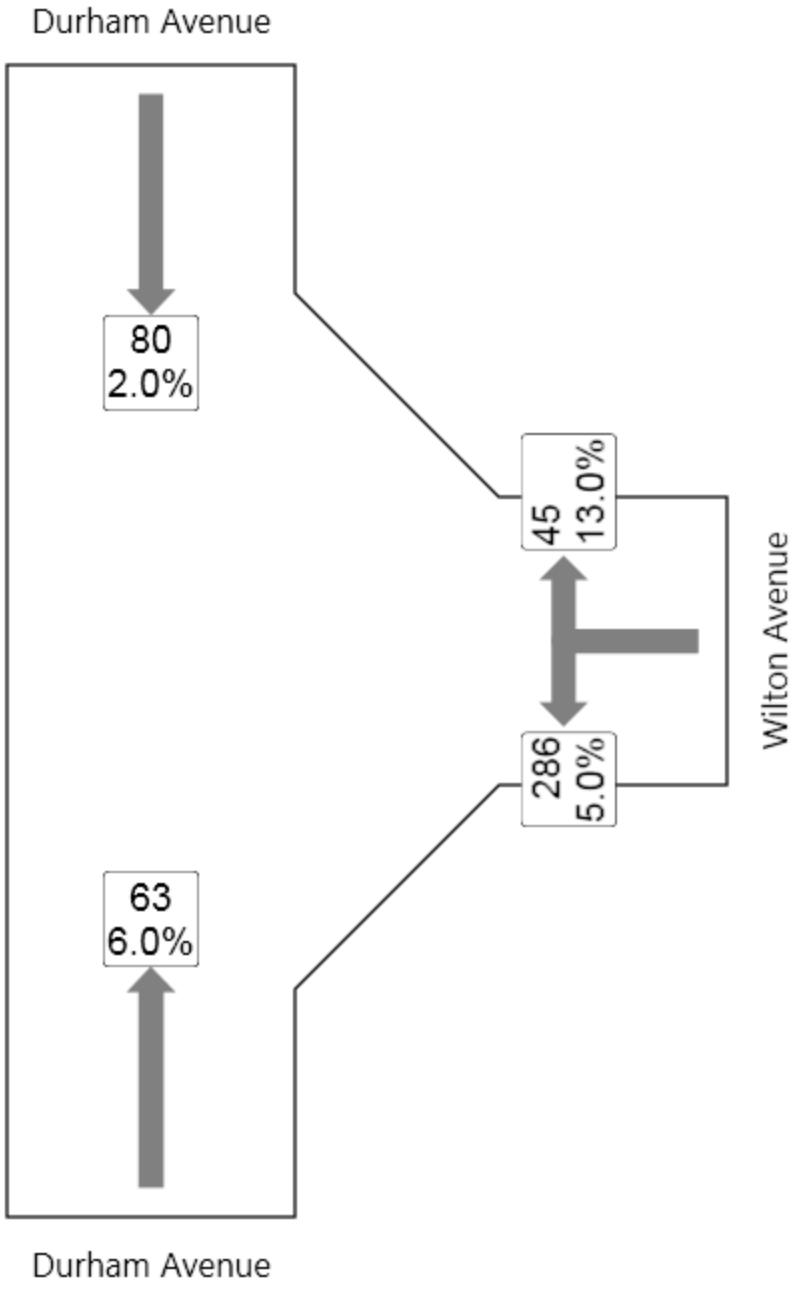
Site: Durham and Wilton - 2011
Existing AM - One Way Pair

2011 Existing
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	72	2.0	0.045	6.0	LOS A	0.0	0.0	0.00	0.49	34.1
Approach		72	2.0	0.045	6.0	LOS A	0.0	0.0	0.00	0.49	34.1
East: Wilton Avenue											
1L	L	700	2.0	0.599	12.9	LOS B	6.5	167.1	0.38	0.64	29.0
6R	R	60	13.0	0.600	8.0	LOS A	6.5	167.1	0.38	0.51	31.4
Approach		760	2.9	0.599	12.5	LOS B	6.5	167.1	0.38	0.63	29.2
North: Durham Avenue											
4T	T	150	2.0	0.262	12.0	LOS B	1.9	48.6	0.77	0.84	29.6
Approach		150	2.0	0.262	12.0	LOS B	1.9	48.6	0.77	0.84	29.6
All Vehicles		982	2.7	0.599	12.0	LOS B	6.5	167.1	0.41	0.65	29.5

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
80
2.0%
45
13.0%
Wilton Avenue
286
5.0%
63
6.0%
Durham Avenue

MOVEMENT SUMMARY

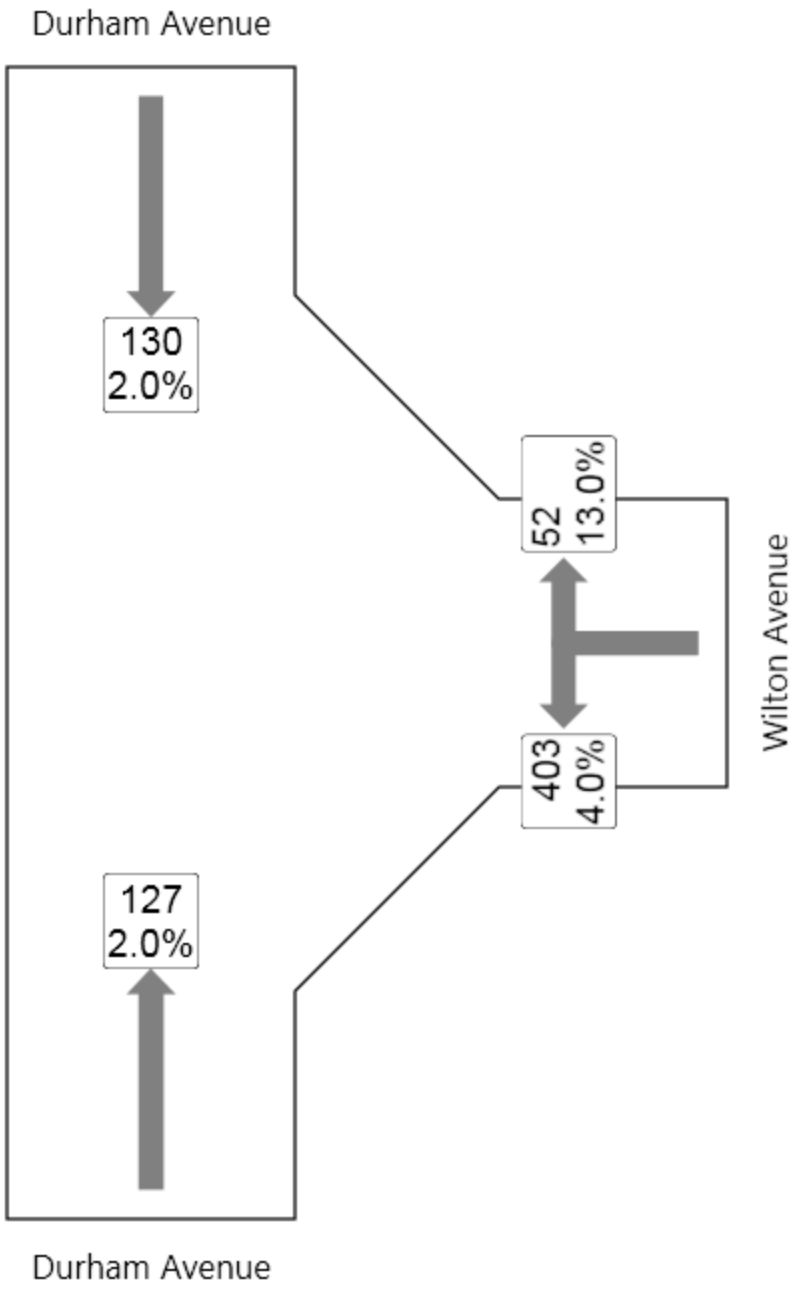
Site: Durham and Wilton - 2011 Existing Midday - One Way Pair

2011 Existing
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	66	6.0	0.043	6.1	LOS A	0.0	0.0	0.00	0.49	34.1
Approach		66	6.0	0.043	6.1	LOS A	0.0	0.0	0.00	0.49	34.1
East: Wilton Avenue											
1L	L	314	5.0	0.310	12.8	LOS B	2.3	60.2	0.26	0.67	29.3
6R	R	49	13.0	0.311	7.7	LOS A	2.3	60.2	0.26	0.50	32.1
Approach		364	6.1	0.310	12.1	LOS B	2.3	60.2	0.26	0.64	29.7
North: Durham Avenue											
4T	T	89	2.0	0.106	8.2	LOS A	0.7	17.0	0.50	0.60	31.7
Approach		89	2.0	0.106	8.2	LOS A	0.7	17.0	0.50	0.60	31.7
All Vehicles		518	5.4	0.310	10.7	LOS B	2.3	60.2	0.27	0.62	30.5

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
130
2.0%
52
13.0%
Wilton Avenue
403
4.0%
127
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: Durham and Wilton - 2011 Existing PM - One Way Pair

2011 Existing
Roundabout

Movement Performance - Vehicles

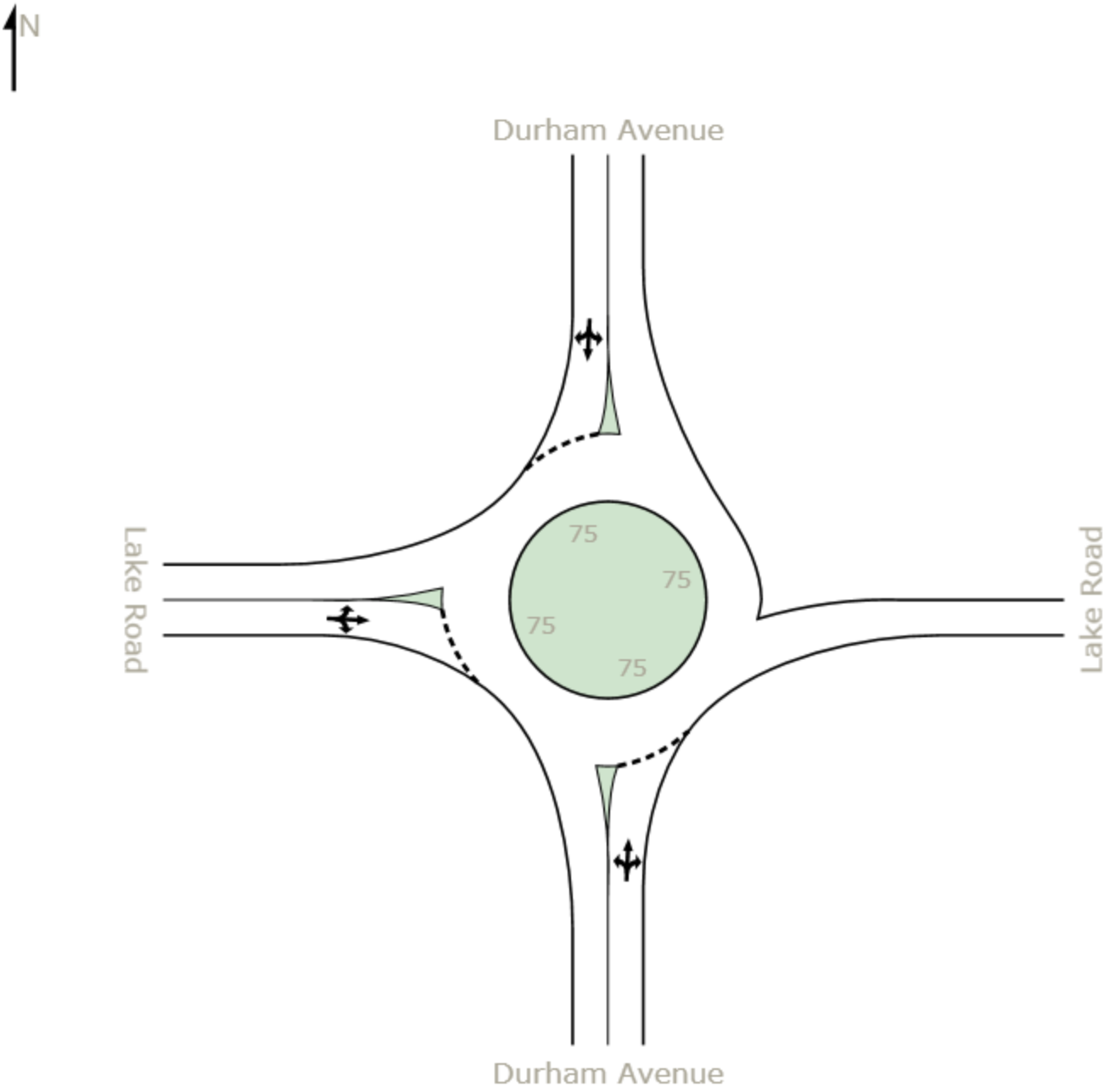
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	138	2.0	0.086	6.0	LOS A	0.0	0.0	0.00	0.49	34.1
Approach		138	2.0	0.086	6.0	LOS A	0.0	0.0	0.00	0.49	34.1
East: Wilton Avenue											
1L	L	448	4.0	0.470	13.6	LOS B	4.1	105.6	0.45	0.69	28.8
6R	R	58	13.0	0.470	8.6	LOS A	4.1	105.6	0.45	0.57	31.1
Approach		506	5.0	0.471	13.0	LOS B	4.1	105.6	0.45	0.67	29.1
North: Durham Avenue											
4T	T	144	2.0	0.221	9.3	LOS A	1.3	33.7	0.59	0.72	31.3
Approach		144	2.0	0.221	9.3	LOS A	1.3	33.7	0.59	0.72	31.3
All Vehicles		788	3.9	0.471	11.1	LOS B	4.1	105.6	0.40	0.65	30.2

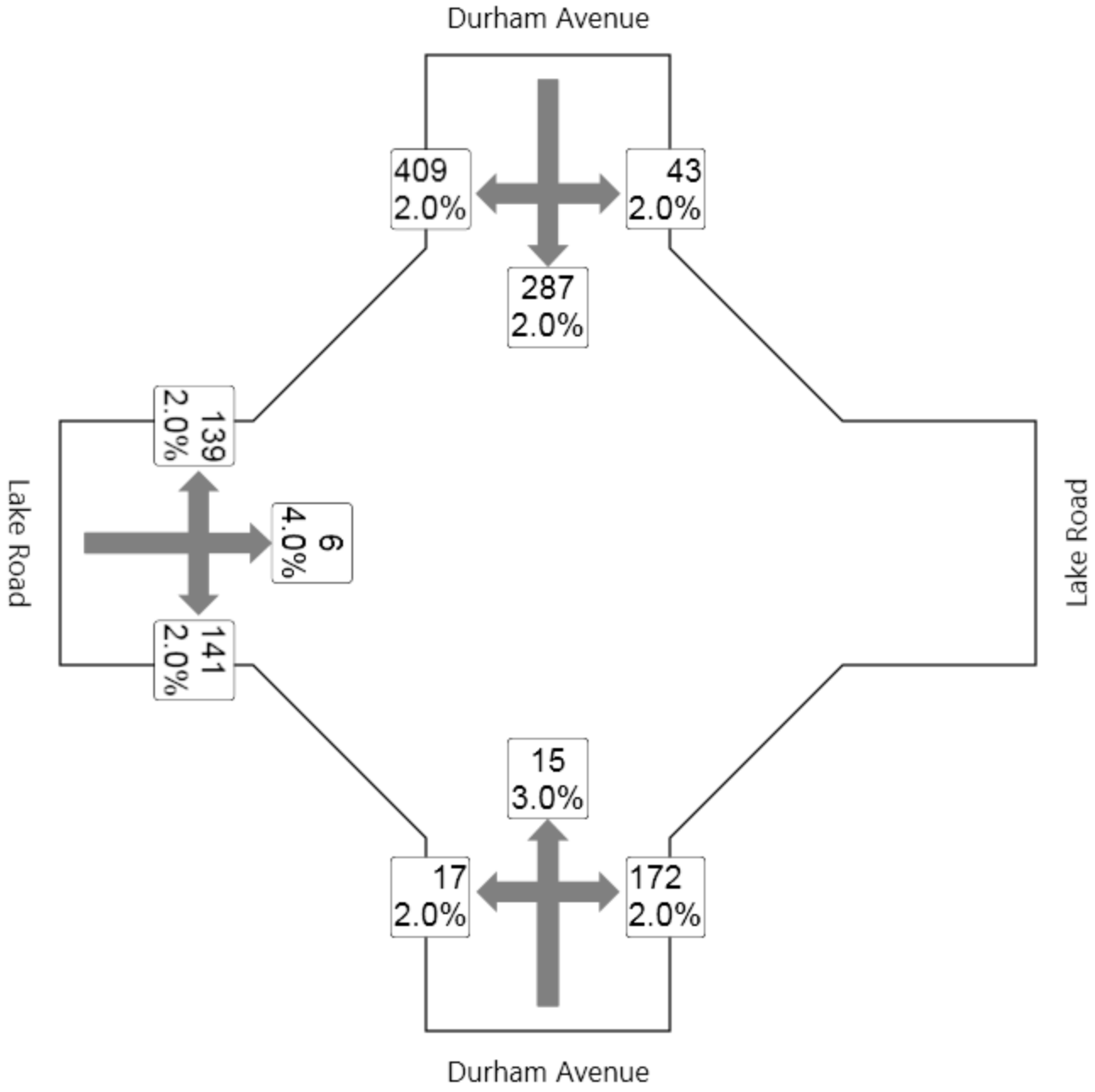
Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.

Sidra Capacity Analysis

2011 Existing Conditions – One Way Pair

Lake / Durham


N
Durham Avenue
Lake Road
Lake Road
75
75
75
75
Durham Avenue


Durham Avenue
409
2.0%
43
2.0%
287
2.0%
139
2.0%
Lake Road
6
4.0%
141
2.0%
Lake Road
15
3.0%
17
2.0%
172
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: 2011 Existing AM - One Way Pair - Int 2

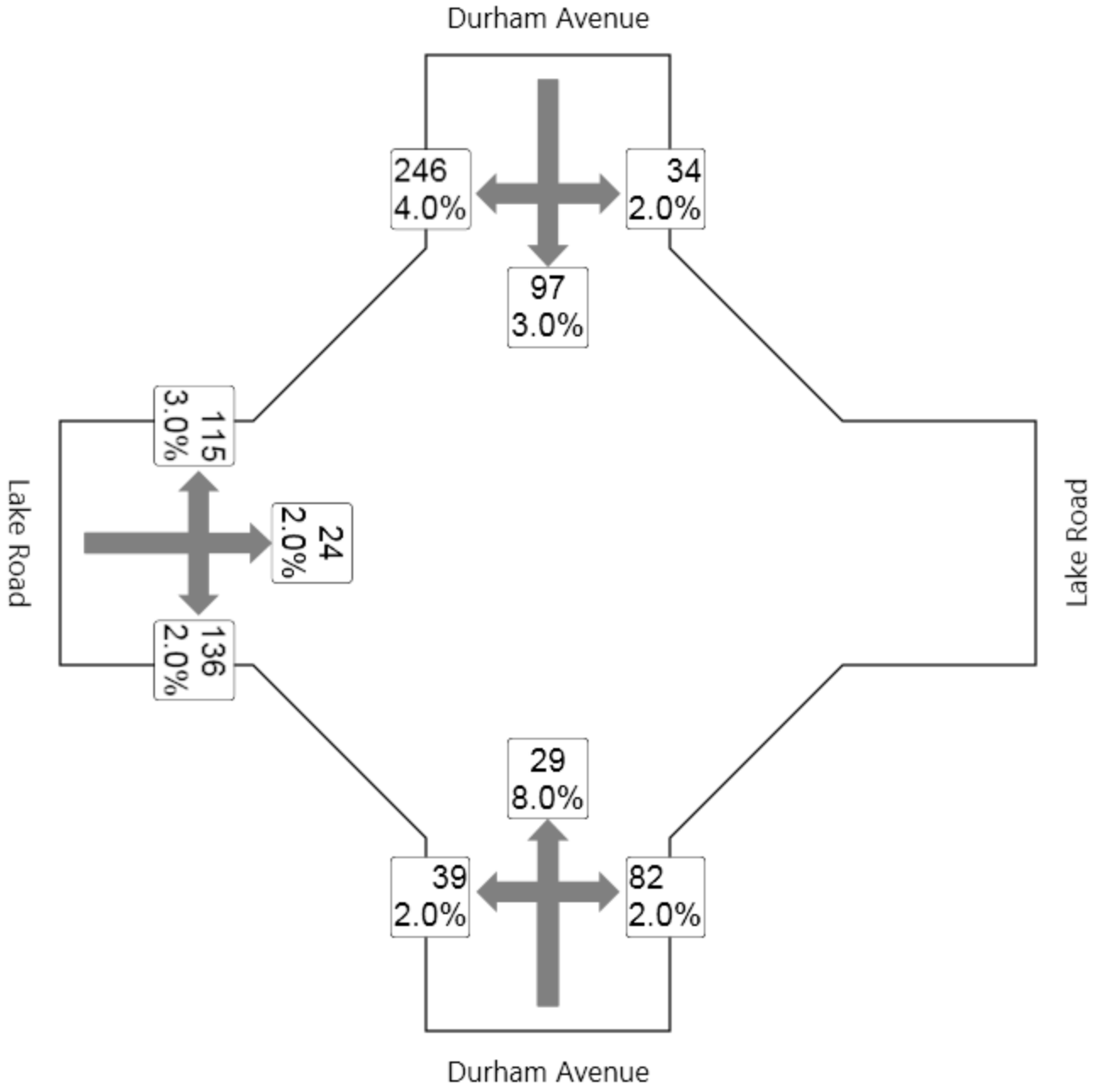
Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
3L	L	19	2.0	0.249	10.7	LOS B	1.8	46.0	0.48	0.75	19.6
8T	T	17	3.0	0.249	4.4	LOS A	1.8	46.0	0.48	0.47	21.6
8R	R	191	2.0	0.249	5.3	LOS A	1.8	46.0	0.48	0.54	21.1
Approach		227	2.1	0.249	5.7	LOS B	1.8	46.0	0.48	0.55	21.0
North: Durham Avenue											
7L	L	46	2.0	0.532	12.3	LOS B	6.2	156.5	0.18	0.78	29.8
4T	T	305	2.0	0.533	4.9	LOS A	6.2	156.5	0.18	0.38	33.1
4R	R	435	2.0	0.533	7.0	LOS A	6.2	156.5	0.18	0.51	32.6
Approach		786	2.0	0.533	6.5	LOS B	6.2	156.5	0.18	0.48	32.6
West: Lake Road											
5L	L	154	2.0	0.385	15.3	LOS B	2.9	73.8	0.62	0.82	28.4
2T	T	7	4.0	0.392	9.1	LOS A	2.9	73.8	0.62	0.69	30.6
2R	R	157	2.0	0.385	8.9	LOS A	2.9	73.8	0.62	0.70	30.2
Approach		318	2.0	0.385	12.0	LOS B	2.9	73.8	0.62	0.76	29.2
All Vehicles		1331	2.0	0.533	7.7	LOS A	6.2	156.5	0.33	0.56	30.5

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
246
4.0%
34
2.0%
97
3.0%
115
3.0%
Lake Road
24
2.0%
136
2.0%
Lake Road
29
8.0%
39
2.0%
82
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: 2011 Existing Midday - One Way Pair - Int 2

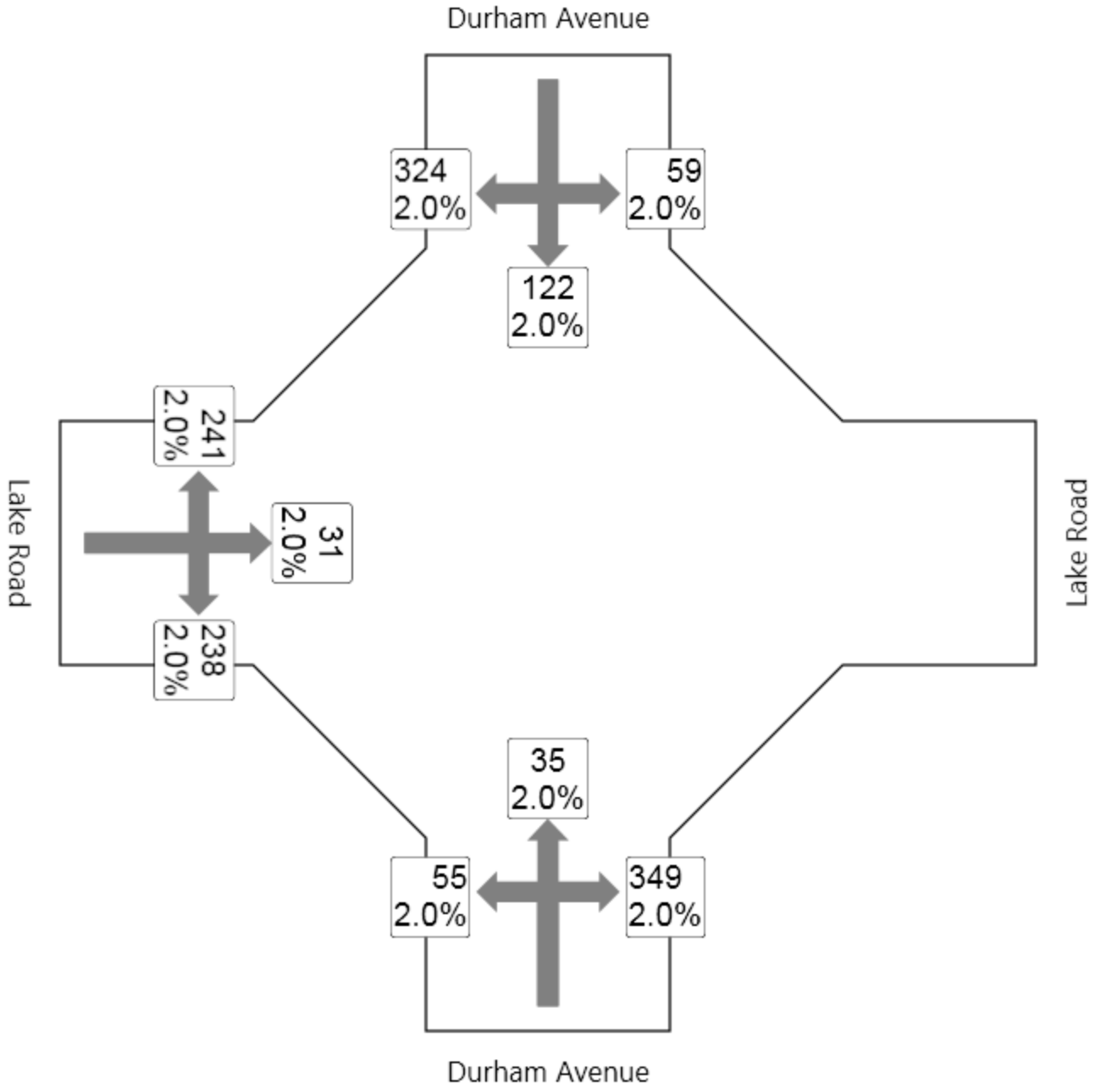
Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
3L	L	43	2.0	0.181	10.5	LOS B	1.2	31.2	0.42	0.73	19.7
8T	T	32	8.0	0.181	4.2	LOS A	1.2	31.2	0.42	0.43	21.9
8R	R	91	2.0	0.181	5.1	LOS A	1.2	31.2	0.42	0.50	21.4
Approach		167	3.2	0.181	6.3	LOS B	1.2	31.2	0.42	0.55	20.9
North: Durham Avenue											
7L	L	38	2.0	0.329	12.4	LOS B	2.8	70.8	0.22	0.77	29.8
4T	T	108	3.0	0.328	5.1	LOS A	2.8	70.8	0.22	0.39	32.8
4R	R	273	4.0	0.327	7.2	LOS A	2.8	70.8	0.22	0.52	32.4
Approach		419	3.6	0.327	7.1	LOS B	2.8	70.8	0.22	0.51	32.2
West: Lake Road											
5L	L	125	3.0	0.288	13.3	LOS B	2.1	54.1	0.40	0.73	29.3
2T	T	26	2.0	0.287	7.1	LOS A	2.1	54.1	0.40	0.51	31.8
2R	R	148	2.0	0.288	6.9	LOS A	2.1	54.1	0.40	0.53	31.3
Approach		299	2.4	0.288	9.6	LOS B	2.1	54.1	0.40	0.61	30.4
All Vehicles		884	3.1	0.327	7.8	LOS A	2.8	70.8	0.32	0.55	30.3

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
324
2.0%
59
2.0%
122
2.0%
241
2.0%
Lake Road
31
2.0%
238
2.0%
Lake Road
35
2.0%
55
2.0%
349
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: 2011 Existing PM - One Way Pair - Int 2

Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
3L	L	61	2.0	0.624	15.2	LOS B	7.2	183.5	0.81	0.97	17.0
8T	T	39	2.0	0.627	8.8	LOS A	7.2	183.5	0.81	0.87	18.5
8R	R	388	2.0	0.626	9.8	LOS A	7.2	183.5	0.81	0.90	18.1
Approach		488	2.0	0.626	10.4	LOS B	7.2	183.5	0.81	0.91	17.9
North: Durham Avenue											
7L	L	66	2.0	0.446	12.6	LOS B	4.6	117.2	0.33	0.73	29.6
4T	T	136	2.0	0.444	5.3	LOS A	4.6	117.2	0.33	0.41	32.1
4R	R	360	2.0	0.444	7.3	LOS A	4.6	117.2	0.33	0.52	32.0
Approach		561	2.0	0.445	7.4	LOS B	4.6	117.2	0.33	0.52	31.7
West: Lake Road											
5L	L	268	2.0	0.563	14.3	LOS B	5.5	139.4	0.62	0.75	28.9
2T	T	34	2.0	0.565	8.1	LOS A	5.5	139.4	0.62	0.61	30.6
2R	R	264	2.0	0.561	7.9	LOS A	5.5	139.4	0.62	0.63	30.2
Approach		567	2.0	0.562	10.9	LOS B	5.5	139.4	0.62	0.69	29.5
All Vehicles		1616	2.0	0.626	9.5	LOS A	7.2	183.5	0.58	0.69	28.0

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.

Synchro Capacity Analysis

2040 Future Conditions

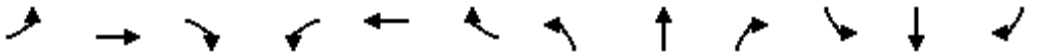
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	903	90	153	613	87	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.892			
Flt Protected	0.950					0.986
Satd. Flow (prot)	1770	1429	1662	0	0	1770
Flt Permitted	0.950					0.986
Satd. Flow (perm)	1770	1429	1662	0	0	1770
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	13%	2%	2%	16%	2%
Adj. Flow (vph)	1003	100	170	681	97	257
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1003	100	851	0	0	354
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 122.8%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	903	90	153	613	87	231
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1003	100	170	681	97	257
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked	0.74	0.74			0.74	
vC, conflicting volume	961	511			851	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	772	165			625	
tC, single (s)	6.4	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	0	84			85	
cM capacity (veh/h)	233	631			662	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1103	851	353
Volume Left	1003	0	97
Volume Right	100	681	0
cSH	247	1700	662
Volume to Capacity	4.47	0.50	0.15
Queue Length 95th (ft)	Err	0	13
Control Delay (s)	Err	0.0	4.5
Lane LOS	F		A
Approach Delay (s)	Err	0.0	4.5
Approach LOS	F		

Intersection Summary			
Average Delay	4781.1		
Intersection Capacity Utilization	122.8%	ICU Level of Service	H
Analysis Period (min)	15		



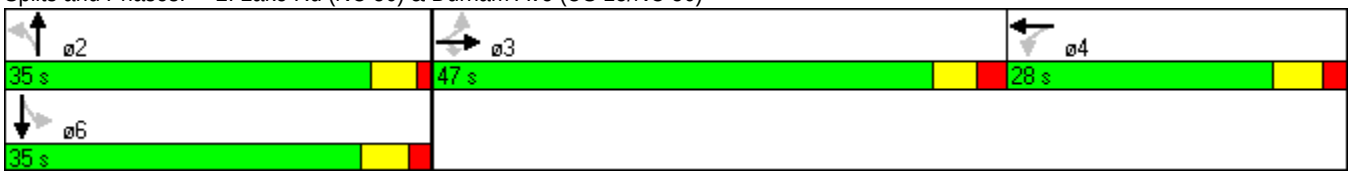
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	229	118	80	502	38	40	434	7	14	596	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.992			0.998			0.935	
Flt Protected		0.971			0.994		0.950			0.950		
Satd. Flow (prot)	0	1767	1560	0	1873	0	1761	1832	0	1778	1750	0
Flt Permitted		0.213			0.830		0.134			0.137		
Satd. Flow (perm)	0	388	1560	0	1564	0	248	1832	0	256	1750	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	364	254	131	89	558	42	44	482	8	15	634	491
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	618	131	0	689	0	44	490	0	15	1125	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		3			4			2			6	
Permitted Phases	3		3	4			2			6	6	
Detector Phase	3	3	3	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1	16.3	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	47.0	47.0	47.0	28.0	28.0	0.0	35.0	35.0	0.0	35.0	35.0	0.0
Total Split (%)	42.7%	42.7%	42.7%	25.5%	25.5%	0.0%	31.8%	31.8%	0.0%	31.8%	31.8%	0.0%
Maximum Green (s)	40.9	40.9	40.9	21.7	21.7		29.9	29.9		29.2	29.2	
Yellow Time (s)	3.7	3.7	3.7	4.1	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4	2.2	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	6.3	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Act Effct Green (s)		40.9	40.9		21.7		29.9	29.9		29.2	29.2	
Actuated g/C Ratio		0.37	0.37		0.20		0.27	0.27		0.27	0.27	
v/c Ratio		4.29	0.23		2.23		0.66	0.98		0.22	2.42	
Control Delay		1510.0	25.0		587.5		81.0	77.3		41.4	666.7	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		1510.0	25.0		587.5		81.0	77.3		41.4	666.7	
LOS		F	C		F		F	E		D	F	
Approach Delay		1250.3			587.5			77.6			658.5	

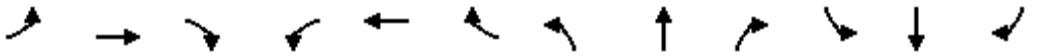
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			F			E			F	
Queue Length 50th (ft)		~718	63		~788		28	344		8	~1315	
Queue Length 95th (ft)		#941	109		#1013		#90	#558		29	#1568	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		144	580		309		67	498		68	465	
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		4.29	0.23		2.23		0.66	0.98		0.22	2.42	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 4.29
Intersection Signal Delay: 685.5 Intersection LOS: F
Intersection Capacity Utilization 138.1% 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.

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	603	57	987	846	33	52	172	302	45	386	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.994			0.904			0.997	
Flt Protected		0.999		0.950			0.950			0.950		
Satd. Flow (prot)	0	1777	0	1701	2034	0	1399	1760	0	1701	2021	0
Flt Permitted		0.980		0.247			0.265			0.274		
Satd. Flow (perm)	0	1743	0	442	2034	0	390	1760	0	491	2021	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	8%	2%	2%	2%	18%	2%	2%	2%	3%	2%
Adj. Flow (vph)	13	670	63	1097	940	37	58	191	336	50	429	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	746	0	1097	977	0	58	527	0	50	439	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	50.0	50.0		15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	50.0	50.0	0.0	15.0	65.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	17.6%	76.5%	0.0%	23.5%	23.5%	0.0%	23.5%	23.5%	0.0%
Maximum Green (s)	44.4	44.4		9.5	59.5		15.0	15.0		14.5	14.5	
Yellow Time (s)	3.6	3.6		3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)	2.0	2.0		2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	-0.6	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	5.6	5.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Act Effct Green (s)		37.9		52.6	53.1		15.1	15.1		14.6	15.1	
Actuated g/C Ratio		0.48		0.67	0.68		0.19	0.19		0.19	0.19	
v/c Ratio		0.88		2.43	0.71		0.77	1.55		0.54	1.12	
Control Delay		31.6		667.8	11.1		91.9	288.1		56.8	117.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		31.6		667.8	11.1		91.9	288.1		56.8	117.0	
LOS		C		F	B		F	F		E	F	

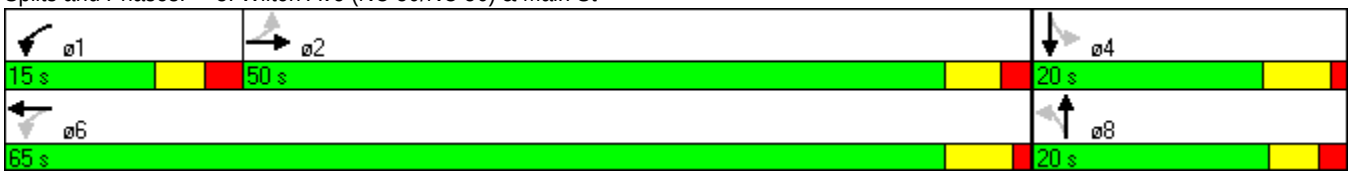
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		31.6			358.4			268.6			110.9	
Approach LOS		C			F			F			F	
Queue Length 50th (ft)		309		~938	249		29	~392		24	~272	
Queue Length 95th (ft)		#489		#1218	372		#103	#609		#80	#471	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)		1011		451	1573		75	340		92	391	
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		0.74		2.43	0.62		0.77	1.55		0.54	1.12	

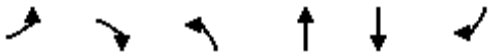
Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 78.3			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.43			
Intersection Signal Delay: 251.2		Intersection LOS: F	
Intersection Capacity Utilization 141.0%		ICU Level of Service 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.

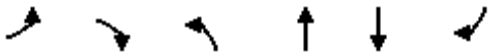
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	31	245	422	563	1202	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.978	
Flt Protected	0.950			0.979		
Satd. Flow (prot)	1770	1583	0	1824	1822	0
Flt Permitted	0.950			0.979		
Satd. Flow (perm)	1770	1583	0	1824	1822	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	272	469	626	1336	254
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	272	0	1095	1590	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 143.5%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	31	245	422	563	1202	229
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	34	272	469	626	1336	254
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked	0.17	0.17	0.17			
vC, conflicting volume	3026	1463	1590			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	10229	1287	2015			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	0	0			
cM capacity (veh/h)	0	35	49			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	307	1094	1590
Volume Left	34	469	0
Volume Right	272	0	254
cSH	0	49	1700
Volume to Capacity	Err	9.49	0.94
Queue Length 95th (ft)	Err	Err	0
Control Delay (s)	Err	3980.3	0.0
Lane LOS	F	F	
Approach Delay (s)	Err	3980.3	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	143.5%	ICU Level of Service	H
Analysis Period (min)	15		

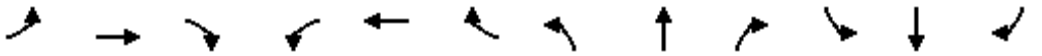
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	363	73	148	391	47	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.902			
Flt Protected	0.950					0.988
Satd. Flow (prot)	1719	1313	1639	0	0	1784
Flt Permitted	0.950					0.988
Satd. Flow (perm)	1719	1313	1639	0	0	1784
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Heavy Vehicles (%)	5%	23%	6%	4%	15%	2%
Adj. Flow (vph)	399	80	154	407	52	157
Shared Lane Traffic (%)						
Lane Group Flow (vph)	399	80	561	0	0	209
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			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	363	73	148	391	47	141
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	399	80	154	407	52	157
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked	0.86	0.86			0.86	
vC, conflicting volume	619	358			561	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	474	170			407	
tC, single (s)	6.4	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.3	
p0 queue free %	9	89			94	
cM capacity (veh/h)	441	706			932	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	479	561	209
Volume Left	399	0	52
Volume Right	80	407	0
cSH	521	1700	932
Volume to Capacity	0.92	0.33	0.06
Queue Length 95th (ft)	276	0	4
Control Delay (s)	50.3	0.0	2.7
Lane LOS	F		A
Approach Delay (s)	50.3	0.0	2.7
Approach LOS	F		

Intersection Summary			
Average Delay	19.8		
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	271	106	24	288	33	92	245	16	33	205	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.987			0.991			0.912	
Flt Protected		0.976			0.996		0.950			0.950		
Satd. Flow (prot)	0	1782	1560	0	1868	0	1761	1741	0	1778	1681	0
Flt Permitted		0.152			0.910		0.167			0.295		
Satd. Flow (perm)	0	278	1560	0	1707	0	310	1741	0	552	1681	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	8%	2%	2%	3%	4%
Adj. Flow (vph)	295	295	115	27	320	37	102	272	18	37	228	324
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	590	115	0	384	0	102	290	0	37	552	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		3			4			2			6	
Permitted Phases	3		3	4			2			6	6	
Detector Phase	3	3	3	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1	16.3	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	59.0	59.0	59.0	22.0	22.0	0.0	29.0	29.0	0.0	29.0	29.0	0.0
Total Split (%)	53.6%	53.6%	53.6%	20.0%	20.0%	0.0%	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%
Maximum Green (s)	52.9	52.9	52.9	15.7	15.7		23.9	23.9		23.2	23.2	
Yellow Time (s)	3.7	3.7	3.7	4.1	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4	2.2	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	6.3	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Act Effct Green (s)		52.9	52.9		15.7		23.9	23.9		23.2	23.2	
Actuated g/C Ratio		0.48	0.48		0.14		0.22	0.22		0.21	0.21	
v/c Ratio		4.40	0.15		1.57		1.52	0.77		0.32	1.55	
Control Delay		1560.5	16.7		310.0		329.7	55.2		45.5	294.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		1560.5	16.7		310.0		329.7	55.2		45.5	294.9	
LOS		F	B		F		F	E		D	F	
Approach Delay		1308.7			310.0			126.6			279.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			F			F			F	
Queue Length 50th (ft)		~689	44		~386		~101	194		22	~552	
Queue Length 95th (ft)		#909	79		#573		#211	#318		56	#764	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		134	750		244		67	378		116	355	
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		4.40	0.15		1.57		1.52	0.77		0.32	1.55	

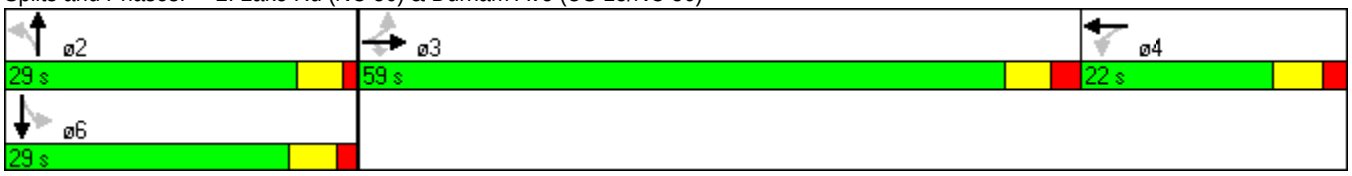
Intersection Summary

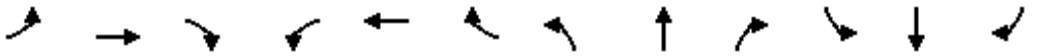
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 4.40
Intersection Signal Delay: 606.7 Intersection LOS: F
Intersection Capacity Utilization 104.2% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





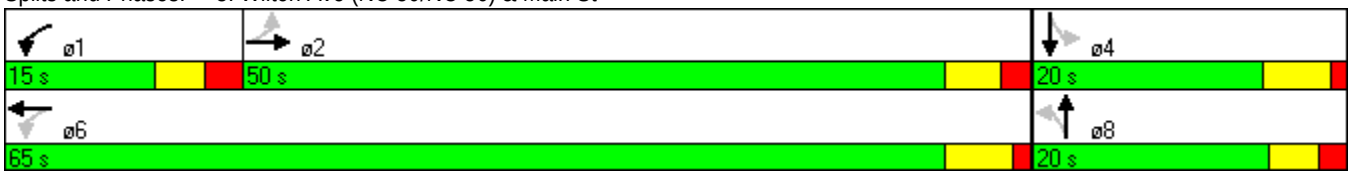
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	377	38	198	339	24	80	108	186	14	123	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.990			0.905			0.983	
Flt Protected		0.999		0.950			0.950			0.950		
Satd. Flow (prot)	0	1693	0	1701	1904	0	1558	1762	0	1701	1851	0
Flt Permitted		0.989		0.306			0.659			0.371		
Satd. Flow (perm)	0	1676	0	548	1904	0	1080	1762	0	664	1851	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.94	0.94	0.94	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	9%	25%	2%	9%	2%	6%	2%	2%	2%	12%	2%
Adj. Flow (vph)	10	401	40	206	353	25	89	120	207	16	137	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	451	0	206	378	0	89	327	0	16	155	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	50.0	50.0		15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	50.0	50.0	0.0	15.0	65.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	17.6%	76.5%	0.0%	23.5%	23.5%	0.0%	23.5%	23.5%	0.0%
Maximum Green (s)	44.4	44.4		9.5	59.5		15.0	15.0		14.5	14.5	
Yellow Time (s)	3.6	3.6		3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)	2.0	2.0		2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	-0.6	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	5.6	5.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Act Effct Green (s)		21.8		34.6	35.1		15.2	15.2		14.7	15.2	
Actuated g/C Ratio		0.36		0.57	0.58		0.25	0.25		0.24	0.25	
v/c Ratio		0.75		0.45	0.34		0.33	0.74		0.10	0.33	
Control Delay		25.0		9.1	7.3		25.5	35.7		23.6	23.4	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		25.0		9.1	7.3		25.5	35.7		23.6	23.4	
LOS		C		A	A		C	D		C	C	

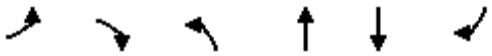
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		25.0			7.9			33.5			23.4	
Approach LOS		C			A			C			C	
Queue Length 50th (ft)		135		32	62		25	104		4	44	
Queue Length 95th (ft)		237		57	100		77	#287		22	113	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)		1266		497	1812		272	444		162	466	
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		0.41	0.21		0.33	0.74		0.10	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 60.5			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 20.9		Intersection LOS: C	
Intersection Capacity Utilization 82.0%		ICU Level of Service D	
Analysis Period (min) 15			

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

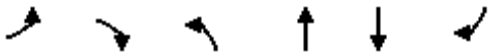
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	47	280	257	417	438	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.983	
Flt Protected	0.950			0.981		
Satd. Flow (prot)	1770	1583	0	1827	1831	0
Flt Permitted	0.950			0.981		
Satd. Flow (perm)	1770	1583	0	1827	1831	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Adj. Flow (vph)	52	311	265	430	487	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	311	0	695	558	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 76.4%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	47	280	257	417	438	64
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Hourly flow rate (vph)	52	311	265	430	487	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked						
vC, conflicting volume	1482	522	558			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1482	522	558			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	49	44	74			
cM capacity (veh/h)	102	554	1013			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	363	695	558
Volume Left	52	265	0
Volume Right	311	0	71
cSH	493	1013	1700
Volume to Capacity	0.74	0.26	0.33
Queue Length 95th (ft)	153	26	0
Control Delay (s)	30.1	5.9	0.0
Lane LOS	D	A	
Approach Delay (s)	30.1	5.9	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

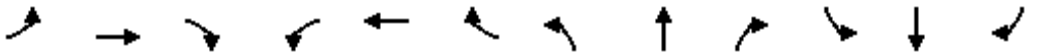
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	511	92	299	1216	118	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.892			
Flt Protected	0.950					0.981
Satd. Flow (prot)	1736	1429	1662	0	0	1827
Flt Permitted	0.950					0.981
Satd. Flow (perm)	1736	1429	1662	0	0	1827
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Heavy Vehicles (%)	4%	13%	2%	2%	2%	2%
Adj. Flow (vph)	568	102	325	1322	131	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	568	102	1647	0	0	341
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 145.4%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	511	92	299	1216	118	189
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	568	102	325	1322	131	210
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked	0.73	0.73			0.73	
vC, conflicting volume	1458	986			1647	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1443	799			1700	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	0	62			52	
cM capacity (veh/h)	55	271			274	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	670	1647	341
Volume Left	568	0	131
Volume Right	102	1322	0
cSH	63	1700	274
Volume to Capacity	10.67	0.97	0.48
Queue Length 95th (ft)	Err	0	61
Control Delay (s)	Err	0.0	21.3
Lane LOS	F		C
Approach Delay (s)	Err	0.0	21.3
Approach LOS	F		

Intersection Summary			
Average Delay	2523.3		
Intersection Capacity Utilization	145.4%	ICU Level of Service	H
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	568	500	134	33	405	31	130	872	33	21	255	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.991			0.994			0.912	
Flt Protected		0.974			0.996		0.950			0.950		
Satd. Flow (prot)	0	1787	1560	0	1875	0	1761	1842	0	1778	1707	0
Flt Permitted		0.155			0.814		0.134			0.137		
Satd. Flow (perm)	0	284	1560	0	1533	0	248	1842	0	256	1707	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	631	556	149	37	450	34	144	969	37	23	283	398
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1187	149	0	521	0	144	1006	0	23	681	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		3			4			2			6	
Permitted Phases	3		3	4			2			6	6	
Detector Phase	3	3	3	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	10.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1	16.3	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	50.0	50.0	50.0	25.0	25.0	0.0	35.0	35.0	0.0	35.0	35.0	0.0
Total Split (%)	45.5%	45.5%	45.5%	22.7%	22.7%	0.0%	31.8%	31.8%	0.0%	31.8%	31.8%	0.0%
Maximum Green (s)	43.9	43.9	43.9	18.7	18.7		29.9	29.9		29.2	29.2	
Yellow Time (s)	3.7	3.7	3.7	4.1	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4	2.2	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	6.3	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Act Effct Green (s)		43.9	43.9		18.7		29.9	29.9		29.2	29.2	
Actuated g/C Ratio		0.40	0.40		0.17		0.27	0.27		0.27	0.27	
v/c Ratio		10.50	0.24		2.00		2.15	2.01		0.34	1.50	
Control Delay		4300.0	23.3		488.2		586.9	485.6		48.7	269.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		4300.0	23.3		488.2		586.9	485.6		48.7	269.0	
LOS		F	C		F		F	F		D	F	
Approach Delay		3823.0			488.2			498.3			261.8	
Approach LOS		F			F			F			F	

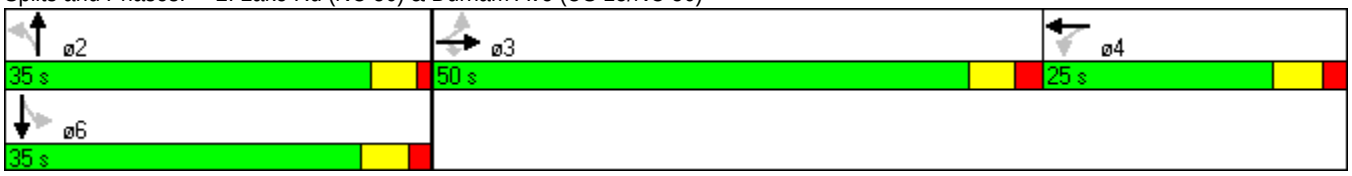
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		~1616	69		~576		~162	~1113		13	~669	
Queue Length 95th (ft)		#1875	117		#783		#291	#1361		42	#895	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		113	623		261		67	501		68	453	
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		10.50	0.24		2.00		2.15	2.01		0.34	1.50	

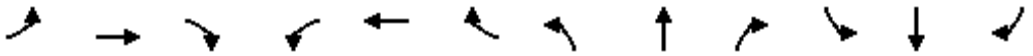
Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 10.50			
Intersection Signal Delay: 1648.9		Intersection LOS: F	
Intersection Capacity Utilization 155.9%		ICU Level of Service 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.

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	1211	73	273	469	26	71	363	625	33	280	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.992			0.905			0.996	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1839	0	1701	1975	0	1501	1762	0	1701	2038	0
Flt Permitted		0.994		0.120			0.267			0.276		
Satd. Flow (perm)	0	1828	0	215	1975	0	422	1762	0	494	2038	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	2%	5%	2%	10%	2%	2%	2%	2%	2%
Adj. Flow (vph)	13	1275	77	303	521	29	79	403	694	37	311	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1365	0	303	550	0	79	1097	0	37	319	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	50.0	50.0		15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	50.0	50.0	0.0	15.0	65.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	17.6%	76.5%	0.0%	23.5%	23.5%	0.0%	23.5%	23.5%	0.0%
Maximum Green (s)	44.4	44.4		9.5	59.5		15.0	15.0		14.5	14.5	
Yellow Time (s)	3.6	3.6		3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)	2.0	2.0		2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	-0.6	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	5.6	5.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Act Effct Green (s)		45.0		59.5	60.0		15.0	15.0		14.5	15.0	
Actuated g/C Ratio		0.53		0.70	0.71		0.18	0.18		0.17	0.18	
v/c Ratio		1.41		0.96	0.39		1.07	3.53		0.44	0.89	
Control Delay		213.2		58.7	6.1		163.8	1160.3		49.9	62.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		213.2		58.7	6.1		163.8	1160.3		49.9	62.0	
LOS		F		E	A		F	F		D	E	

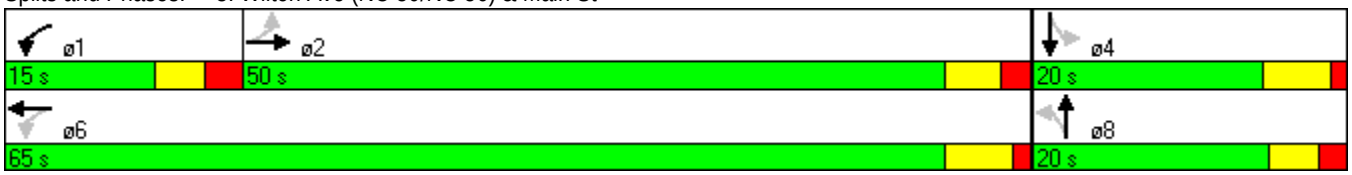
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		213.2			24.8			1093.4			60.7	
Approach LOS		F			C			F			E	
Queue Length 50th (ft)		~992		87	101		~47	~1060		18	168	
Queue Length 95th (ft)		#1240		#246	150		#135	#1296		#56	#314	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)		968		317	1394		74	311		84	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		1.41		0.96	0.39		1.07	3.53		0.44	0.89	

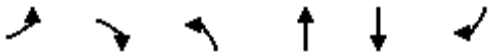
Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 3.53			
Intersection Signal Delay: 431.9		Intersection LOS: F	
Intersection Capacity Utilization 166.6%		ICU Level of Service H	
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.

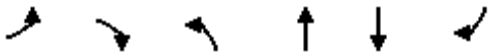
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	80	481	368	1027	591	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.983	
Flt Protected	0.950			0.987		
Satd. Flow (prot)	1770	1583	0	1839	1831	0
Flt Permitted	0.950			0.987		
Satd. Flow (perm)	1770	1583	0	1839	1831	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	523	409	1141	657	94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	523	0	1550	751	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 125.1%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	80	481	368	1027	591	85
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	523	409	1141	657	94
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked	0.82	0.82	0.82			
vC, conflicting volume	2663	704	751			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2921	527	585			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	0	50			
cM capacity (veh/h)	7	451	810			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	610	1550	751
Volume Left	87	409	0
Volume Right	523	0	94
cSH	44	810	1700
Volume to Capacity	13.81	0.50	0.44
Queue Length 95th (ft)	Err	72	0
Control Delay (s)	Err	13.9	0.0
Lane LOS	F	B	
Approach Delay (s)	Err	13.9	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	2102.0		
Intersection Capacity Utilization	125.1%	ICU Level of Service	H
Analysis Period (min)	15		

Synchro Capacity Analysis

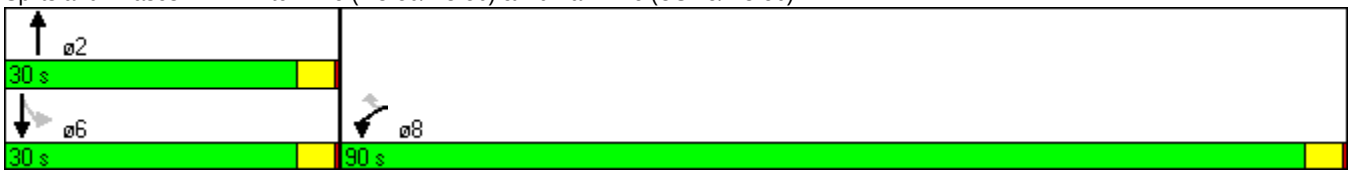
2040 Future Conditions - Improved

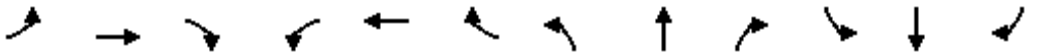
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	903	90	153	613	87	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1429	1863	1583	1556	3539
Flt Permitted	0.950				0.497	
Satd. Flow (perm)	1770	1429	1863	1583	814	3539
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	13%	2%	2%	16%	2%
Adj. Flow (vph)	1003	100	170	681	97	257
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1003	100	170	681	97	257
Turn Type		Perm		Free	Perm	
Protected Phases	8		2			6
Permitted Phases		8		Free	6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0
Minimum Split (s)	20.0	20.0	20.0		20.0	20.0
Total Split (s)	90.0	90.0	30.0	0.0	30.0	30.0
Total Split (%)	75.0%	75.0%	25.0%	0.0%	25.0%	25.0%
Maximum Green (s)	86.0	86.0	26.0		26.0	26.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Min		C-Min	C-Min
Act Effct Green (s)	86.9	86.9	25.1	120.0	25.1	25.1
Actuated g/C Ratio	0.72	0.72	0.21	1.00	0.21	0.21
v/c Ratio	0.78	0.10	0.43	0.43	0.57	0.35
Control Delay	17.0	2.9	51.5	4.4	58.8	43.0
Queue Delay	22.8	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	2.9	51.5	4.4	58.8	43.0
LOS	D	A	D	A	E	D
Approach Delay	36.4		13.8			47.3
Approach LOS	D		B			D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	212	16	131	93	71	94
Queue Length 95th (ft)	m487	m3	m178	m123	128	129
Internal Link Dist (ft)	825		291			712
Turn Bay Length (ft)		150				
Base Capacity (vph)	1313	1060	437	1583	191	830
Starvation Cap Reductn	52	0	0	0	0	0
Spillback Cap Reductn	339	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.09	0.39	0.43	0.51	0.31

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 56 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 29.8		Intersection LOS: C	
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: 1: Wilton Ave (NC 50/NC 56) & Durham Ave (US 15/NC 56)





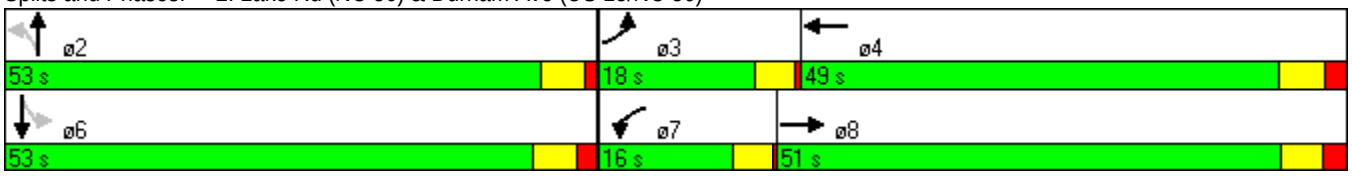
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	229	118	80	502	38	40	434	7	14	596	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	350		0	75		0	150		0	50		0
Storage Lanes	2		0	1		0	1		0	1		0
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	0.95
Frt		0.949			0.989			0.998			0.935	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3382	1719	0	1805	1879	0	1761	3481	0	1778	3326	0
Flt Permitted	0.950			0.950			0.103			0.408		
Satd. Flow (perm)	3382	1719	0	1805	1879	0	191	3481	0	764	3326	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	364	254	131	89	558	42	44	482	8	15	634	491
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	385	0	89	600	0	44	490	0	15	1125	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6	6	
Detector Phase	3	8		7	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	11.0	13.1		11.0	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	18.0	51.0	0.0	16.0	49.0	0.0	53.0	53.0	0.0	53.0	53.0	0.0
Total Split (%)	15.0%	42.5%	0.0%	13.3%	40.8%	0.0%	44.2%	44.2%	0.0%	44.2%	44.2%	0.0%
Maximum Green (s)	14.0	44.9		12.0	42.7		47.9	47.9		47.2	47.2	
Yellow Time (s)	3.5	3.7		3.5	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	0.5	2.4		0.5	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	6.1	4.0	4.0	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)	15.0	45.2		10.3	40.3		49.3	49.3		48.6	48.6	
Actuated g/C Ratio	0.12	0.38		0.09	0.34		0.41	0.41		0.40	0.40	
v/c Ratio	0.86	0.60		0.57	0.95		0.56	0.34		0.05	0.84	
Control Delay	71.9	34.7		56.2	39.7		59.8	25.5		17.8	32.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	37.5	
Total Delay	71.9	34.7		56.2	39.7		59.8	25.5		17.8	69.7	
LOS	E	C		E	D		E	C		B	E	
Approach Delay		52.8			41.8			28.3			69.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			C			E	
Queue Length 50th (ft)	145	235		71	242		26	137		7	391	
Queue Length 95th (ft)	#236	344		m70	m241		#90	182		m10	481	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)	350			75			150			50		
Base Capacity (vph)	423	655		181	669		79	1436		311	1352	
Starvation Cap Reductn	0	0		0	0		0	0		0	304	
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	0.86	0.59		0.49	0.90		0.56	0.34		0.05	1.07	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 24 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 52.1 Intersection LOS: D
Intersection Capacity Utilization 84.2% 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: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)

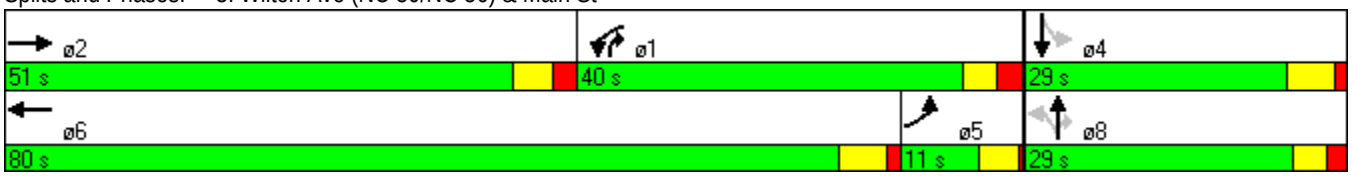


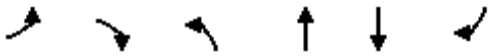
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	603	57	987	846	33	52	172	302	45	386	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	50		0	600		0	150		0	100		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.994				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1762	3370	0	3300	3865	0	1399	1947	1655	1701	2021	0
Flt Permitted	0.950			0.950			0.167			0.464		
Satd. Flow (perm)	1762	3370	0	3300	3865	0	246	1947	1655	831	2021	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	8%	2%	2%	2%	18%	2%	2%	2%	3%	2%
Adj. Flow (vph)	13	670	63	1097	940	37	58	191	336	50	429	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	733	0	1097	977	0	58	191	336	50	439	0
Turn Type	Prot			Prot			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases							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)	11.0	50.0		15.0	50.0		20.0	20.0	15.0	20.0	20.0	
Total Split (s)	11.0	51.0	0.0	40.0	80.0	0.0	29.0	29.0	40.0	29.0	29.0	0.0
Total Split (%)	9.2%	42.5%	0.0%	33.3%	66.7%	0.0%	24.2%	24.2%	33.3%	24.2%	24.2%	0.0%
Maximum Green (s)	7.0	45.4		34.5	74.5		24.0	24.0	34.5	23.5	23.5	
Yellow Time (s)	3.5	3.6		3.1	4.3		3.1	3.1	3.1	4.3	4.3	
All-Red Time (s)	0.5	2.0		2.4	1.2		1.9	1.9	2.4	1.2	1.2	
Lost Time Adjust (s)	0.0	-0.6	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	5.0	4.0	5.5	5.0	4.0	5.0	5.0	5.5	5.5	5.0	4.0
Lead/Lag	Lag	Lead		Lag	Lead				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	3.0		1.0	3.0		1.0	1.0	1.0	1.0	1.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Act Effct Green (s)	11.6	33.8		46.7	79.2		24.0	24.0	75.7	23.5	24.0	
Actuated g/C Ratio	0.10	0.28		0.39	0.66		0.20	0.20	0.63	0.20	0.20	
v/c Ratio	0.08	0.77		0.85	0.38		1.18	0.49	0.32	0.31	1.09	
Control Delay	48.1	29.1		42.3	12.0		230.1	48.3	11.6	47.4	115.3	
Queue Delay	0.0	0.6		4.3	0.0		0.0	1.7	0.6	0.0	21.3	
Total Delay	48.1	29.7		46.6	12.0		230.1	50.0	12.2	47.4	136.6	
LOS	D	C		D	B		F	D	B	D	F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		30.0			30.3			46.1			127.5	
Approach LOS		C			C			D			F	
Queue Length 50th (ft)	9	211		397	134		~53	134	126	33	~382	
Queue Length 95th (ft)	m22	245		#593	362		#147	217	223	74	#585	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)	50			600			150			100		
Base Capacity (vph)	170	1292		1284	2699		49	389	1044	163	404	
Starvation Cap Reductn	0	0		0	0		0	87	380	0	0	
Spillback Cap Reductn	0	244		128	0		0	0	0	0	19	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.08	0.70		0.95	0.36		1.18	0.63	0.51	0.31	1.14	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 88 (73%), 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: 44.9		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: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	31	245	422	563	1202	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0	600			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850			0.976	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3454	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3454	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	272	469	626	1336	254
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	272	469	626	1590	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	20.0	20.0	11.0	20.0	20.0	
Total Split (s)	24.0	24.0	35.0	96.0	61.0	0.0
Total Split (%)	20.0%	20.0%	29.2%	80.0%	50.8%	0.0%
Maximum Green (s)	20.0	20.0	31.0	92.0	57.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Act Effct Green (s)	20.0	20.0	31.0	92.0	57.0	
Actuated g/C Ratio	0.17	0.17	0.26	0.77	0.48	
v/c Ratio	0.12	1.03	1.03	0.23	0.97	
Control Delay	54.6	122.4	93.1	4.2	28.9	
Queue Delay	0.0	0.0	0.0	0.0	6.3	
Total Delay	54.6	122.4	93.1	4.2	35.2	
LOS	D	F	F	A	D	
Approach Delay	114.8			42.3	35.2	
Approach LOS	F			D	D	
Queue Length 50th (ft)	27	~231	~388	61	307	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 95th (ft)	m49	#411	#595	78	m#247	
Internal Link Dist (ft)	951			573	268	
Turn Bay Length (ft)	75		600			
Base Capacity (vph)	295	264	457	2713	1641	
Starvation Cap Reductn	0	0	0	0	56	
Spillback Cap Reductn	0	0	0	8	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.12	1.03	1.03	0.23	1.00	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 45.9		Intersection LOS: D	
Intersection Capacity Utilization 79.7%		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.

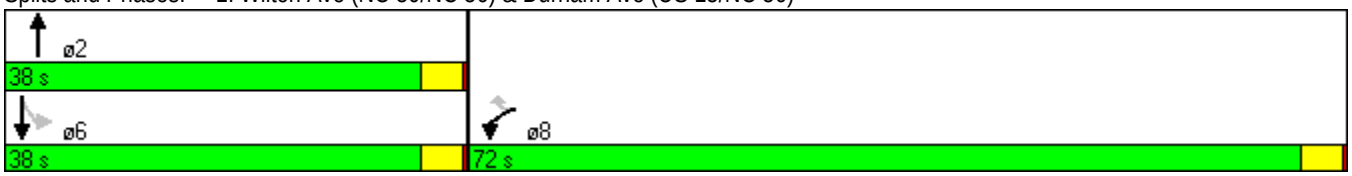
Splits and Phases: 4: Lake Rd & Main St (NC 50)

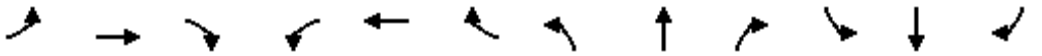
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	363	73	148	391	47	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1313	1792	1553	1570	3539
Flt Permitted	0.950				0.659	
Satd. Flow (perm)	1719	1313	1792	1553	1089	3539
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Heavy Vehicles (%)	5%	23%	6%	4%	15%	2%
Adj. Flow (vph)	399	80	154	407	52	157
Shared Lane Traffic (%)						
Lane Group Flow (vph)	399	80	154	407	52	157
Turn Type		Perm		Free	Perm	
Protected Phases	8		2			6
Permitted Phases		8		Free	6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0
Minimum Split (s)	20.0	20.0	20.0		20.0	20.0
Total Split (s)	72.0	72.0	38.0	0.0	38.0	38.0
Total Split (%)	65.5%	65.5%	34.5%	0.0%	34.5%	34.5%
Maximum Green (s)	68.0	68.0	34.0		34.0	34.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Min		C-Min	C-Min
Act Effct Green (s)	33.9	33.9	68.1	110.0	68.1	68.1
Actuated g/C Ratio	0.31	0.31	0.62	1.00	0.62	0.62
v/c Ratio	0.75	0.20	0.14	0.26	0.08	0.07
Control Delay	34.9	19.1	20.0	1.7	11.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	19.1	20.0	1.7	11.4	10.1
LOS	C	B	B	A	B	B
Approach Delay	32.2		6.7			10.4
Approach LOS	C		A			B

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	268	37	44	29	14	21
Queue Length 95th (ft)	122	24	166	41	40	46
Internal Link Dist (ft)	825		291			712
Turn Bay Length (ft)		150				
Base Capacity (vph)	1063	812	1109	1553	674	2191
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.10	0.14	0.26	0.08	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 28 (25%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 43.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Wilton Ave (NC 50/NC 56) & Durham Ave (US 15/NC 56)





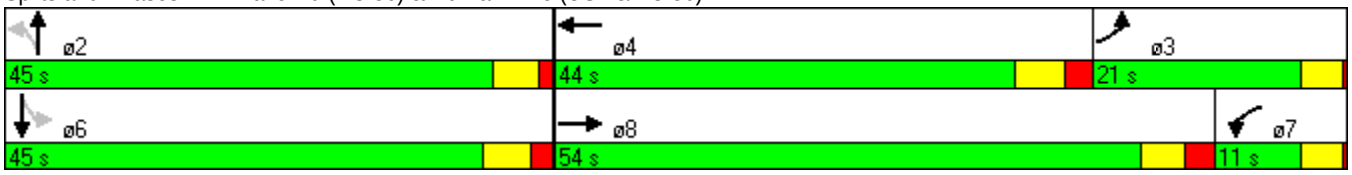
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	271	106	24	288	33	92	245	16	33	205	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	350		0	75		0	150		0	50		0
Storage Lanes	2		0	1		0	1		0	1		0
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	0.95
Frt		0.958			0.984			0.991			0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3349	1758	0	1805	1870	0	1761	3307	0	1778	3194	0
Flt Permitted	0.950			0.950			0.401			0.572		
Satd. Flow (perm)	3349	1758	0	1805	1870	0	743	3307	0	1071	3194	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	8%	2%	2%	3%	4%
Adj. Flow (vph)	295	295	115	27	320	37	102	272	18	37	228	324
Shared Lane Traffic (%)												
Lane Group Flow (vph)	295	410	0	27	357	0	102	290	0	37	552	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6	6	
Detector Phase	3	8		7	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	11.0	13.1		11.0	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	21.0	54.0	0.0	11.0	44.0	0.0	45.0	45.0	0.0	45.0	45.0	0.0
Total Split (%)	19.1%	49.1%	0.0%	10.0%	40.0%	0.0%	40.9%	40.9%	0.0%	40.9%	40.9%	0.0%
Maximum Green (s)	17.0	47.9		7.0	37.7		39.9	39.9		39.2	39.2	
Yellow Time (s)	3.5	3.7		3.5	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	0.5	2.4		0.5	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	6.1	4.0	4.0	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lag	Lead		Lag	Lead							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)	14.9	35.2		9.2	24.9		54.8	54.8		54.1	54.1	
Actuated g/C Ratio	0.14	0.32		0.08	0.23		0.50	0.50		0.49	0.49	
v/c Ratio	0.65	0.73		0.18	0.84		0.28	0.18		0.07	0.35	
Control Delay	51.8	41.5		30.2	43.7		21.9	17.4		6.8	6.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.3	
Total Delay	51.8	41.5		30.2	43.7		21.9	17.4		6.8	7.1	
LOS	D	D		C	D		C	B		A	A	
Approach Delay		45.8			42.8			18.6			7.1	

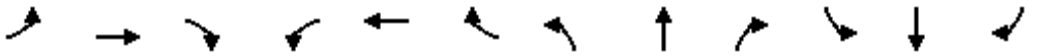
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			B			A	
Queue Length 50th (ft)	103	273		18	97		41	57		4	34	
Queue Length 95th (ft)	142	347		m39	194		99	103		22	128	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)	350			75			150			50		
Base Capacity (vph)	529	766		151	641		370	1647		527	1571	
Starvation Cap Reductn	0	0		0	0		0	0		0	475	
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	0.56	0.54		0.18	0.56		0.28	0.18		0.07	0.50	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 74 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 29.1		Intersection LOS: C	
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.

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)



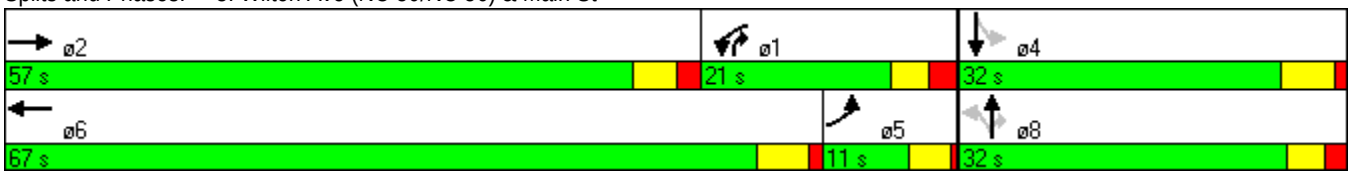


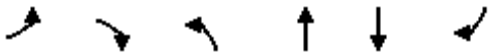
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	377	38	198	339	24	80	108	186	14	123	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	50		0	600		0	150		0	100		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.990				0.850		0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1762	3209	0	3300	3618	0	1558	1947	1655	1701	1851	0
Flt Permitted	0.950			0.950			0.470			0.587		
Satd. Flow (perm)	1762	3209	0	3300	3618	0	771	1947	1655	1051	1851	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.94	0.94	0.94	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	9%	25%	2%	9%	2%	6%	2%	2%	2%	12%	2%
Adj. Flow (vph)	10	401	40	206	353	25	89	120	207	16	137	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	441	0	206	378	0	89	120	207	16	155	0
Turn Type	Prot			Prot			Perm		pm+ov	Perm		
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases							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)	11.0	50.0		15.0	50.0		20.0	20.0	15.0	20.0	20.0	
Total Split (s)	11.0	57.0	0.0	21.0	67.0	0.0	32.0	32.0	21.0	32.0	32.0	0.0
Total Split (%)	10.0%	51.8%	0.0%	19.1%	60.9%	0.0%	29.1%	29.1%	19.1%	29.1%	29.1%	0.0%
Maximum Green (s)	7.0	51.4		15.5	61.5		27.0	27.0	15.5	26.5	26.5	
Yellow Time (s)	3.5	3.6		3.1	4.3		3.1	3.1	3.1	4.3	4.3	
All-Red Time (s)	0.5	2.0		2.4	1.2		1.9	1.9	2.4	1.2	1.2	
Lost Time Adjust (s)	0.0	-0.6	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	5.0	4.0	5.5	5.0	4.0	5.0	5.0	5.5	5.5	5.0	4.0
Lead/Lag	Lag	Lead		Lag	Lead				Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	3.0	3.0		1.0	3.0		1.0	1.0	1.0	1.0	1.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Act Effct Green (s)	10.3	65.8		14.6	80.4		14.1	14.1	33.7	13.6	14.1	
Actuated g/C Ratio	0.09	0.60		0.13	0.73		0.13	0.13	0.31	0.12	0.13	
v/c Ratio	0.06	0.23		0.47	0.14		0.90	0.48	0.41	0.12	0.65	
Control Delay	31.7	6.7		46.9	7.2		106.3	43.5	25.6	41.9	57.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	1.7	0.0	0.2	
Total Delay	31.7	6.7		46.9	7.2		106.3	43.5	27.4	41.9	57.7	
LOS	C	A		D	A		F	D	C	D	E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		7.3			21.2			48.9			56.2	
Approach LOS		A			C			D			E	
Queue Length 50th (ft)	7	34		70	27		64	82	73	10	106	
Queue Length 95th (ft)	21	61		102	113		#125	131	94	30	162	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)	50			600			150			100		
Base Capacity (vph)	165	1918		498	2716		189	478	485	253	454	
Starvation Cap Reductn	0	0		0	0		0	0	150	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	40	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.06	0.23		0.41	0.14		0.47	0.25	0.62	0.06	0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 80 (73%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 28.1		Intersection LOS: C	
Intersection Capacity Utilization 47.8%		ICU Level of Service A	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	47	280	257	417	438	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0	600			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850			0.981	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3472	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3472	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Adj. Flow (vph)	52	311	265	430	487	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	311	265	430	558	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	20.0	20.0	11.0	20.0	20.0	
Total Split (s)	42.0	42.0	34.0	68.0	34.0	0.0
Total Split (%)	38.2%	38.2%	30.9%	61.8%	30.9%	0.0%
Maximum Green (s)	38.0	38.0	30.0	64.0	30.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Act Effct Green (s)	27.0	27.0	21.7	75.0	49.3	
Actuated g/C Ratio	0.25	0.25	0.20	0.68	0.45	
v/c Ratio	0.12	0.80	0.76	0.18	0.36	
Control Delay	31.5	55.1	55.4	7.3	14.9	
Queue Delay	0.0	0.0	0.0	0.0	0.6	
Total Delay	31.5	55.1	55.4	7.3	15.5	
LOS	C	E	E	A	B	
Approach Delay	51.7			25.7	15.5	
Approach LOS	D			C	B	
Queue Length 50th (ft)	36	227	178	52	132	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 95th (ft)	m67	314	250	92	255	
Internal Link Dist (ft)	951			573	268	
Turn Bay Length (ft)	75		600			
Base Capacity (vph)	611	547	483	2412	1556	
Starvation Cap Reductn	0	0	0	0	584	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.09	0.57	0.55	0.18	0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 34 (31%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 28.0		Intersection LOS: C	
Intersection Capacity Utilization 44.2%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 4: Lake Rd & Main St (NC 50)

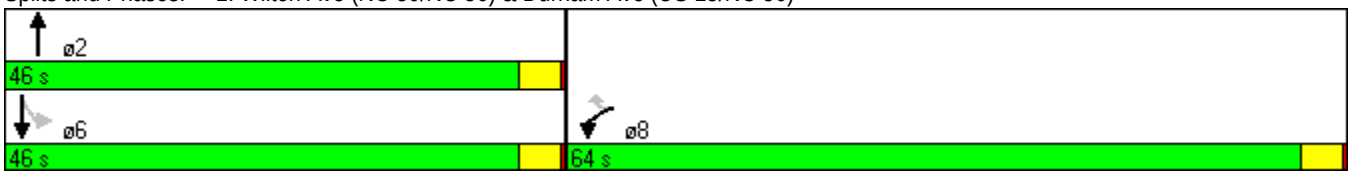
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	511	92	299	1216	118	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1429	1863	1583	1770	3539
Flt Permitted	0.950				0.489	
Satd. Flow (perm)	1736	1429	1863	1583	911	3539
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Heavy Vehicles (%)	4%	13%	2%	2%	2%	2%
Adj. Flow (vph)	568	102	325	1322	131	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	568	102	325	1322	131	210
Turn Type		Perm		Free	Perm	
Protected Phases	8		2			6
Permitted Phases		8		Free	6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0
Minimum Split (s)	20.0	20.0	20.0		20.0	20.0
Total Split (s)	64.0	64.0	46.0	0.0	46.0	46.0
Total Split (%)	58.2%	58.2%	41.8%	0.0%	41.8%	41.8%
Maximum Green (s)	60.0	60.0	42.0		42.0	42.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Min		C-Min	C-Min
Act Effct Green (s)	44.8	44.8	57.2	110.0	57.2	57.2
Actuated g/C Ratio	0.41	0.41	0.52	1.00	0.52	0.52
v/c Ratio	0.80	0.17	0.34	0.84	0.28	0.11
Control Delay	33.5	15.5	26.6	18.3	19.6	15.6
Queue Delay	0.0	0.0	1.5	0.0	0.0	0.0
Total Delay	33.5	15.5	28.0	18.3	19.6	15.6
LOS	C	B	C	B	B	B
Approach Delay	30.7		20.3			17.1
Approach LOS	C		C			B
Queue Length 50th (ft)	361	32	201	776	50	38
Queue Length 95th (ft)	m421	m73	m187	m884	114	72
Internal Link Dist (ft)	825		291			712

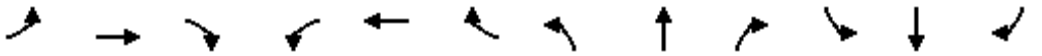
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)						
Base Capacity (vph)	947	779	968	1583	473	1839
Starvation Cap Reductn	0	0	450	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.13	0.63	0.84	0.28	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 32 (29%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.5		Intersection LOS: C	
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: 1: Wilton Ave (NC 50/NC 56) & Durham Ave (US 15/NC 56)



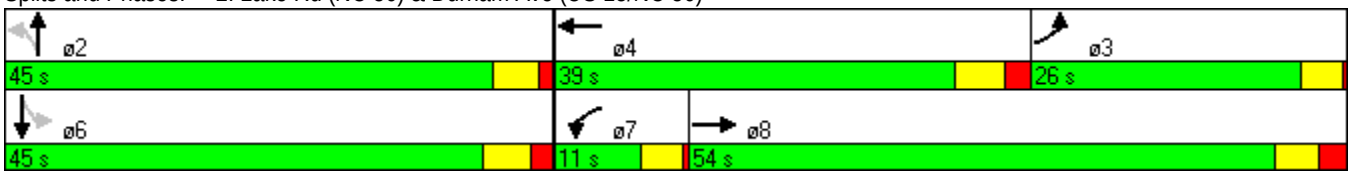


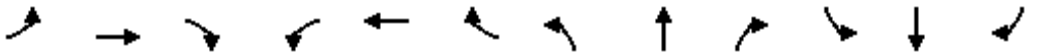
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	568	500	134	33	405	31	130	872	33	21	255	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	350		0	75		0	150		0	50		0
Storage Lanes	2		0	1		0	1		0	1		0
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	0.95
Frt		0.968			0.989			0.994			0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3382	1776	0	1805	1879	0	1761	3500	0	1778	3244	0
Flt Permitted	0.950			0.950			0.278			0.112		
Satd. Flow (perm)	3382	1776	0	1805	1879	0	515	3500	0	210	3244	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	631	556	149	37	450	34	144	969	37	23	283	398
Shared Lane Traffic (%)												
Lane Group Flow (vph)	631	705	0	37	484	0	144	1006	0	23	681	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6	6	
Detector Phase	3	8		7	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	10.0		10.0	10.0		7.0	7.0	
Minimum Split (s)	11.0	13.1		11.0	16.3		15.1	15.1		12.8	12.8	
Total Split (s)	26.0	54.0	0.0	11.0	39.0	0.0	45.0	45.0	0.0	45.0	45.0	0.0
Total Split (%)	23.6%	49.1%	0.0%	10.0%	35.5%	0.0%	40.9%	40.9%	0.0%	40.9%	40.9%	0.0%
Maximum Green (s)	22.0	47.9		7.0	32.7		39.9	39.9		39.2	39.2	
Yellow Time (s)	3.5	3.7		3.5	4.1		3.8	3.8		3.9	3.9	
All-Red Time (s)	0.5	2.4		0.5	2.2		1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	6.1	4.0	4.0	6.3	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)	22.5	50.4		7.0	30.3		41.8	41.8		41.1	41.1	
Actuated g/C Ratio	0.20	0.46		0.06	0.28		0.38	0.38		0.37	0.37	
v/c Ratio	0.91	0.87		0.32	0.93		0.73	0.76		0.29	0.56	
Control Delay	61.9	40.3		64.9	36.1		55.0	34.7		32.9	22.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.7	
Total Delay	61.9	40.3		64.9	36.1		55.0	34.7		32.9	22.8	
LOS	E	D		E	D		E	C		C	C	
Approach Delay		50.5			38.1			37.3			23.1	
Approach LOS		D			D			D			C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	227	456		18	347		89	330		5	85	
Queue Length 95th (ft)	#335	#697		m24	m#429		#203	413		m21	210	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)	350			75			150			50		
Base Capacity (vph)	694	814		115	559		196	1329		78	1211	
Starvation Cap Reductn	0	0		0	0		0	0		0	232	
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	0.91	0.87		0.32	0.87		0.73	0.76		0.29	0.70	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 56 (51%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 39.5		Intersection LOS: D	
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: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)



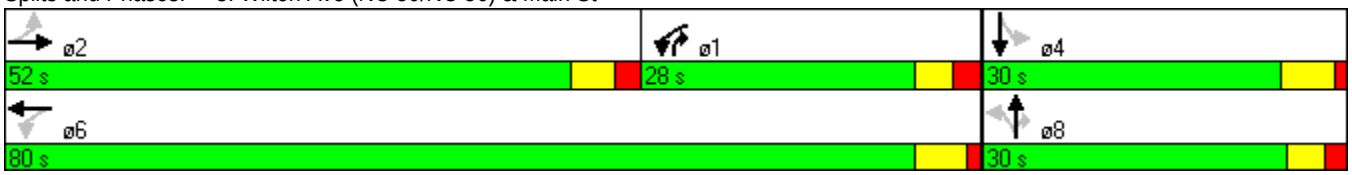


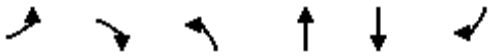
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	1211	73	273	469	26	71	363	625	33	280	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	50		0	600		0	150		0	100		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	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.992				0.850		0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1762	3490	0	1701	3753	0	1501	1947	1655	1701	2038	0
Flt Permitted	0.432			0.077			0.249			0.169		
Satd. Flow (perm)	801	3490	0	138	3753	0	393	1947	1655	303	2038	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	2%	5%	2%	10%	2%	2%	2%	2%	2%
Adj. Flow (vph)	13	1275	77	303	521	29	79	403	694	37	311	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	1352	0	303	550	0	79	403	694	37	319	0
Turn Type	Perm			pm+pt			Perm		pm+ov	Perm		
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	50.0	50.0		15.0	50.0		20.0	20.0	15.0	20.0	20.0	
Total Split (s)	52.0	52.0	0.0	28.0	80.0	0.0	30.0	30.0	28.0	30.0	30.0	0.0
Total Split (%)	47.3%	47.3%	0.0%	25.5%	72.7%	0.0%	27.3%	27.3%	25.5%	27.3%	27.3%	0.0%
Maximum Green (s)	46.4	46.4		22.5	74.5		25.0	25.0	22.5	24.5	24.5	
Yellow Time (s)	3.6	3.6		3.1	4.3		3.1	3.1	3.1	4.3	4.3	
All-Red Time (s)	2.0	2.0		2.4	1.2		1.9	1.9	2.4	1.2	1.2	
Lost Time Adjust (s)	0.0	-0.6	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	5.6	5.0	4.0	5.5	5.0	4.0	5.0	5.0	5.5	5.5	5.0	4.0
Lead/Lag	Lead	Lead		Lag					Lag			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		1.0	3.0		1.0	1.0	1.0	1.0	1.0	
Recall Mode	C-Min	C-Min		None	C-Min		None	None	None	None	None	
Act Effct Green (s)	46.2	46.8		75.4	75.9		24.1	24.1	52.7	23.6	24.1	
Actuated g/C Ratio	0.42	0.43		0.69	0.69		0.22	0.22	0.48	0.21	0.22	
v/c Ratio	0.04	0.91		0.70	0.21		0.92	0.94	0.88	0.57	0.72	
Control Delay	18.8	37.5		42.9	6.6		103.9	59.8	26.0	73.8	49.5	
Queue Delay	0.0	0.0		0.6	0.0		0.0	16.6	0.0	0.0	1.3	
Total Delay	18.8	37.5		43.6	6.6		103.9	76.4	26.0	73.8	50.8	
LOS	B	D		D	A		F	E	C	E	D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		37.4			19.7			48.5			53.2	
Approach LOS		D			B			D			D	
Queue Length 50th (ft)	6	444		148	68		55	281	440	23	208	
Queue Length 95th (ft)	m7	#607		#257	90		m#144	#463	#671	#76	306	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)	50			600			150			100		
Base Capacity (vph)	338	1491		430	2590		89	443	793	67	463	
Starvation Cap Reductn	0	0		0	0		0	43	0	0	0	
Spillback Cap Reductn	0	0		19	0		0	0	0	0	42	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.04	0.91		0.74	0.21		0.89	1.01	0.88	0.55	0.76	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 32 (29%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 38.3		Intersection LOS: D	
Intersection Capacity Utilization 93.7%		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.			

Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





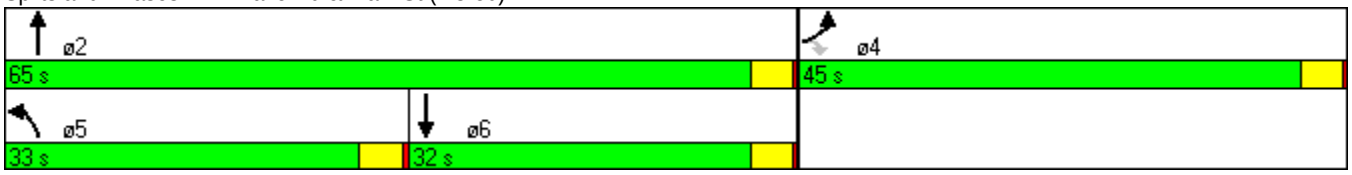
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	80	481	368	1027	591	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0	600			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850			0.981	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3472	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3472	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	523	409	1141	657	94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	523	409	1141	751	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	20.0	20.0	11.0	20.0	20.0	
Total Split (s)	45.0	45.0	33.0	65.0	32.0	0.0
Total Split (%)	40.9%	40.9%	30.0%	59.1%	29.1%	0.0%
Maximum Green (s)	41.0	41.0	29.0	61.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Act Effct Green (s)	38.9	38.9	27.8	63.1	31.3	
Actuated g/C Ratio	0.35	0.35	0.25	0.57	0.28	
v/c Ratio	0.14	0.93	0.91	0.56	0.76	
Control Delay	6.9	30.9	66.3	16.5	30.0	
Queue Delay	0.0	0.0	0.0	0.2	1.4	
Total Delay	6.9	30.9	66.3	16.7	31.5	
LOS	A	C	E	B	C	
Approach Delay	27.5			29.8	31.5	
Approach LOS	C			C	C	
Queue Length 50th (ft)	8	182	277	265	194	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 95th (ft)	m10	m#347	#450	328	m#304	
Internal Link Dist (ft)	951			573	268	
Turn Bay Length (ft)	75		600			
Base Capacity (vph)	660	590	467	2030	989	
Starvation Cap Reductn	0	0	0	0	98	
Spillback Cap Reductn	0	0	0	243	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.89	0.88	0.64	0.84	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 29.8		Intersection LOS: C	
Intersection Capacity Utilization 55.5%		ICU Level of Service B	
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: Lake Rd & Main St (NC 50)

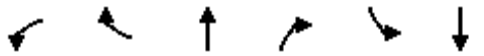


Synchro Capacity Analysis

2040 Future Conditions – One Way Pair

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	1485	127	153	0	0	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1429	1863	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1429	1863	0	0	1863
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	13%	2%	2%	16%	2%
Adj. Flow (vph)	1650	141	170	0	0	353
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1650	141	170	0	0	353
Sign Control	Stop		Free			Free

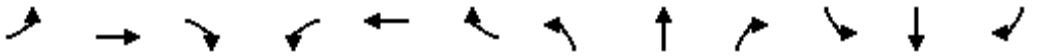
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 105.7%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1485	127	153	0	0	318
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1650	141	170	0	0	353
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked						
vC, conflicting volume	523	170			170	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	523	170			170	
tC, single (s)	6.4	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	0	83			100	
cM capacity (veh/h)	514	846			1327	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1791	170	353
Volume Left	1650	0	0
Volume Right	141	0	0
cSH	531	1700	1327
Volume to Capacity	3.37	0.10	0.00
Queue Length 95th (ft)	Err	0	0
Control Delay (s)	Err	0.0	0.0
Lane LOS	F		
Approach Delay (s)	Err	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	7738.1		
Intersection Capacity Utilization	105.7%	ICU Level of Service	G
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	14	332	0	0	0	40	35	405	101	676	964
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.862			0.912	
Flt Protected		0.954					0.950			0.950		
Satd. Flow (prot)	0	1749	1560	0	0	0	1761	1596	0	1778	1707	0
Flt Permitted		0.954					0.055			0.415		
Satd. Flow (perm)	0	1749	1560	0	0	0	102	1596	0	777	1707	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	364	16	369	0	0	0	44	39	450	107	719	1026
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	380	369	0	0	0	44	489	0	107	1745	0
Turn Type	Perm		Perm				Perm			Perm		
Protected Phases		3						2			6	
Permitted Phases	3		3				2			6	6	
Detector Phase	3	3	3				2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0				10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1				15.1	15.1		12.8	12.8	
Total Split (s)	52.0	52.0	52.0	0.0	0.0	0.0	78.0	78.0	0.0	78.0	78.0	0.0
Total Split (%)	40.0%	40.0%	40.0%	0.0%	0.0%	0.0%	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%
Maximum Green (s)	45.9	45.9	45.9				72.9	72.9		72.2	72.2	
Yellow Time (s)	3.7	3.7	3.7				3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4				1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	4.0	4.0	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	1.0				3.0	3.0		3.0	3.0	
Recall Mode	None	None	None				Min	Min		Min	Min	
Act Effct Green (s)		30.6	30.6				73.3	73.3		72.6	72.6	
Actuated g/C Ratio		0.27	0.27				0.64	0.64		0.63	0.63	
v/c Ratio		0.82	0.89				0.68	0.48		0.22	1.62	
Control Delay		54.0	64.1				70.8	14.6		12.6	306.2	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		54.0	64.1				70.8	14.6		12.6	306.2	
LOS		D	E				E	B		B	F	
Approach Delay		58.9						19.2			289.3	

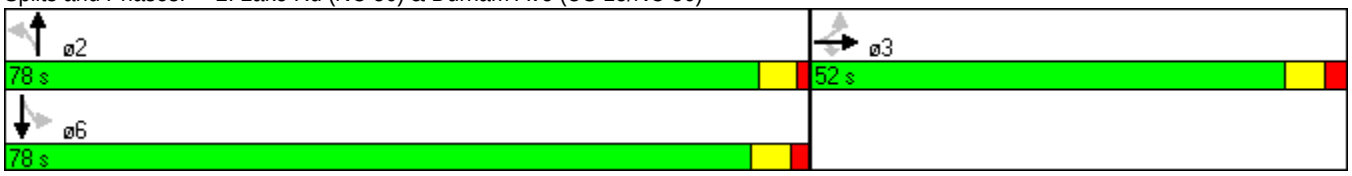
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		E						B			F	
Queue Length 50th (ft)		263	262				19	174		31	~1851	
Queue Length 95th (ft)		374	378				#110	348		81	#2473	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		701	625				65	1016		490	1076	
Starvation Cap Reductn		0	0				0	0		0	0	
Spillback Cap Reductn		0	0				0	0		0	0	
Storage Cap Reductn		0	0				0	0		0	0	
Reduced v/c Ratio		0.54	0.59				0.68	0.48		0.22	1.62	

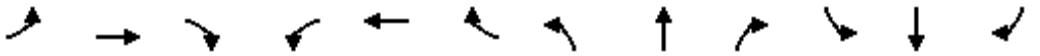
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 115.2			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.62			
Intersection Signal Delay: 188.3		Intersection LOS: F	
Intersection Capacity Utilization 125.1%		ICU Level of Service 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.

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	1079	754	33	474	184	905	45	250	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt					0.994			0.875			0.945	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	0	0	1701	2034	0	1399	1704	0	1701	1922	0
Flt Permitted				0.950			0.421			0.054		
Satd. Flow (perm)	0	0	0	1701	2034	0	620	1704	0	97	1922	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	8%	2%	2%	2%	18%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	1199	838	37	527	204	1006	50	278	162
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1199	875	0	527	1210	0	50	440	0
Turn Type				pm+pt			Perm			Perm		
Protected Phases				3	8			2			6	
Permitted Phases				8			2			6		
Detector Phase				3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	0.0	0.0	0.0	50.0	50.0	0.0	80.0	80.0	0.0	80.0	80.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)				44.5	44.5		75.0	75.0		74.5	74.5	
Yellow Time (s)				3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)				2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	4.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode				None	Min		None	None		None	None	
Act Effct Green (s)				44.5	45.0		75.0	75.0		74.5	75.0	
Actuated g/C Ratio				0.34	0.35		0.58	0.58		0.57	0.58	
v/c Ratio				2.06	1.24		1.47	1.23		0.89	0.40	
Control Delay				508.1	158.0		252.9	140.2		125.1	16.4	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				508.1	158.0		252.9	140.2		125.1	16.4	
LOS				F	F		F	F		F	B	

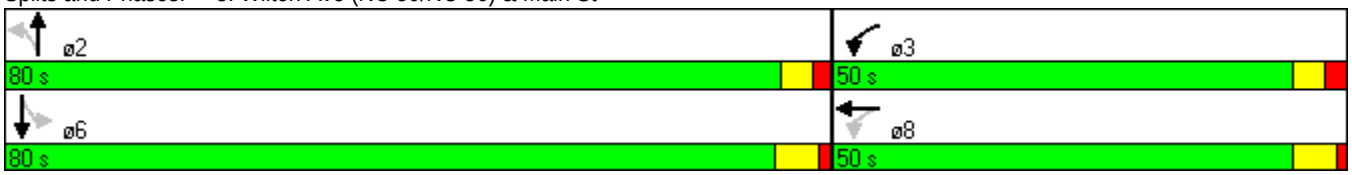
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay					360.4			174.4			27.5	
Approach LOS					F			F			C	
Queue Length 50th (ft)				~1589	~916		~610	~1258		36	194	
Queue Length 95th (ft)				#1852	#1166		#532	#1520		#80	269	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)				582	704		358	983		56	1109	
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				2.06	1.24		1.47	1.23		0.89	0.40	

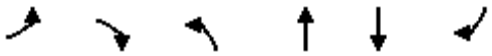
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.06			
Intersection Signal Delay: 247.3		Intersection LOS: F	
Intersection Capacity Utilization 144.0%		ICU Level of Service 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.

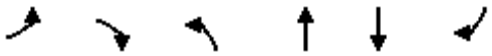
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	646	302	0	985	1202	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	718	336	0	1094	1336	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	718	336	0	1094	1336	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 105.7%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	646	302	0	985	1202	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	718	336	0	1094	1336	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked	0.63	0.63	0.63			
vC, conflicting volume	2430	1336	1336			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2978	1239	1239			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	0	100			
cM capacity (veh/h)	10	135	354			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1053	1094	1336
Volume Left	718	0	0
Volume Right	336	0	0
cSH	14	354	1700
Volume to Capacity	75.80	0.00	0.79
Queue Length 95th (ft)	Err	0	0
Control Delay (s)	Err	0.0	0.0
Lane LOS	F		
Approach Delay (s)	Err	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	3023.6		
Intersection Capacity Utilization	105.7%	ICU Level of Service	G
Analysis Period (min)	15		

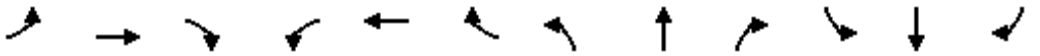
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	674	106	148	0	0	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1719	1313	1792	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1719	1313	1792	0	0	1863
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Heavy Vehicles (%)	5%	23%	6%	4%	15%	2%
Adj. Flow (vph)	741	116	154	0	0	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	741	116	154	0	0	210
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	674	106	148	0	0	189
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	741	116	154	0	0	210
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked						
vC, conflicting volume	364	154			154	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	364	154			154	
tC, single (s)	6.4	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.3	
p0 queue free %	0	86			100	
cM capacity (veh/h)	629	839			1351	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	857	154	210
Volume Left	741	0	0
Volume Right	116	0	0
cSH	670	1700	1351
Volume to Capacity	1.28	0.09	0.00
Queue Length 95th (ft)	828	0	0
Control Delay (s)	157.2	0.0	0.0
Lane LOS	F		
Approach Delay (s)	157.2	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	110.3		
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	57	320	0	0	0	92	68	193	80	229	580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.889			0.892	
Flt Protected		0.960					0.950			0.950		
Satd. Flow (prot)	0	1747	1560	0	0	0	1761	1623	0	1778	1642	0
Flt Permitted		0.960					0.175			0.562		
Satd. Flow (perm)	0	1747	1560	0	0	0	324	1623	0	1052	1642	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	8%	2%	2%	3%	4%
Adj. Flow (vph)	295	62	348	0	0	0	102	76	214	89	254	644
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	357	348	0	0	0	102	290	0	89	898	0
Turn Type	Perm		Perm				Perm			Perm		
Protected Phases		3						2			6	
Permitted Phases	3		3				2			6	6	
Detector Phase	3	3	3				2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0				10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1				15.1	15.1		12.8	12.8	
Total Split (s)	52.0	52.0	52.0	0.0	0.0	0.0	78.0	78.0	0.0	78.0	78.0	0.0
Total Split (%)	40.0%	40.0%	40.0%	0.0%	0.0%	0.0%	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%
Maximum Green (s)	45.9	45.9	45.9				72.9	72.9		72.2	72.2	
Yellow Time (s)	3.7	3.7	3.7				3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4				1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	4.0	4.0	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	1.0				3.0	3.0		3.0	3.0	
Recall Mode	None	None	None				Min	Min		Min	Min	
Act Effct Green (s)		28.6	28.6				73.3	73.3		72.6	72.6	
Actuated g/C Ratio		0.25	0.25				0.65	0.65		0.64	0.64	
v/c Ratio		0.81	0.88				0.49	0.28		0.13	0.85	
Control Delay		54.0	64.0				23.0	10.8		10.4	27.8	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		54.0	64.0				23.0	10.8		10.4	27.8	
LOS		D	E				C	B		B	C	
Approach Delay		58.9						13.9			26.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		E						B			C	
Queue Length 50th (ft)		243	243				35	82		23	471	
Queue Length 95th (ft)		350	355				121	173		61	#978	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		712	636				210	1051		675	1053	
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		0.50	0.55				0.49	0.28		0.13	0.85	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 113.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 35.0		Intersection LOS: C	
Intersection Capacity Utilization 88.2%		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.			

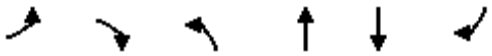
Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	224	313	24	337	118	563	14	85	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt					0.989			0.876			0.942	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	0	0	1701	1903	0	1558	1706	0	1701	1819	0
Flt Permitted				0.950			0.659			0.204		
Satd. Flow (perm)	0	0	0	1701	1903	0	1080	1706	0	365	1819	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.94	0.94	0.94	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	9%	25%	2%	9%	2%	6%	2%	2%	2%	12%	2%
Adj. Flow (vph)	0	0	0	233	326	25	374	131	626	16	94	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	233	351	0	374	757	0	16	154	0
Turn Type				pm+pt			Perm			Perm		
Protected Phases				3	8			2			6	
Permitted Phases				8			2			6		
Detector Phase				3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	0.0	0.0	0.0	50.0	50.0	0.0	80.0	80.0	0.0	80.0	80.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)				44.5	44.5		75.0	75.0		74.5	74.5	
Yellow Time (s)				3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)				2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	4.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode				None	Min		None	None		None	None	
Act Effct Green (s)				21.6	22.2		40.3	40.3		39.8	40.3	
Actuated g/C Ratio				0.29	0.30		0.55	0.55		0.54	0.55	
v/c Ratio				0.47	0.61		0.63	0.81		0.08	0.15	
Control Delay				28.0	30.1		17.5	21.9		10.1	9.0	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				28.0	30.1		17.5	21.9		10.1	9.0	
LOS				C	C		B	C		B	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay					29.3			20.4			9.1	
Approach LOS					C			C			A	
Queue Length 50th (ft)				80	126		99	236		3	29	
Queue Length 95th (ft)				216	321		252	533		15	76	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)				1138	1283		979	1547		330	1649	
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				0.20	0.27		0.38	0.49		0.05	0.09	

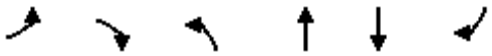
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 73.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 22.2		Intersection LOS: C	
Intersection Capacity Utilization 77.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	434	318	0	674	438	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Adj. Flow (vph)	482	353	0	695	487	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	482	353	0	695	487	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	434	318	0	674	438	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Hourly flow rate (vph)	482	353	0	695	487	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked	0.92	0.92	0.92			
vC, conflicting volume	1182	487	487			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1154	398	398			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	41	100			
cM capacity (veh/h)	200	599	1067			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	836	695	487
Volume Left	482	0	0
Volume Right	353	0	0
cSH	280	1067	1700
Volume to Capacity	2.99	0.00	0.29
Queue Length 95th (ft)	1843	0	0
Control Delay (s)	931.0	0.0	0.0
Lane LOS	F		
Approach Delay (s)	931.0	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	385.7		
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	950	123	299	0	0	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1736	1429	1863	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1736	1429	1863	0	0	1863
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Heavy Vehicles (%)	4%	13%	2%	2%	2%	2%
Adj. Flow (vph)	1056	137	325	0	0	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1056	137	325	0	0	340
Sign Control	Stop		Free			Free

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	950	123	299	0	0	306
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	1056	137	325	0	0	340
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			371			
pX, platoon unblocked						
vC, conflicting volume	665	325			325	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	665	325			325	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	0	80			100	
cM capacity (veh/h)	422	691			1235	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1192	325	340
Volume Left	1056	0	0
Volume Right	137	0	0
cSH	443	1700	1235
Volume to Capacity	2.69	0.19	0.00
Queue Length 95th (ft)	2456	0	0
Control Delay (s)	787.7	0.0	0.0
Lane LOS	F		
Approach Delay (s)	787.7	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	505.6		
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	568	73	561	0	0	0	130	82	822	139	288	764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	0		65	0		0	50		0	65		0
Storage Lanes	0		1	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	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.864			0.891	
Flt Protected		0.958					0.950			0.950		
Satd. Flow (prot)	0	1758	1560	0	0	0	1761	1601	0	1778	1668	0
Flt Permitted		0.958					0.055			0.055		
Satd. Flow (perm)	0	1758	1560	0	0	0	102	1601	0	103	1668	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	631	81	623	0	0	0	144	91	913	154	320	849
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	712	623	0	0	0	144	1004	0	154	1169	0
Turn Type	Perm		Perm				Perm			Perm		
Protected Phases		3						2			6	
Permitted Phases	3		3				2			6	6	
Detector Phase	3	3	3				2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0				10.0	10.0		7.0	7.0	
Minimum Split (s)	13.1	13.1	13.1				15.1	15.1		12.8	12.8	
Total Split (s)	52.0	52.0	52.0	0.0	0.0	0.0	78.0	78.0	0.0	78.0	78.0	0.0
Total Split (%)	40.0%	40.0%	40.0%	0.0%	0.0%	0.0%	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%
Maximum Green (s)	45.9	45.9	45.9				72.9	72.9		72.2	72.2	
Yellow Time (s)	3.7	3.7	3.7				3.8	3.8		3.9	3.9	
All-Red Time (s)	2.4	2.4	2.4				1.3	1.3		1.9	1.9	
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	6.1	4.0	4.0	4.0	5.1	5.1	4.0	5.8	5.8	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0	1.0				3.0	3.0		3.0	3.0	
Recall Mode	None	None	None				Min	Min		Min	Min	
Act Effct Green (s)		45.9	45.9				72.9	72.9		72.2	72.2	
Actuated g/C Ratio		0.35	0.35				0.56	0.56		0.56	0.56	
v/c Ratio		1.15	1.13				2.53	1.12		2.70	1.26	
Control Delay		122.5	118.7				754.4	96.5		830.9	154.8	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		122.5	118.7				754.4	96.5		830.9	154.8	
LOS		F	F				F	F		F	F	
Approach Delay		120.7						179.1			233.5	
Approach LOS		F						F			F	

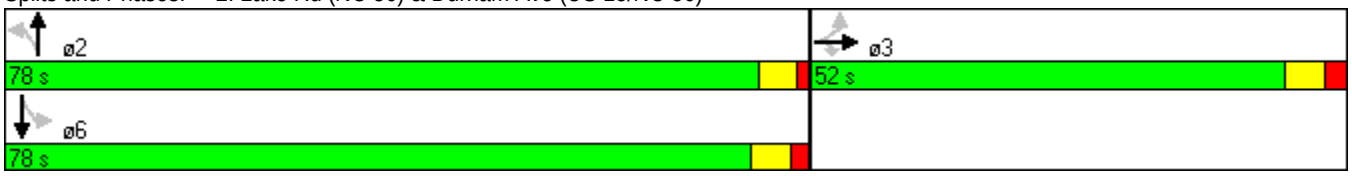
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		~703	~609				~156	~972		~173	~1236	
Queue Length 95th (ft)		#943	#840				#296	#1227		#317	#1498	
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)			65				50			65		
Base Capacity (vph)		621	551				57	898		57	926	
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		1.15	1.13				2.53	1.12		2.70	1.26	

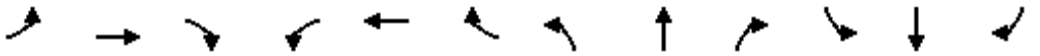
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.70			
Intersection Signal Delay: 177.5		Intersection LOS: F	
Intersection Capacity Utilization 119.9%		ICU Level of Service H	
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.

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	306	436	26	438	375	1837	33	229	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	125		0	90		0	130		0
Storage Lanes	0		0	1		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	1.00	1.00	1.00	1.00	1.00
Frt					0.992			0.875			0.969	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	0	0	1701	1975	0	1501	1704	0	1701	1983	0
Flt Permitted				0.950			0.529			0.053		
Satd. Flow (perm)	0	0	0	1701	1975	0	836	1704	0	95	1983	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	2%	5%	2%	10%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	340	484	29	487	417	2041	37	254	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	340	513	0	487	2458	0	37	320	0
Turn Type				pm+pt			Perm			Perm		
Protected Phases				3	8			2			6	
Permitted Phases				8			2			6		
Detector Phase				3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				15.0	50.0		20.0	20.0		20.0	20.0	
Total Split (s)	0.0	0.0	0.0	50.0	50.0	0.0	80.0	80.0	0.0	80.0	80.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)				44.5	44.5		75.0	75.0		74.5	74.5	
Yellow Time (s)				3.1	4.3		3.1	3.1		4.3	4.3	
All-Red Time (s)				2.4	1.2		1.9	1.9		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	4.0	4.0	5.5	5.0	4.0	5.0	5.0	4.0	5.5	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				1.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode				None	Min		None	None		None	None	
Act Effct Green (s)				35.9	36.4		75.3	75.3		74.8	75.3	
Actuated g/C Ratio				0.29	0.30		0.62	0.62		0.61	0.62	
v/c Ratio				0.68	0.87		0.94	2.33		0.64	0.26	
Control Delay				44.8	56.2		52.0	621.3		69.5	12.3	
Queue Delay				0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay				44.8	56.2		52.0	621.3		69.5	12.3	
LOS				D	E		D	F		E	B	

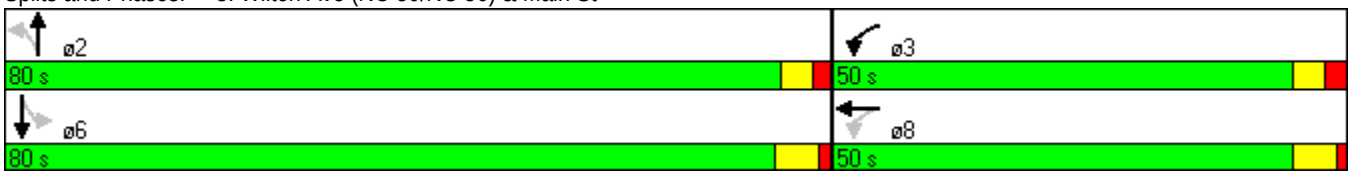
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay					51.7			527.2			18.2	
Approach LOS					D			F			B	
Queue Length 50th (ft)				235	380		339	~3198		18	111	
Queue Length 95th (ft)				338	517		#646	#3688		#94	186	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				125			90			130		
Base Capacity (vph)				624	733		517	1054		58	1226	
Starvation Cap Reductn				0	0		0	0		0	0	
Spillback Cap Reductn				0	0		0	0		0	0	
Storage Cap Reductn				0	0		0	0		0	0	
Reduced v/c Ratio				0.54	0.70		0.94	2.33		0.64	0.26	

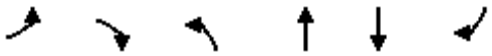
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 121.7			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.33			
Intersection Signal Delay: 385.8		Intersection LOS: F	
Intersection Capacity Utilization 176.3%		ICU Level of Service 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.

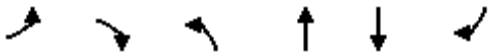
Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1303	554	0	1395	591	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	35	0			0
Storage Lanes	1	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1416	602	0	1550	657	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1416	602	0	1550	657	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 152.3%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	1303	554	0	1395	591	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1416	602	0	1550	657	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					348	
pX, platoon unblocked	0.78	0.78	0.78			
vC, conflicting volume	2207	657	657			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2404	421	421			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	0	100			
cM capacity (veh/h)	29	494	890			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2018	1550	657
Volume Left	1416	0	0
Volume Right	602	0	0
cSH	40	890	1700
Volume to Capacity	50.80	0.00	0.39
Queue Length 95th (ft)	Err	0	0
Control Delay (s)	Err	0.0	0.0
Lane LOS	F		
Approach Delay (s)	Err	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	4776.8		
Intersection Capacity Utilization	152.3%	ICU Level of Service	H
Analysis Period (min)	15		

Synchro Capacity Analysis

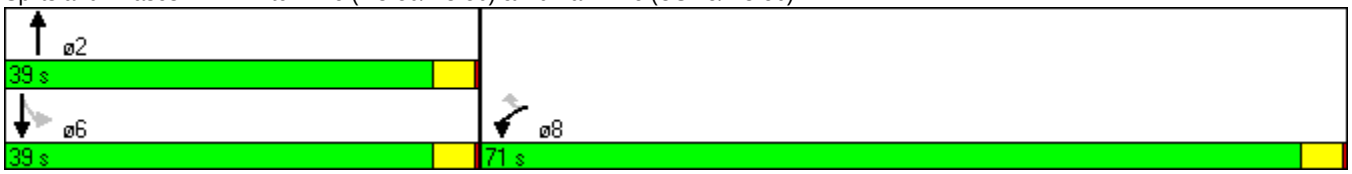
2040 Future Conditions – One Way Pair Improved

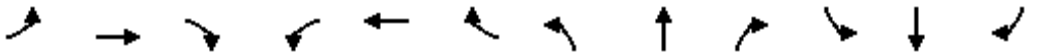
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	1485	127	153	0	0	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	475		0	0	
Storage Lanes	2	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3433	1429	1863	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	3433	1429	1863	0	0	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	13%	2%	2%	16%	2%
Adj. Flow (vph)	1650	141	170	0	0	353
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1650	141	170	0	0	353
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0
Minimum Split (s)	20.0	20.0	20.0		20.0	20.0
Total Split (s)	71.0	71.0	39.0	0.0	39.0	39.0
Total Split (%)	64.5%	64.5%	35.5%	0.0%	35.5%	35.5%
Maximum Green (s)	67.0	67.0	35.0		35.0	35.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max		C-Max	C-Max
Act Effct Green (s)	64.0	64.0	38.0			38.0
Actuated g/C Ratio	0.58	0.58	0.35			0.35
v/c Ratio	0.83	0.17	0.26			0.55
Control Delay	16.0	6.0	18.1			33.9
Queue Delay	0.1	0.0	0.0			0.0
Total Delay	16.1	6.0	18.1			33.9
LOS	B	A	B			C
Approach Delay	15.3		18.1			33.9
Approach LOS	B		B			C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	398	29	93			206
Queue Length 95th (ft)	m456	m39	52			308
Internal Link Dist (ft)	825		291			712
Turn Bay Length (ft)		475				
Base Capacity (vph)	2091	870	644			644
Starvation Cap Reductn	0	0	0			0
Spillback Cap Reductn	32	0	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.80	0.16	0.26			0.55

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 37 (34%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 65.8%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 1: Wilton Ave (NC 50/NC 56) & Durham Ave (US 15/NC 56)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	14	332	0	0	0	40	35	405	101	676	964
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	750		0	0		0	100		350	75		0
Storage Lanes	1		0	0		0	1		1	1		1
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	1.00	1.00	1.00
Frt		0.856							0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1743	2982	0	0	0	0	1761	1835	1575	1778	1872	1591
Flt Permitted	0.950						0.099			0.732		
Satd. Flow (perm)	1743	2982	0	0	0	0	183	1835	1575	1370	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.94	0.94	0.94
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	364	16	369	0	0	0	44	39	450	107	719	1026
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	385	0	0	0	0	44	39	450	107	719	1026
Turn Type	Perm						Perm		Perm	Perm		custom
Protected Phases		3						2			6	7
Permitted Phases	3						2		2	6	6	6
Detector Phase	3	3					2	2	2	6	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0					10.0	10.0	10.0	7.0	7.0	7.0
Minimum Split (s)	13.1	13.1					15.1	15.1	15.1	12.8	12.8	11.0
Total Split (s)	45.0	45.0	0.0	0.0	0.0	0.0	65.0	65.0	65.0	65.0	65.0	45.0
Total Split (%)	40.9%	40.9%	0.0%	0.0%	0.0%	0.0%	59.1%	59.1%	59.1%	59.1%	59.1%	40.9%
Maximum Green (s)	38.9	38.9					59.9	59.9	59.9	59.2	59.2	41.0
Yellow Time (s)	3.7	3.7					3.8	3.8	3.8	3.9	3.9	3.5
All-Red Time (s)	2.4	2.4					1.3	1.3	1.3	1.9	1.9	0.5
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	4.0	4.0	4.0	4.0	5.1	5.1	5.1	5.8	5.8	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0					3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None					C-Min	C-Min	C-Min	C-Min	C-Min	None
Act Effct Green (s)	58.3	58.3					40.5	40.5	40.5	39.8	39.8	110.0
Actuated g/C Ratio	0.53	0.53					0.37	0.37	0.37	0.36	0.36	1.00
v/c Ratio	0.39	0.24					0.66	0.06	0.78	0.22	1.06	0.64
Control Delay	19.9	16.8					68.9	19.6	39.9	19.2	73.8	3.0
Queue Delay	0.0	0.0					0.0	0.0	0.0	0.0	0.9	0.0
Total Delay	19.9	16.8					68.9	19.6	39.9	19.2	74.7	3.0
LOS	B	B					E	B	D	B	E	A
Approach Delay		18.3						40.8			31.8	

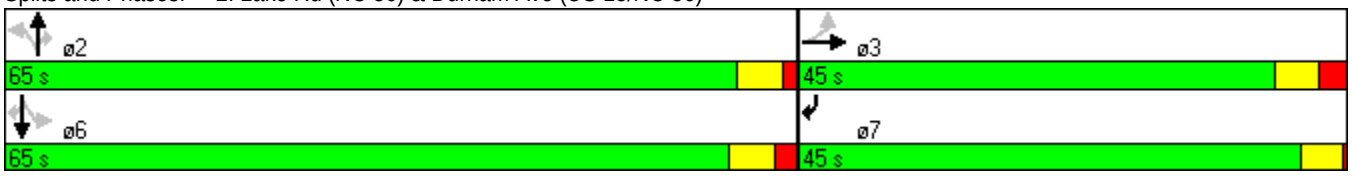
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B						D			C	
Queue Length 50th (ft)	117	58					29	20	~318	40	~665	38
Queue Length 95th (ft)	321	153					57	27	268	m24	243	49
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)	750						100		350	75		
Base Capacity (vph)	932	1594					101	1008	866	744	1016	1587
Starvation Cap Reductn	0	0					0	0	0	0	104	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	0.24					0.44	0.04	0.52	0.14	0.79	0.65

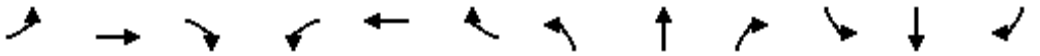
Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0.1 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 30.1 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)





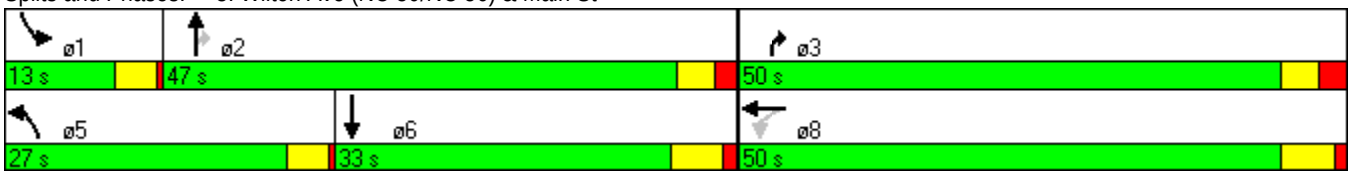
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	1079	754	33	474	184	905	45	250	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	550		0	300		350	130		0
Storage Lanes	0		0	2		0	2		2	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	0.95	0.97	1.00	0.88	1.00	1.00	1.00
Frt					0.994				0.850		0.945	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	0	0	3300	3865	0	2714	1947	2913	1701	1922	0
Flt Permitted				0.950			0.950			0.950		
Satd. Flow (perm)	0	0	0	3300	3865	0	2714	1947	2913	1701	1922	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	8%	2%	2%	2%	18%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	1199	838	37	527	204	1006	50	278	162
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1199	875	0	527	204	1006	50	440	0
Turn Type				Perm			Prot		custom	Prot		
Protected Phases					8		5	2	3	1	6	
Permitted Phases				8					2			
Detector Phase				8	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)				50.0	50.0		11.0	20.0	15.0	11.0	20.0	
Total Split (s)	0.0	0.0	0.0	50.0	50.0	0.0	27.0	47.0	50.0	13.0	33.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	45.5%	45.5%	0.0%	24.5%	42.7%	45.5%	11.8%	30.0%	0.0%
Maximum Green (s)				44.5	44.5		23.0	42.0	44.5	9.0	27.5	
Yellow Time (s)				4.3	4.3		3.5	3.1	3.1	3.5	4.3	
All-Red Time (s)				1.2	1.2		0.5	1.9	2.4	0.5	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	4.0	4.0	5.5	5.0	4.0	4.0	5.0	5.5	4.0	5.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)				3.0	3.0		3.0	1.0	1.0	3.0	1.0	
Recall Mode				Min	Min		None	C-Max	None	None	C-Max	
Act Effct Green (s)				44.5	45.0		22.8	45.0	95.6	8.2	28.2	
Actuated g/C Ratio				0.40	0.41		0.21	0.41	0.87	0.07	0.26	
v/c Ratio				0.90	0.55		0.94	0.26	0.40	0.40	0.89	
Control Delay				41.0	26.5		73.9	23.3	1.4	57.8	61.7	
Queue Delay				0.0	0.0		0.0	0.7	0.2	0.0	0.0	
Total Delay				41.0	26.5		73.9	23.9	1.6	57.8	61.7	
LOS				D	C		E	C	A	E	E	

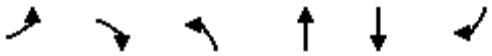
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay					34.9			26.2			61.3	
Approach LOS					C			C			E	
Queue Length 50th (ft)				401	244		197	86	36	34	301	
Queue Length 95th (ft)				#535	305		#297	142	46	74	#484	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				550			300		350	130		
Base Capacity (vph)				1335	1581		567	797	2532	139	493	
Starvation Cap Reductn				0	0		0	332	691	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				0.90	0.55		0.93	0.44	0.55	0.36	0.89	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 5.5 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 34.4		Intersection LOS: C	
Intersection Capacity Utilization 78.0%		ICU Level of Service D	
Analysis Period (min) 15			

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

Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





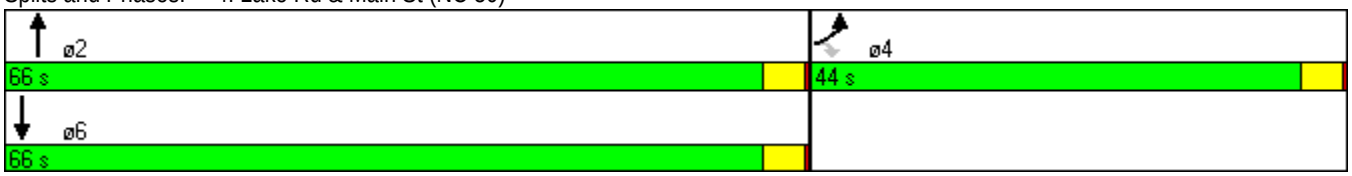
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	646	302	0	985	1202	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	625	0			0
Storage Lanes	2	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3433	1583	0	3539	3539	0
Flt Permitted	0.950					
Satd. Flow (perm)	3433	1583	0	3539	3539	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	718	336	0	1094	1336	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	718	336	0	1094	1336	0
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		7.0	7.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	
Total Split (s)	44.0	44.0	0.0	66.0	66.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	60.0%	60.0%	0.0%
Maximum Green (s)	40.0	40.0		62.0	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max	
Act Effct Green (s)	30.8	30.8		71.2	71.2	
Actuated g/C Ratio	0.28	0.28		0.65	0.65	
v/c Ratio	0.75	0.76		0.48	0.58	
Control Delay	27.0	33.2		11.6	1.6	
Queue Delay	0.0	0.0		0.0	0.4	
Total Delay	27.0	33.2		11.6	2.0	
LOS	C	C		B	A	
Approach Delay	28.9			11.6	2.0	
Approach LOS	C			B	A	
Queue Length 50th (ft)	172	158		187	38	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 95th (ft)	246	281		297	m91	
Internal Link Dist (ft)	951			573	268	
Turn Bay Length (ft)		625				
Base Capacity (vph)	1248	576		2291	2291	
Starvation Cap Reductn	0	0		0	426	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.58	0.58		0.48	0.72	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 74 (67%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 13.2		Intersection LOS: B	
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: 4: Lake Rd & Main St (NC 50)

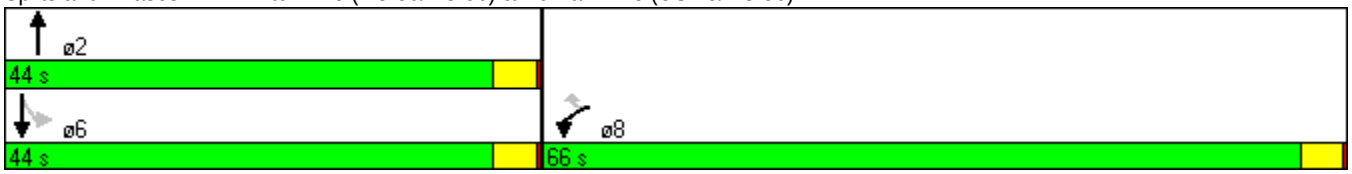


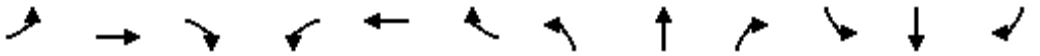
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	674	106	148	0	0	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	475		0	0	
Storage Lanes	2	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1313	1792	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1313	1792	0	0	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.91	0.91	0.96	0.96	0.90	0.90
Heavy Vehicles (%)	5%	23%	6%	4%	15%	2%
Adj. Flow (vph)	741	116	154	0	0	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	741	116	154	0	0	210
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0
Minimum Split (s)	20.0	20.0	20.0		20.0	20.0
Total Split (s)	66.0	66.0	44.0	0.0	44.0	44.0
Total Split (%)	60.0%	60.0%	40.0%	0.0%	40.0%	40.0%
Maximum Green (s)	62.0	62.0	40.0		40.0	40.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max		C-Max	C-Max
Act Effct Green (s)	32.6	32.6	69.4			69.4
Actuated g/C Ratio	0.30	0.30	0.63			0.63
v/c Ratio	0.75	0.30	0.14			0.18
Control Delay	21.0	15.1	6.6			10.0
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	21.0	15.1	6.6			10.0
LOS	C	B	A			A
Approach Delay	20.2		6.6			10.0
Approach LOS	C		A			A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	181	41	22			57
Queue Length 95th (ft)	231	75	109			111
Internal Link Dist (ft)	825		291			712
Turn Bay Length (ft)		475				
Base Capacity (vph)	1880	740	1130			1175
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	0.39	0.16	0.14			0.18

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 52 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Wilton Ave (NC 50/NC 56) & Durham Ave (US 15/NC 56)



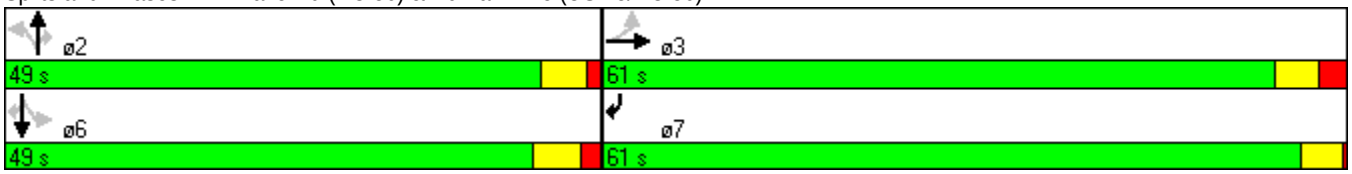


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	57	320	0	0	0	92	68	193	80	229	580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	750		0	0		0	100		350	75		0
Storage Lanes	1		0	0		0	1		1	1		1
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	1.00	1.00	1.00
Frt		0.873							0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1726	3043	0	0	0	0	1761	1750	1575	1778	1854	1561
Flt Permitted	0.950						0.551			0.708		
Satd. Flow (perm)	1726	3043	0	0	0	0	1021	1750	1575	1325	1854	1561
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	8%	2%	2%	3%	4%
Adj. Flow (vph)	295	62	348	0	0	0	102	76	214	89	254	644
Shared Lane Traffic (%)												
Lane Group Flow (vph)	295	410	0	0	0	0	102	76	214	89	254	644
Turn Type	Perm						Perm		Perm	Perm		custom
Protected Phases		3						2			6	7
Permitted Phases	3						2		2	6	6	6
Detector Phase	3	3					2	2	2	6	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0					10.0	10.0	10.0	7.0	7.0	7.0
Minimum Split (s)	13.1	13.1					15.1	15.1	15.1	12.8	12.8	11.0
Total Split (s)	61.0	61.0	0.0	0.0	0.0	0.0	49.0	49.0	49.0	49.0	49.0	61.0
Total Split (%)	55.5%	55.5%	0.0%	0.0%	0.0%	0.0%	44.5%	44.5%	44.5%	44.5%	44.5%	55.5%
Maximum Green (s)	54.9	54.9					43.9	43.9	43.9	43.2	43.2	57.0
Yellow Time (s)	3.7	3.7					3.8	3.8	3.8	3.9	3.9	3.5
All-Red Time (s)	2.4	2.4					1.3	1.3	1.3	1.9	1.9	0.5
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	4.0	4.0	4.0	4.0	5.1	5.1	5.1	5.8	5.8	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0					3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None					C-Min	C-Min	C-Min	C-Min	C-Min	None
Act Effct Green (s)	48.9	48.9					49.9	49.9	49.9	49.2	49.2	110.0
Actuated g/C Ratio	0.44	0.44					0.45	0.45	0.45	0.45	0.45	1.00
v/c Ratio	0.38	0.30					0.22	0.10	0.30	0.15	0.31	0.41
Control Delay	20.3	18.9					24.9	22.7	24.4	33.0	33.6	4.1
Queue Delay	0.0	0.0					0.0	0.0	0.0	0.0	0.4	0.0
Total Delay	20.3	18.9					24.9	22.7	24.4	33.0	34.0	4.1
LOS	C	B					C	C	C	C	C	A
Approach Delay		19.5						24.2			14.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B						C			B	
Queue Length 50th (ft)	134	94					43	30	94	43	125	147
Queue Length 95th (ft)	143	91					106	77	196	75	173	168
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)	750						100		350	75		
Base Capacity (vph)	904	1595					489	838	754	626	876	1561
Starvation Cap Reductn	0	0					0	0	0	0	268	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	0.33	0.26					0.21	0.09	0.28	0.14	0.42	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 102 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 17.9		Intersection LOS: B	
Intersection Capacity Utilization 51.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)

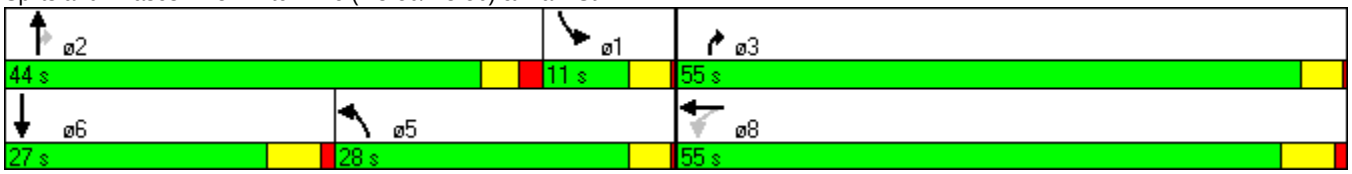


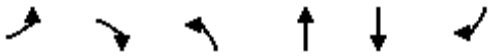
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	224	313	24	337	118	563	14	85	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	550		0	300		350	130		0
Storage Lanes	0		0	1		0	2		2	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	0.97	1.00	0.88	1.00	1.00	1.00
Frt					0.989				0.850		0.942	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	0	0	1701	1903	0	3022	1947	2913	1701	1819	0
Flt Permitted				0.950			0.950			0.950		
Satd. Flow (perm)	0	0	0	1701	1903	0	3022	1947	2913	1701	1819	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.94	0.94	0.94	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	9%	25%	2%	9%	2%	6%	2%	2%	2%	12%	2%
Adj. Flow (vph)	0	0	0	233	326	25	374	131	626	16	94	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	233	351	0	374	131	626	16	154	0
Turn Type				Perm			Prot		custom	Prot		
Protected Phases					8		5	2	3	1	6	
Permitted Phases				8					2			
Detector Phase				8	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)				50.0	50.0		11.0	20.0	11.0	11.0	20.0	
Total Split (s)	0.0	0.0	0.0	55.0	55.0	0.0	28.0	44.0	55.0	11.0	27.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	25.5%	40.0%	50.0%	10.0%	24.5%	0.0%
Maximum Green (s)				49.5	49.5		24.0	39.0	51.0	7.0	21.5	
Yellow Time (s)				4.3	4.3		3.5	3.1	3.5	3.5	4.3	
All-Red Time (s)				1.2	1.2		0.5	1.9	0.5	0.5	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	4.0	4.0	5.5	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0
Lead/Lag							Lag	Lead		Lag	Lead	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)				3.0	3.0		3.0	1.0	3.0	3.0	1.0	
Recall Mode				Min	Min		None	C-Max	None	None	C-Max	
Act Effct Green (s)				27.0	27.5		19.4	68.1	104.0	7.0	49.1	
Actuated g/C Ratio				0.25	0.25		0.18	0.62	0.95	0.06	0.45	
v/c Ratio				0.56	0.74		0.70	0.11	0.23	0.15	0.19	
Control Delay				40.4	46.8		42.1	13.1	1.5	52.0	22.5	
Queue Delay				0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay				40.4	46.8		42.1	13.1	1.6	52.0	22.5	
LOS				D	D		D	B	A	D	C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay					44.3			16.3			25.3	
Approach LOS					D			B			C	
Queue Length 50th (ft)				144	228		101	37	0	11	64	
Queue Length 95th (ft)				199	295		127	109	73	34	134	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				550			300		350	130		
Base Capacity (vph)				765	865		659	1206	2754	108	811	
Starvation Cap Reductn				0	0		0	0	344	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	0.41		0.57	0.11	0.26	0.15	0.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 38 (35%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 47.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St



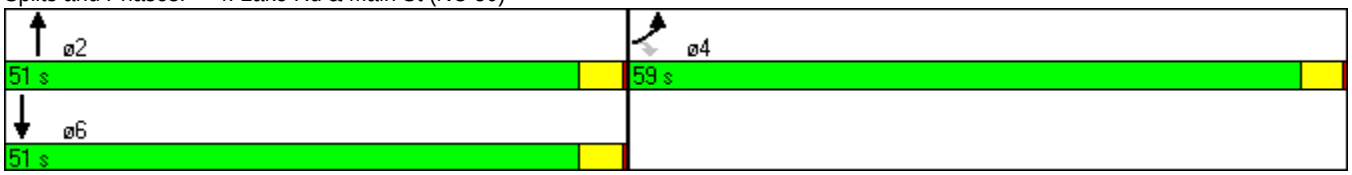


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	434	318	0	674	438	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	625	0			0
Storage Lanes	2	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3433	1583	0	3539	3539	0
Flt Permitted	0.950					
Satd. Flow (perm)	3433	1583	0	3539	3539	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.90	0.90	0.97	0.97	0.90	0.90
Adj. Flow (vph)	482	353	0	695	487	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	482	353	0	695	487	0
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		7.0	7.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	
Total Split (s)	59.0	59.0	0.0	51.0	51.0	0.0
Total Split (%)	53.6%	53.6%	0.0%	46.4%	46.4%	0.0%
Maximum Green (s)	55.0	55.0		47.0	47.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max	
Act Effct Green (s)	32.1	32.1		69.9	69.9	
Actuated g/C Ratio	0.29	0.29		0.64	0.64	
v/c Ratio	0.48	0.76		0.31	0.22	
Control Delay	37.9	51.4		10.7	4.2	
Queue Delay	0.0	0.0		0.0	0.3	
Total Delay	37.9	51.4		10.7	4.5	
LOS	D	D		B	A	
Approach Delay	43.6			10.7	4.5	
Approach LOS	D			B	A	
Queue Length 50th (ft)	137	208		107	26	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 95th (ft)	197	323		184	44	
Internal Link Dist (ft)	951			573	268	
Turn Bay Length (ft)		625				
Base Capacity (vph)	1717	792		2250	2250	
Starvation Cap Reductn	0	0		0	1119	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.28	0.45		0.31	0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Lake Rd & Main St (NC 50)

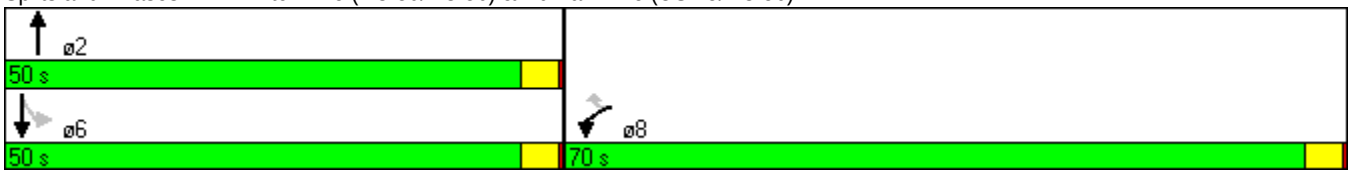


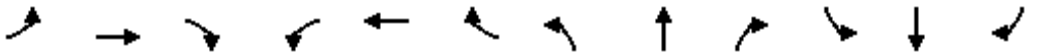
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	950	123	299	0	0	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	475		0	0	
Storage Lanes	2	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3367	1429	1863	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	3367	1429	1863	0	0	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		35			35
Link Distance (ft)	905		371			792
Travel Time (s)	20.6		7.2			15.4
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Heavy Vehicles (%)	4%	13%	2%	2%	2%	2%
Adj. Flow (vph)	1056	137	325	0	0	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1056	137	325	0	0	340
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0
Minimum Split (s)	20.0	20.0	20.0		20.0	20.0
Total Split (s)	70.0	70.0	50.0	0.0	50.0	50.0
Total Split (%)	58.3%	58.3%	41.7%	0.0%	41.7%	41.7%
Maximum Green (s)	66.0	66.0	46.0		46.0	46.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max		C-Max	C-Max
Act Effct Green (s)	48.2	48.2	63.8			63.8
Actuated g/C Ratio	0.40	0.40	0.53			0.53
v/c Ratio	0.78	0.24	0.33			0.34
Control Delay	20.3	12.7	5.1			18.8
Queue Delay	0.0	0.0	0.9			0.0
Total Delay	20.4	12.7	5.9			18.8
LOS	C	B	A			B
Approach Delay	19.5		5.9			18.8
Approach LOS	B		A			B

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	314	32	15			145
Queue Length 95th (ft)	339	m44	m107			250
Internal Link Dist (ft)	825		291			712
Turn Bay Length (ft)		475				
Base Capacity (vph)	1852	786	990			990
Starvation Cap Reductn	0	0	404			0
Spillback Cap Reductn	15	0	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.57	0.17	0.55			0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 78 (65%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 17.0		Intersection LOS: B	
Intersection Capacity Utilization 49.9%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 1: Wilton Ave (NC 50/NC 56) & Durham Ave (US 15/NC 56)



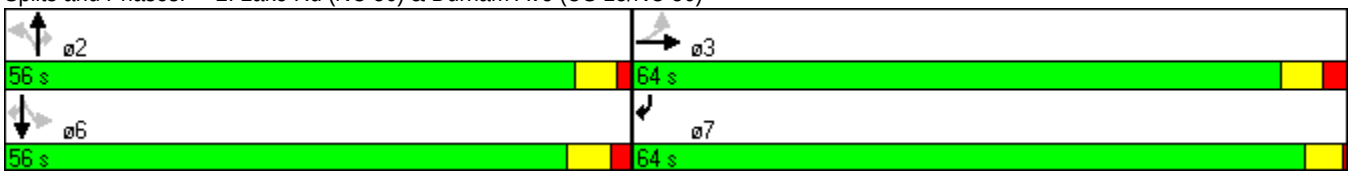


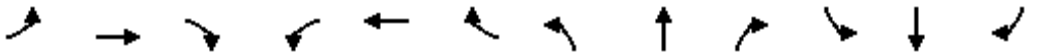
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	568	73	561	0	0	0	130	82	822	139	288	764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-4%			1%			-1%	
Storage Length (ft)	750		0	0		0	100		350	75		0
Storage Lanes	1		0	0		0	1		1	1		1
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	1.00	1.00	1.00
Frt		0.867							0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1743	3022	0	0	0	0	1761	1853	1575	1778	1872	1591
Flt Permitted	0.950						0.495			0.698		
Satd. Flow (perm)	1743	3022	0	0	0	0	917	1853	1575	1307	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1024			1031			919			371	
Travel Time (s)		19.9			20.1			17.9			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	631	81	623	0	0	0	144	91	913	154	320	849
Shared Lane Traffic (%)												
Lane Group Flow (vph)	631	704	0	0	0	0	144	91	913	154	320	849
Turn Type	Perm						Perm		Perm	Perm		custom
Protected Phases		3						2			6	7
Permitted Phases	3						2		2	6	6	6
Detector Phase	3	3					2	2	2	6	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0					10.0	10.0	10.0	7.0	7.0	7.0
Minimum Split (s)	13.1	13.1					15.1	15.1	15.1	12.8	12.8	11.0
Total Split (s)	64.0	64.0	0.0	0.0	0.0	0.0	56.0	56.0	56.0	56.0	56.0	64.0
Total Split (%)	53.3%	53.3%	0.0%	0.0%	0.0%	0.0%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%
Maximum Green (s)	57.9	57.9					50.9	50.9	50.9	50.2	50.2	60.0
Yellow Time (s)	3.7	3.7					3.8	3.8	3.8	3.9	3.9	3.5
All-Red Time (s)	2.4	2.4					1.3	1.3	1.3	1.9	1.9	0.5
Lost Time Adjust (s)	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 Lost Time (s)	6.1	6.1	4.0	4.0	4.0	4.0	5.1	5.1	5.1	5.8	5.8	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0					3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None					C-Min	C-Min	C-Min	C-Min	C-Min	None
Act Effct Green (s)	49.6	49.6					59.2	59.2	59.2	58.5	58.5	120.0
Actuated g/C Ratio	0.41	0.41					0.49	0.49	0.49	0.49	0.49	1.00
v/c Ratio	0.88	0.97dr					0.32	0.10	1.18	0.24	0.35	0.53
Control Delay	45.9	28.1					22.9	18.8	122.0	17.7	17.9	4.1
Queue Delay	0.0	0.0					0.0	0.0	0.0	0.0	0.7	0.0
Total Delay	45.9	28.1					22.9	18.8	122.0	17.7	18.6	4.1
LOS	D	C					C	B	F	B	B	A
Approach Delay		36.5						101.4			9.2	
Approach LOS		D						F			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	432	211					67	38	~861	47	98	104
Queue Length 95th (ft)	539	242					132	76	#1181	87	159	137
Internal Link Dist (ft)		944			951			839			291	
Turn Bay Length (ft)	750						100		350	75		
Base Capacity (vph)	841	1458					452	914	777	637	913	1588
Starvation Cap Reductn	0	0					0	0	0	0	310	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	0.48					0.32	0.10	1.18	0.24	0.53	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 118 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 46.6		Intersection LOS: D	
Intersection Capacity Utilization 93.0%		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.			
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			

Splits and Phases: 2: Lake Rd (NC 56) & Durham Ave (US 15/NC 56)



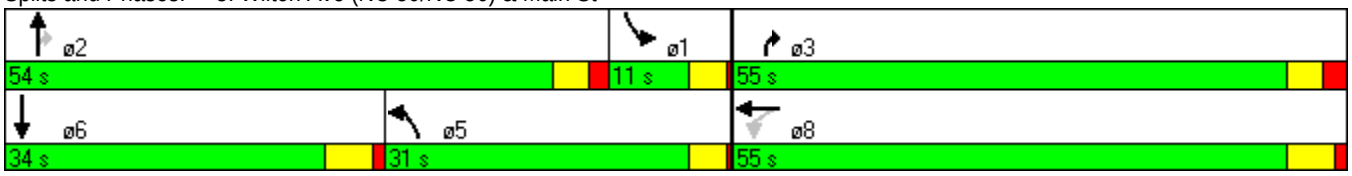


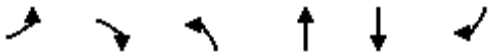
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	306	436	26	438	375	1837	33	229	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	14	14	10	14	14	10	14	14
Grade (%)		-6%			-6%			4%			-6%	
Storage Length (ft)	0		0	550		0	300		350	130		0
Storage Lanes	0		0	1		0	2		2	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	0.97	1.00	0.88	1.00	1.00	1.00
Frt					0.992				0.850		0.969	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	0	0	1701	1975	0	2912	1947	2913	1701	1983	0
Flt Permitted				0.950			0.950			0.950		
Satd. Flow (perm)	0	0	0	1701	1975	0	2912	1947	2913	1701	1983	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		905			934			348			821	
Travel Time (s)		17.6			18.2			11.9			16.0	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	2%	5%	2%	10%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	340	484	29	487	417	2041	37	254	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	340	513	0	487	417	2041	37	320	0
Turn Type				Perm			Prot		custom	Prot		
Protected Phases					8		5	2	3	1	6	
Permitted Phases				8					2			
Detector Phase				8	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)				50.0	50.0		11.0	20.0	15.0	11.0	20.0	
Total Split (s)	0.0	0.0	0.0	55.0	55.0	0.0	31.0	54.0	55.0	11.0	34.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	45.8%	45.8%	0.0%	25.8%	45.0%	45.8%	9.2%	28.3%	0.0%
Maximum Green (s)				49.5	49.5		27.0	49.0	49.5	7.0	28.5	
Yellow Time (s)				4.3	4.3		3.5	3.1	3.1	3.5	4.3	
All-Red Time (s)				1.2	1.2		0.5	1.9	2.4	0.5	1.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	-0.5	0.0
Total Lost Time (s)	4.0	4.0	4.0	5.5	5.0	4.0	4.0	5.0	5.5	4.0	5.0	4.0
Lead/Lag							Lag	Lead		Lag	Lead	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)				3.0	3.0		3.0	1.0	1.0	3.0	1.0	
Recall Mode				Min	Min		None	C-Max	None	None	C-Max	
Act Effct Green (s)				41.1	41.6		24.5	61.8	110.1	7.0	39.9	
Actuated g/C Ratio				0.34	0.35		0.20	0.52	0.92	0.06	0.33	
v/c Ratio				0.58	0.75		0.82	0.42	0.76	0.37	0.48	
Control Delay				35.6	41.1		49.3	20.3	3.2	65.5	38.2	
Queue Delay				0.0	0.0		1.0	1.8	1.6	0.0	0.0	
Total Delay				35.6	41.1		50.3	22.2	4.8	65.5	38.2	
LOS				D	D		D	C	A	E	D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay					38.9			14.8			41.1	
Approach LOS					D			B			D	
Queue Length 50th (ft)				209	339		188	192	76	28	208	
Queue Length 95th (ft)				278	426		m203	m259	317	65	327	
Internal Link Dist (ft)		825			854			268			741	
Turn Bay Length (ft)				550			300		350	130		
Base Capacity (vph)				702	823		655	1003	2672	99	660	
Starvation Cap Reductn				0	0		44	414	425	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				0.48	0.62		0.80	0.71	0.91	0.37	0.48	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 70 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 78.0%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Wilton Ave (NC 50/NC 56) & Main St





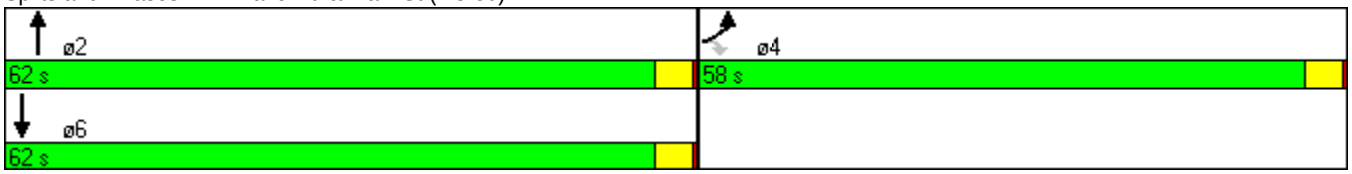
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1303	554	0	1395	591	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	625	0			0
Storage Lanes	2	1	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3433	1583	0	3539	3539	0
Flt Permitted	0.950					
Satd. Flow (perm)	3433	1583	0	3539	3539	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	30			20	20	
Link Distance (ft)	1031			653	348	
Travel Time (s)	23.4			22.3	11.9	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1416	602	0	1550	657	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1416	602	0	1550	657	0
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		7.0	7.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	
Total Split (s)	58.0	58.0	0.0	62.0	62.0	0.0
Total Split (%)	48.3%	48.3%	0.0%	51.7%	51.7%	0.0%
Maximum Green (s)	54.0	54.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max	
Act Effct Green (s)	53.3	53.3		58.7	58.7	
Actuated g/C Ratio	0.44	0.44		0.49	0.49	
v/c Ratio	0.93	0.86		0.90	0.38	
Control Delay	34.4	34.6		36.2	18.3	
Queue Delay	6.9	0.0		5.4	0.8	
Total Delay	41.3	34.6		41.7	19.1	
LOS	D	C		D	B	
Approach Delay	39.3			41.7	19.1	
Approach LOS	D			D	B	
Queue Length 50th (ft)	396	297		565	163	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 95th (ft)	m314	m260		#684	192	
Internal Link Dist (ft)	951			573	268	
Turn Bay Length (ft)		625				
Base Capacity (vph)	1545	712		1731	1731	
Starvation Cap Reductn	0	0		0	726	
Spillback Cap Reductn	111	0		143	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.99	0.85		0.98	0.65	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 62 (52%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 37.0		Intersection LOS: D	
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.

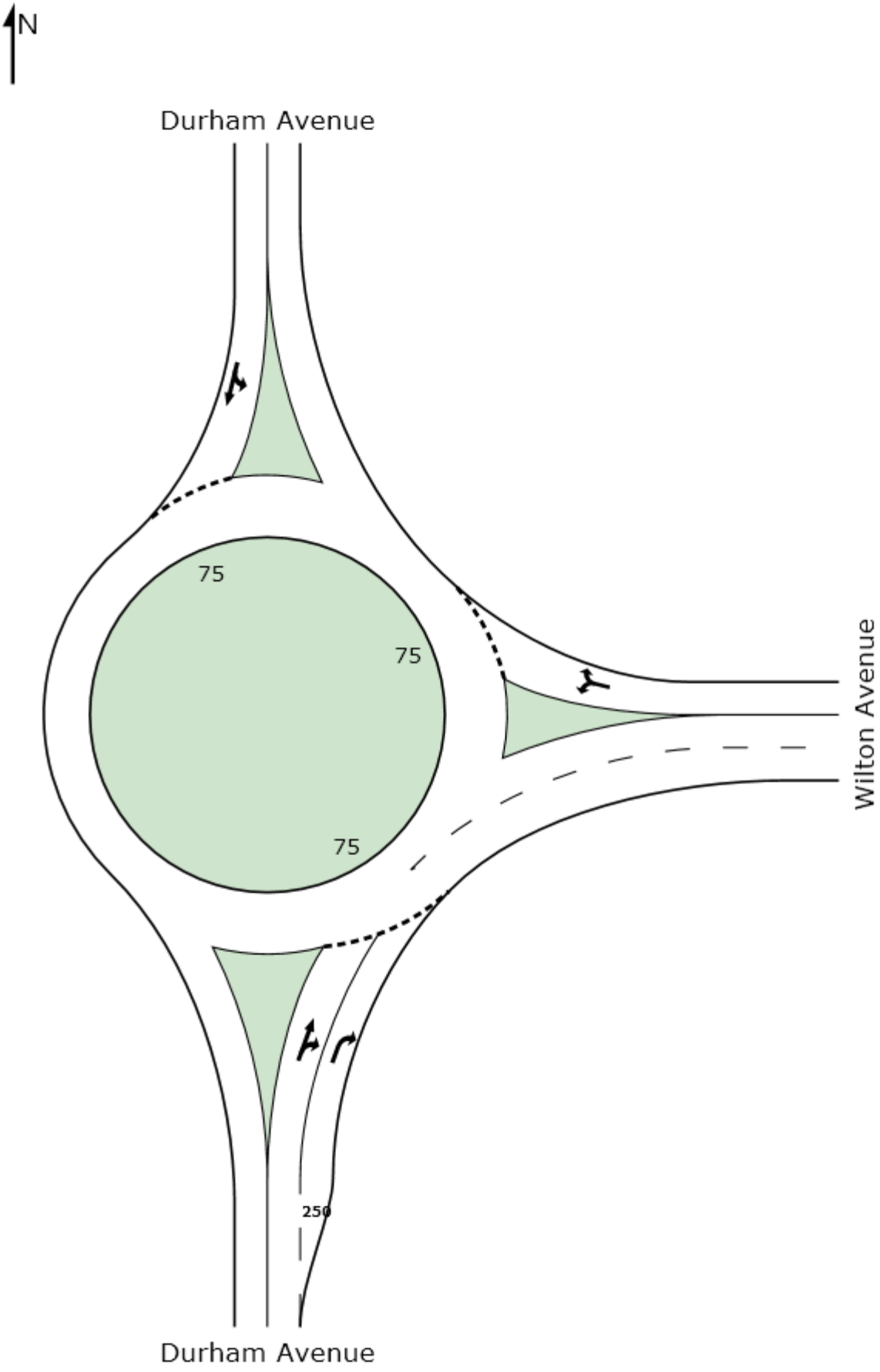
Splits and Phases: 4: Lake Rd & Main St (NC 50)

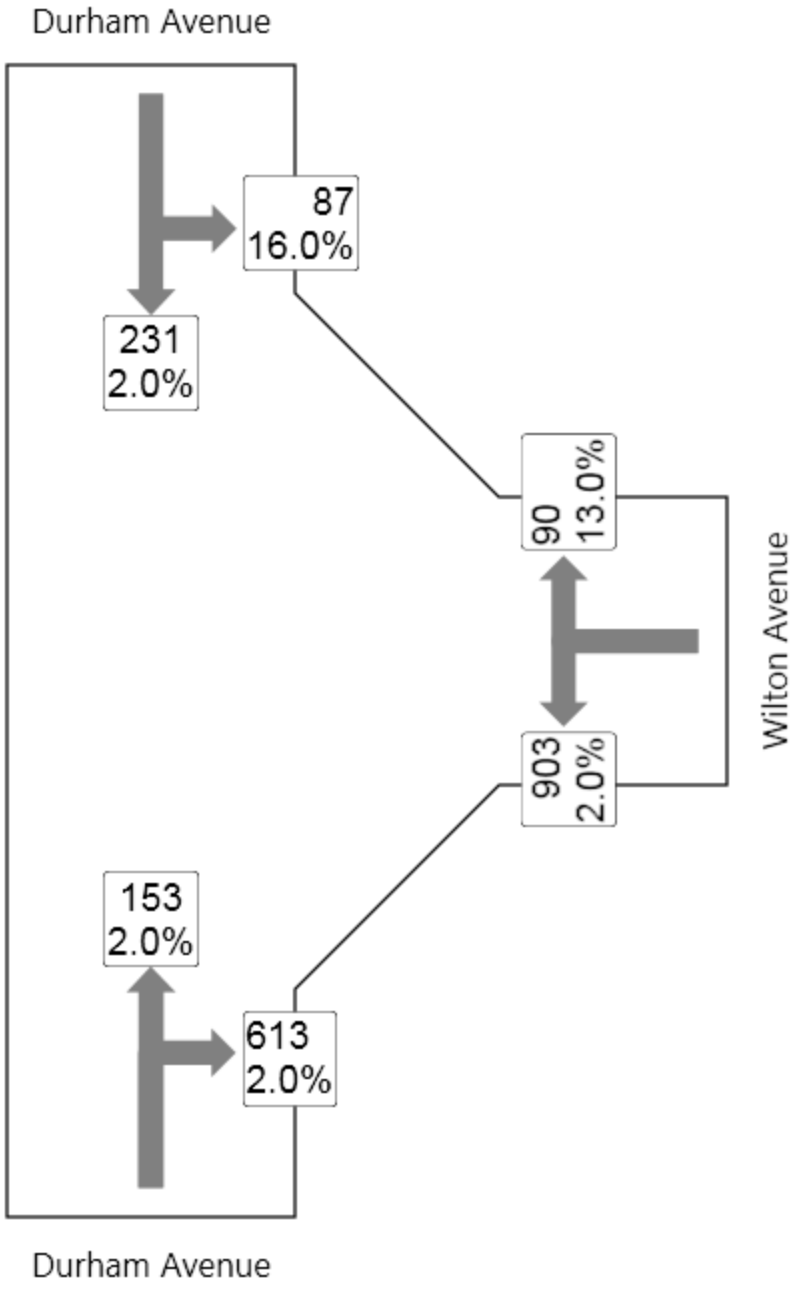


Sidra Capacity Analysis

2040 Future Conditions

Wilton / Durham


N
Durham Avenue
75
75
75
Wilton Avenue
250
Durham Avenue


Durham Avenue
87
16.0%
231
2.0%
90
13.0%
Wilton Avenue
903
2.0%
153
2.0%
613
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: Durham and Wilton - 2040 Future AM

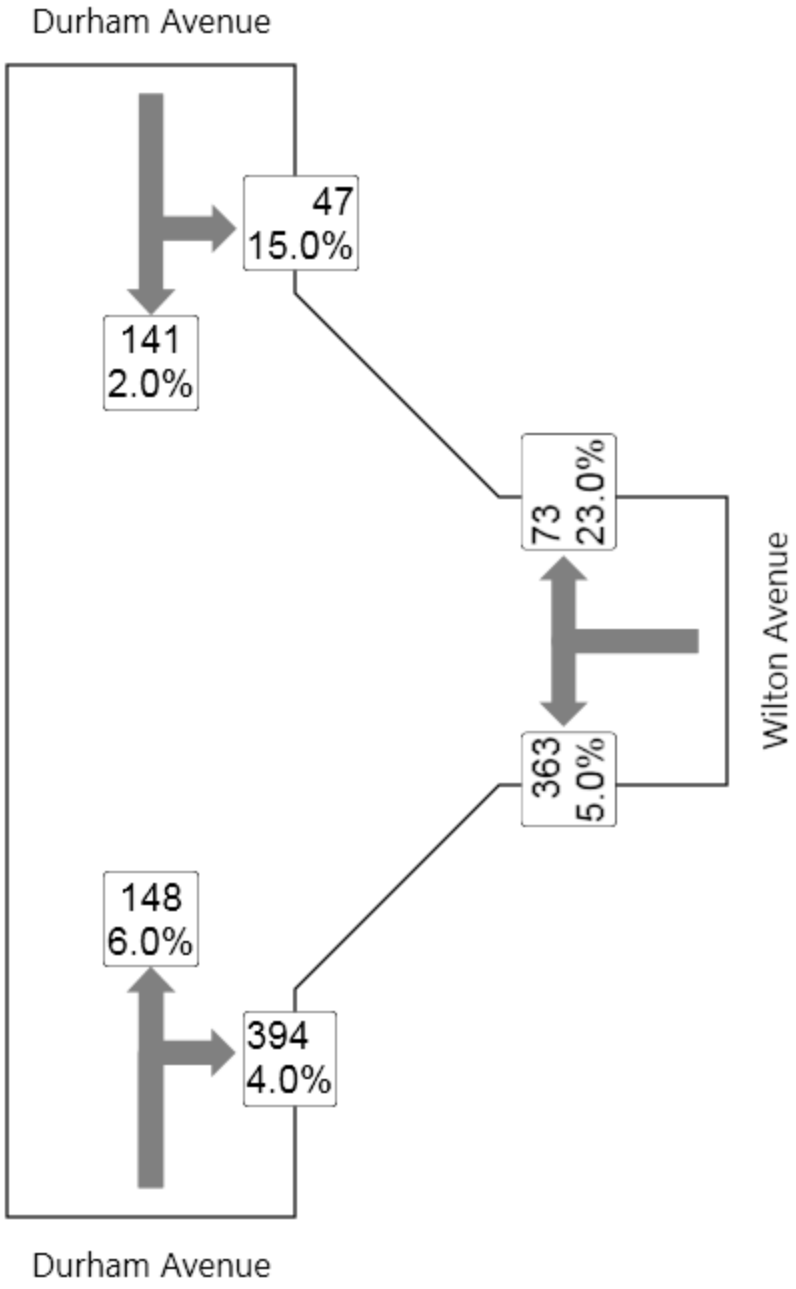
Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	170	2.0	0.349	3.2	LOS A	3.4	85.5	0.35	0.34	22.7
8R	R	681	2.0	0.349	4.5	LOS A	3.4	85.5	0.34	0.45	21.7
Approach		851	2.0	0.349	4.2	LOS A	3.4	85.5	0.35	0.43	21.9
East: Wilton Avenue											
1L	L	1003	2.0	0.976	26.7	LOS C	37.7	965.0	1.00	0.93	21.4
6R	R	100	13.0	0.980	24.0	LOS C	37.7	965.0	1.00	0.96	23.2
Approach		1103	3.0	0.976	26.5	LOS C	37.7	965.0	1.00	0.94	21.6
North: Durham Avenue											
7L	L	97	16.0	1.324	197.5	LOS F	42.4	1109.8	1.00	2.23	6.2
4T	T	257	2.0	1.316	189.6	LOS F	42.4	1109.8	1.00	2.29	5.5
Approach		353	5.8	1.319	191.8	LOS F	42.4	1109.8	1.00	2.27	5.7
All Vehicles		2308	3.1	1.319	43.6	LOS D	42.4	1109.8	0.76	0.95	13.9

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
47
15.0%
141
2.0%
73
23.0%
Wilton Avenue
363
5.0%
148
6.0%
394
4.0%
Durham Avenue

MOVEMENT SUMMARY

Site: Durham and Wilton - 2040 Future Midday

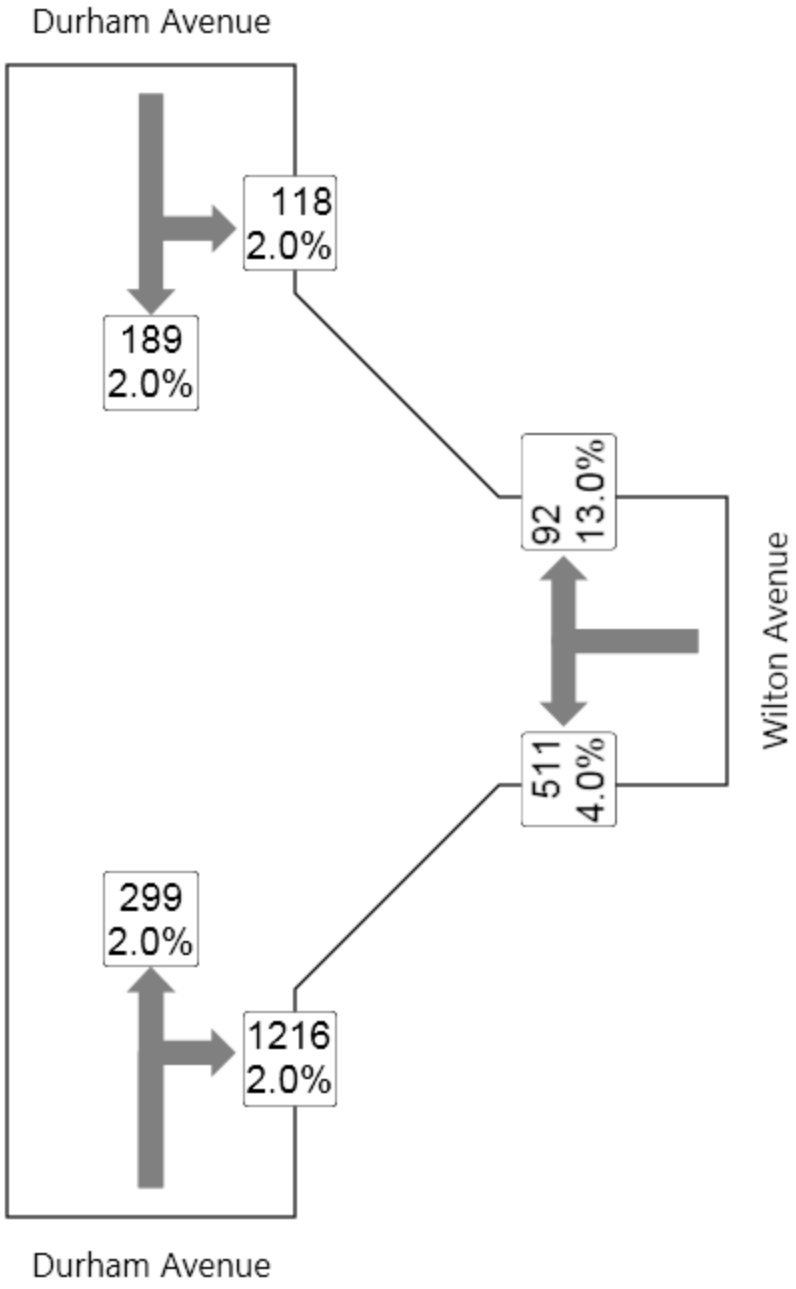
Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	154	6.0	0.233	3.0	LOS A	1.9	48.5	0.24	0.31	23.6
8R	R	410	4.0	0.233	4.4	LOS A	1.9	48.5	0.24	0.43	22.3
Approach		565	4.5	0.233	4.0	LOS A	1.9	48.5	0.24	0.40	22.6
East: Wilton Avenue											
1L	L	399	5.0	0.467	11.4	LOS B	4.1	109.5	0.50	0.68	28.3
6R	R	80	23.0	0.466	9.0	LOS A	4.1	109.5	0.50	0.60	31.0
Approach		479	8.0	0.467	11.0	LOS B	4.1	109.5	0.50	0.66	28.7
North: Durham Avenue											
7L	L	52	15.0	0.289	16.1	LOS B	2.1	54.8	0.65	0.89	28.5
4T	T	157	2.0	0.289	8.3	LOS A	2.1	54.8	0.65	0.69	30.4
Approach		209	5.3	0.289	10.2	LOS B	2.1	54.8	0.65	0.74	29.8
All Vehicles		1253	6.0	0.467	7.7	LOS A	4.1	109.5	0.41	0.56	27.4

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
118
2.0%
189
2.0%
92
13.0%
Wilton Avenue
511
4.0%
299
2.0%
1216
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: Durham and Wilton - 2040 Future PM

Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	325	2.0	0.681	4.1	LOS A	9.3	237.2	0.66	0.48	20.4
8R	R	1322	2.0	0.681	5.3	LOS A	9.3	237.2	0.63	0.54	20.2
Approach		1647	2.0	0.681	5.1	LOS A	9.3	237.2	0.64	0.53	20.2
East: Wilton Avenue											
1L	L	568	4.0	0.787	18.6	LOS B	13.3	347.5	0.96	1.00	24.8
6R	R	102	13.0	0.786	15.9	LOS B	13.3	347.5	0.96	1.02	27.0
Approach		670	5.4	0.788	18.2	LOS B	13.3	347.5	0.96	1.00	25.1
North: Durham Avenue											
7L	L	131	2.0	0.585	20.7	LOS C	6.3	161.1	0.91	1.06	26.0
4T	T	210	2.0	0.585	13.3	LOS B	6.3	161.1	0.91	1.02	27.0
Approach		341	2.0	0.585	16.2	LOS C	6.3	161.1	0.91	1.04	26.5
All Vehicles		2658	2.9	0.788	9.8	LOS A	13.3	347.5	0.75	0.71	23.4

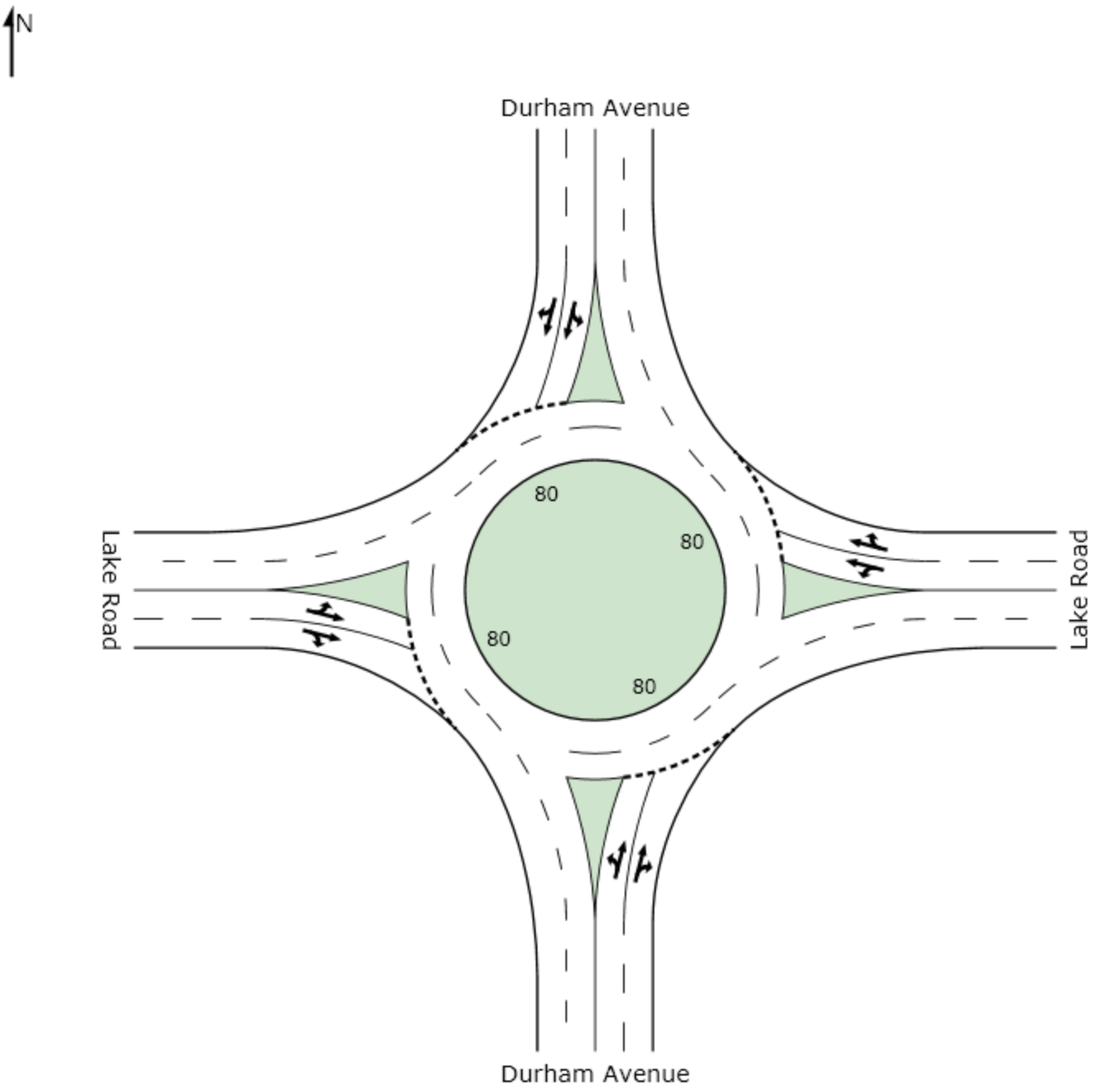
Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.

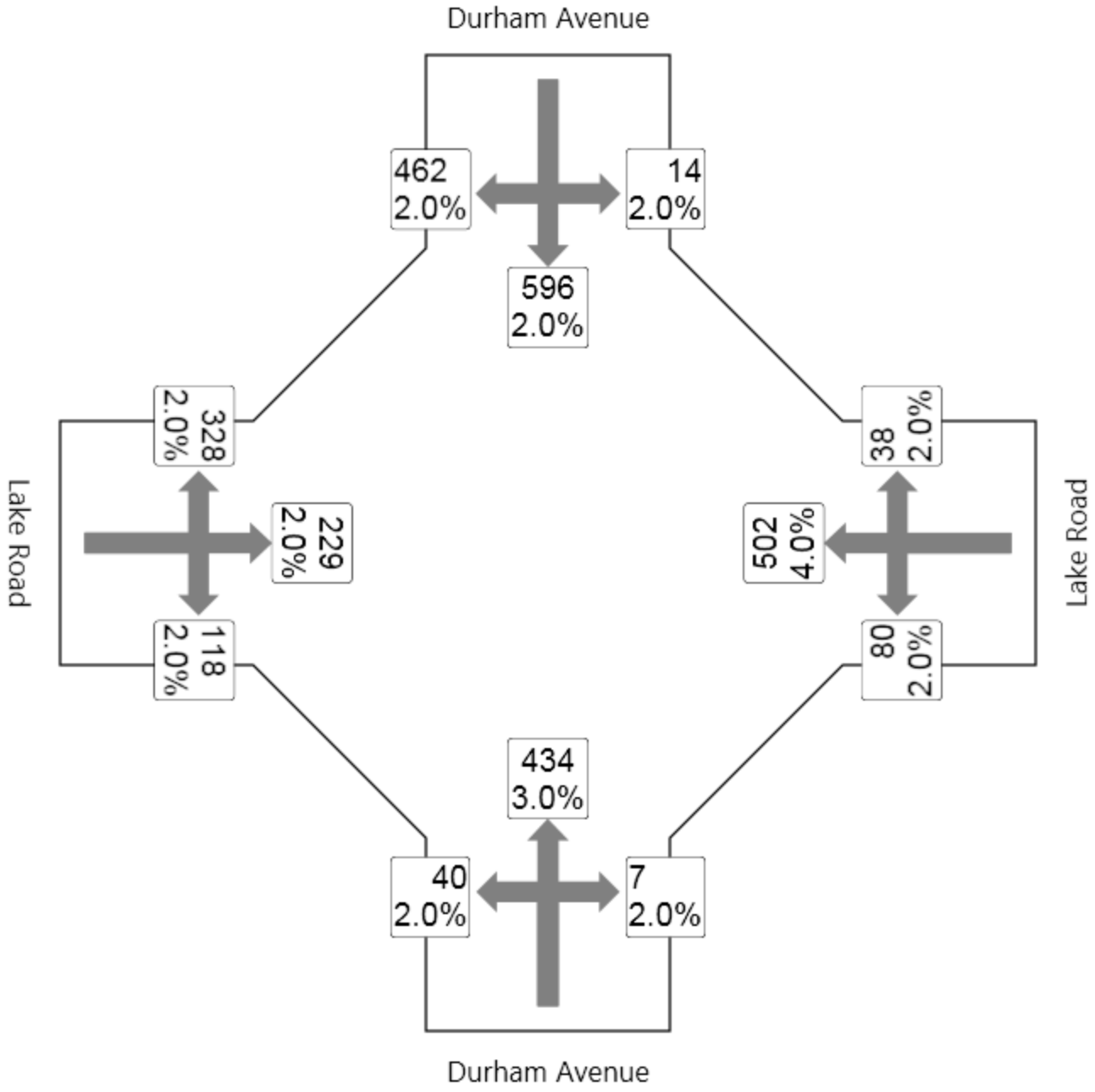
SIDRA INTERSECTION

Sidra Capacity Analysis

2040 Future Conditions

Lake / Durham


N
Durham Avenue
Lake Road
Lake Road
Durham Avenue
80
80
80
80


Durham Avenue
462
2.0%
14
2.0%
596
2.0%
Lake Road
328
2.0%
229
2.0%
118
2.0%
38
2.0%
502
4.0%
80
2.0%
Lake Road
434
3.0%
40
2.0%
7
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: 2040 Future AM - Int 2

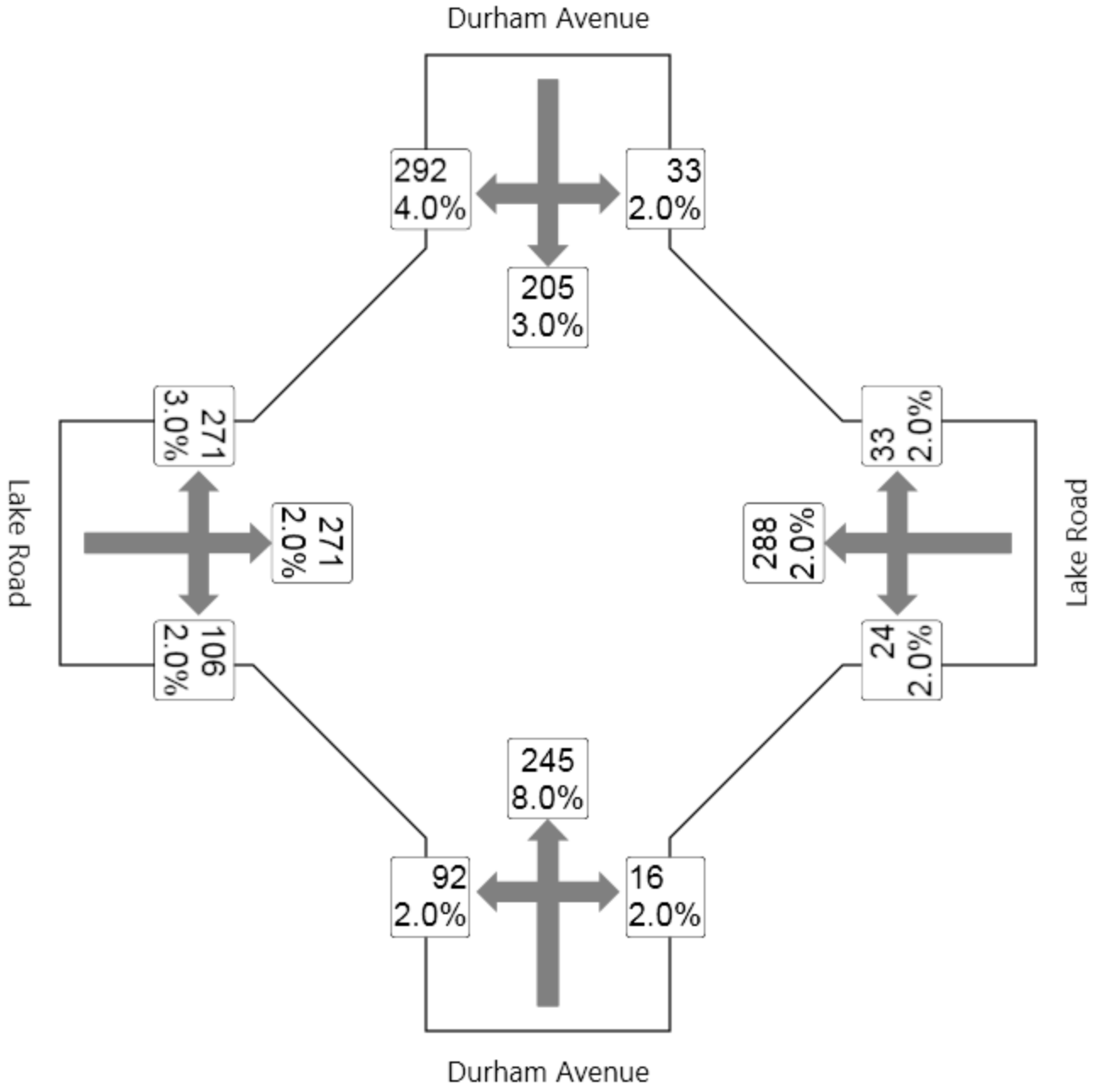
Paired Roundabout - Intersection 1 (varying number of approach & circul. lanes)

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
3L	L	44	2.0	0.393	12.5	LOS B	2.6	65.7	0.69	0.99	18.9
8T	T	482	3.0	0.394	6.0	LOS A	2.6	65.7	0.69	0.69	20.7
8R	R	8	2.0	0.389	7.3	LOS A	2.6	65.7	0.69	0.82	20.7
Approach		534	2.9	0.394	6.5	LOS B	2.6	65.7	0.69	0.72	20.6
East: Lake Road											
1L	L	89	2.0	0.549	16.7	LOS B	4.3	111.5	0.79	1.06	26.4
6T	T	558	4.0	0.548	12.8	LOS B	4.4	113.0	0.79	0.96	29.1
6R	R	42	2.0	0.548	13.6	LOS B	4.4	113.0	0.79	0.99	29.1
Approach		689	3.6	0.548	13.3	LOS B	4.4	113.0	0.79	0.98	28.7
North: Durham Avenue											
7L	L	15	2.0	0.827	22.6	LOS C	10.2	259.5	0.93	1.20	25.5
4T	T	634	2.0	0.834	15.1	LOS B	10.2	259.5	0.93	1.16	26.4
4R	R	491	2.0	0.834	17.4	LOS B	10.2	259.5	0.93	1.17	26.5
Approach		1140	2.0	0.834	16.2	LOS C	10.2	259.5	0.93	1.16	26.5
West: Lake Road											
5L	L	364	2.0	0.599	19.2	LOS B	5.5	140.3	0.85	1.04	26.2
2T	T	254	2.0	0.600	12.8	LOS B	5.5	140.3	0.85	1.00	28.9
2R	R	131	2.0	0.599	12.9	LOS B	5.5	140.3	0.85	1.01	28.4
Approach		750	2.0	0.600	16.0	LOS B	5.5	140.3	0.85	1.02	27.4
All Vehicles		3114	2.5	0.834	13.8	LOS B	10.2	259.5	0.84	1.01	26.7

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
292
4.0%
33
2.0%
205
3.0%
271
3.0%
33
2.0%
Lake Road
271
2.0%
288
2.0%
Lake Road
106
2.0%
24
2.0%
245
8.0%
92
2.0%
16
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: 2040 Future Midday - Int 2

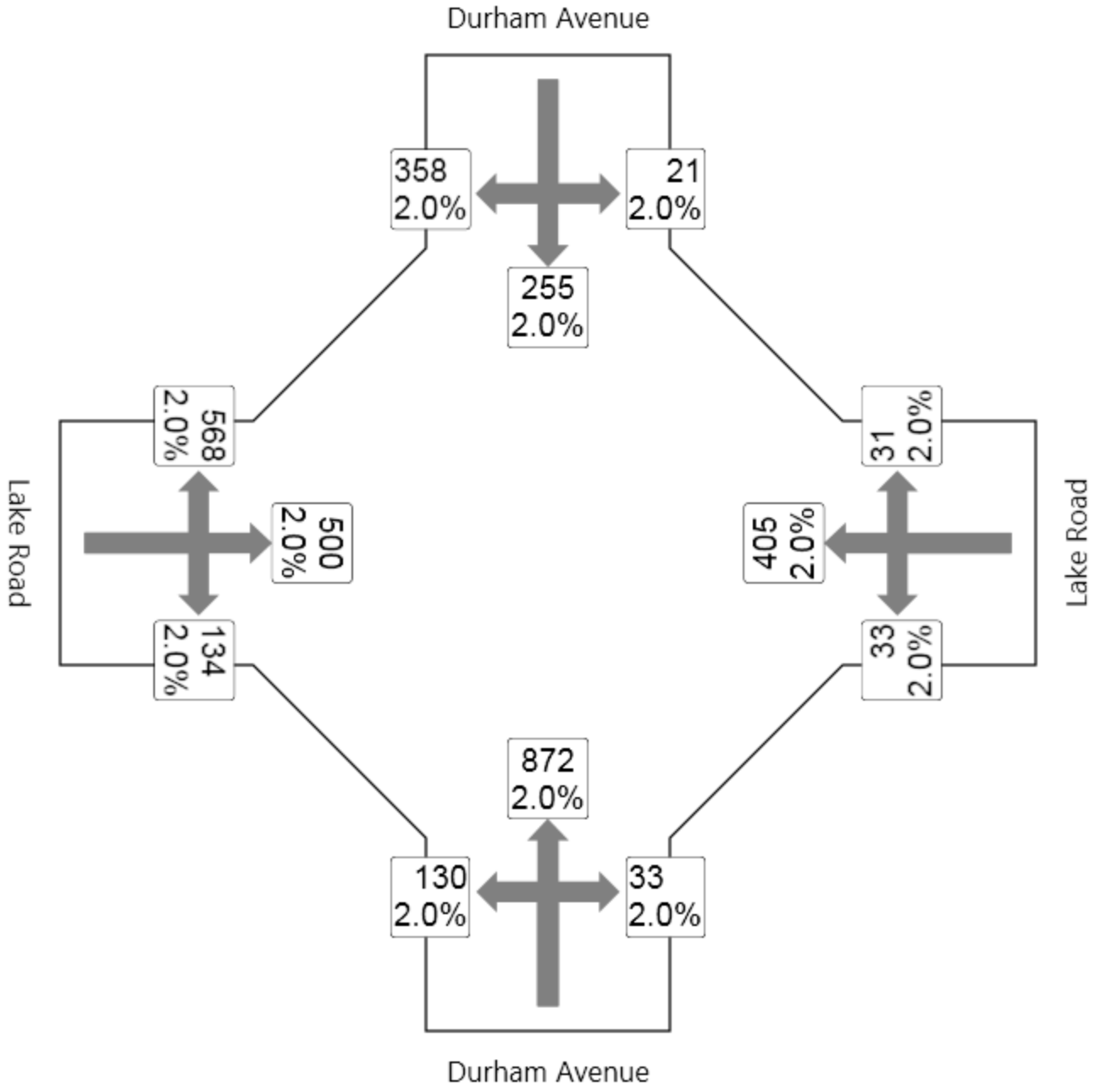
Roundabout with 2 & 3-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
3L	L	102	2.0	0.279	15.1	LOS B	1.6	40.4	0.61	0.92	28.6
8T	T	272	8.0	0.278	9.1	LOS A	1.6	40.9	0.61	0.72	31.0
8R	R	18	2.0	0.278	10.1	LOS B	1.5	40.9	0.61	0.83	31.2
Approach		392	6.2	0.278	10.7	LOS B	1.6	40.9	0.61	0.78	30.4
East: Lake Road											
1L	L	27	2.0	0.254	15.3	LOS B	1.5	37.5	0.62	0.94	28.8
6T	T	320	2.0	0.254	9.0	LOS A	1.5	37.6	0.62	0.73	31.1
6R	R	37	2.0	0.255	9.9	LOS A	1.5	37.6	0.62	0.81	31.2
Approach		383	2.0	0.254	9.5	LOS B	1.5	37.6	0.62	0.76	30.9
North: Durham Avenue											
7L	L	37	2.0	0.327	14.6	LOS B	2.0	50.3	0.57	0.92	29.2
4T	T	228	3.0	0.328	8.3	LOS A	2.0	50.3	0.57	0.67	31.3
4R	R	324	4.0	0.399	9.6	LOS A	2.5	65.1	0.60	0.76	30.8
Approach		589	3.5	0.399	9.4	LOS B	2.5	65.1	0.59	0.74	30.9
West: Lake Road											
5L	L	295	3.0	0.370	14.1	LOS B	2.6	67.0	0.53	0.77	28.8
2T	T	295	2.0	0.370	7.6	LOS A	2.6	67.0	0.53	0.62	31.4
2R	R	115	2.0	0.369	8.6	LOS A	2.6	66.8	0.53	0.68	31.4
Approach		704	2.4	0.369	10.5	LOS B	2.6	67.0	0.53	0.69	30.2
All Vehicles		2069	3.4	0.399	10.0	LOS B	2.6	67.0	0.58	0.73	30.6

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
358
2.0%
21
2.0%
255
2.0%
568
2.0%
31
2.0%
Lake Road
500
2.0%
405
2.0%
Lake Road
134
2.0%
33
2.0%
872
2.0%
130
2.0%
33
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: 2040 Future PM - Int 2

Roundabout with 2 & 3-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles

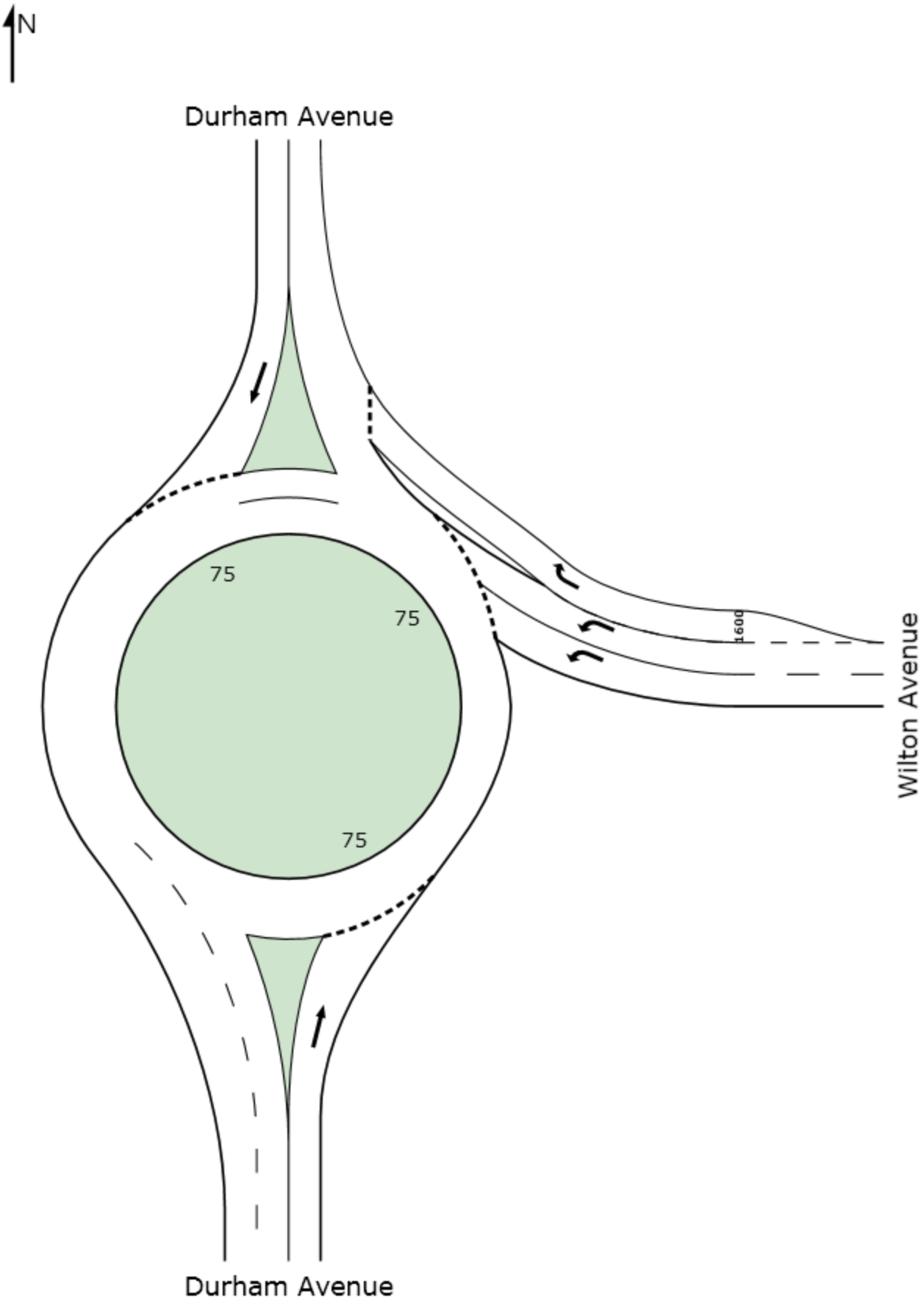
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
3L	L	144	2.0	1.245	140.0	LOS F	46.6	1184.3	1.00	2.81	8.3
8T	T	969	2.0	1.247	133.2	LOS F	48.8	1238.7	1.00	2.84	8.2
8R	R	37	2.0	1.264	134.0	LOS F	48.8	1238.7	1.00	2.87	8.1
Approach		1150	2.0	1.247	134.1	LOS F	48.8	1238.7	1.00	2.84	8.2
East: Lake Road											
1L	L	37	2.0	0.764	38.5	LOS D	7.3	184.8	0.95	1.22	19.9
6T	T	450	2.0	0.759	31.0	LOS C	7.8	198.6	0.96	1.21	21.0
6R	R	34	2.0	0.765	31.0	LOS C	7.8	198.6	0.97	1.22	21.2
Approach		521	2.0	0.759	31.5	LOS D	7.8	198.6	0.96	1.21	20.9
North: Durham Avenue											
7L	L	23	2.0	0.449	16.0	LOS B	3.1	79.5	0.70	1.01	28.5
4T	T	283	2.0	0.449	9.7	LOS A	3.1	79.5	0.70	0.82	30.8
4R	R	398	2.0	0.551	11.4	LOS B	4.4	112.8	0.75	0.94	30.0
Approach		704	2.0	0.551	10.9	LOS B	4.4	112.8	0.73	0.89	30.2
West: Lake Road											
5L	L	631	2.0	0.711	17.2	LOS B	9.1	230.6	0.81	0.91	27.3
2T	T	556	2.0	0.710	10.8	LOS B	9.1	230.7	0.81	0.86	30.2
2R	R	149	2.0	0.712	11.8	LOS B	9.1	230.7	0.81	0.88	30.2
Approach		1336	2.0	0.711	13.9	LOS B	9.1	230.7	0.81	0.88	28.7
All Vehicles		3711	2.0	1.247	53.0	LOS D	48.8	1238.7	0.87	1.54	15.8

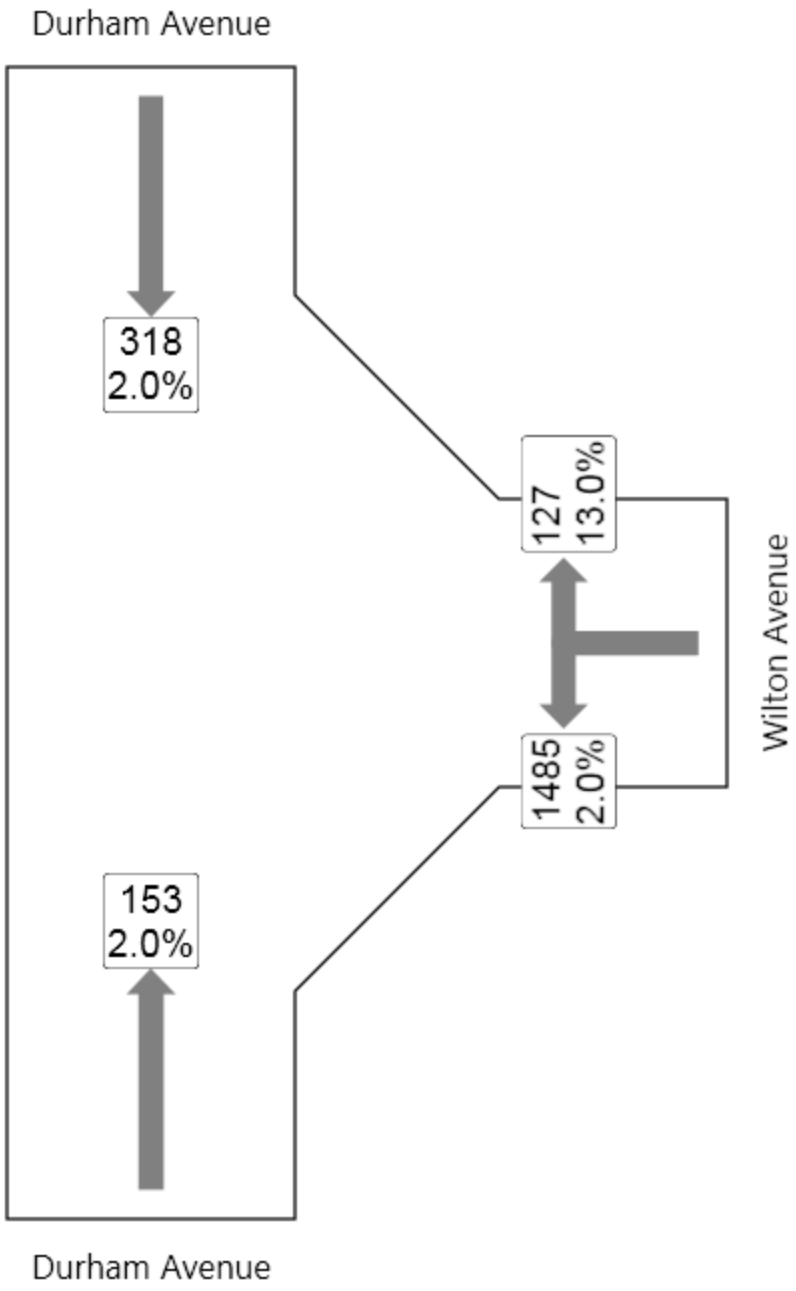
Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.

Sidra Capacity Analysis

2040 Future Conditions – One Way Pair

Wilton / Durham


N
Durham Avenue
75
75
75
1600
Wilton Avenue
Durham Avenue


Durham Avenue
318
2.0%
127
13.0%
Wilton Avenue
1485
2.0%
153
2.0%
Durham Avenue

MOVEMENT SUMMARY

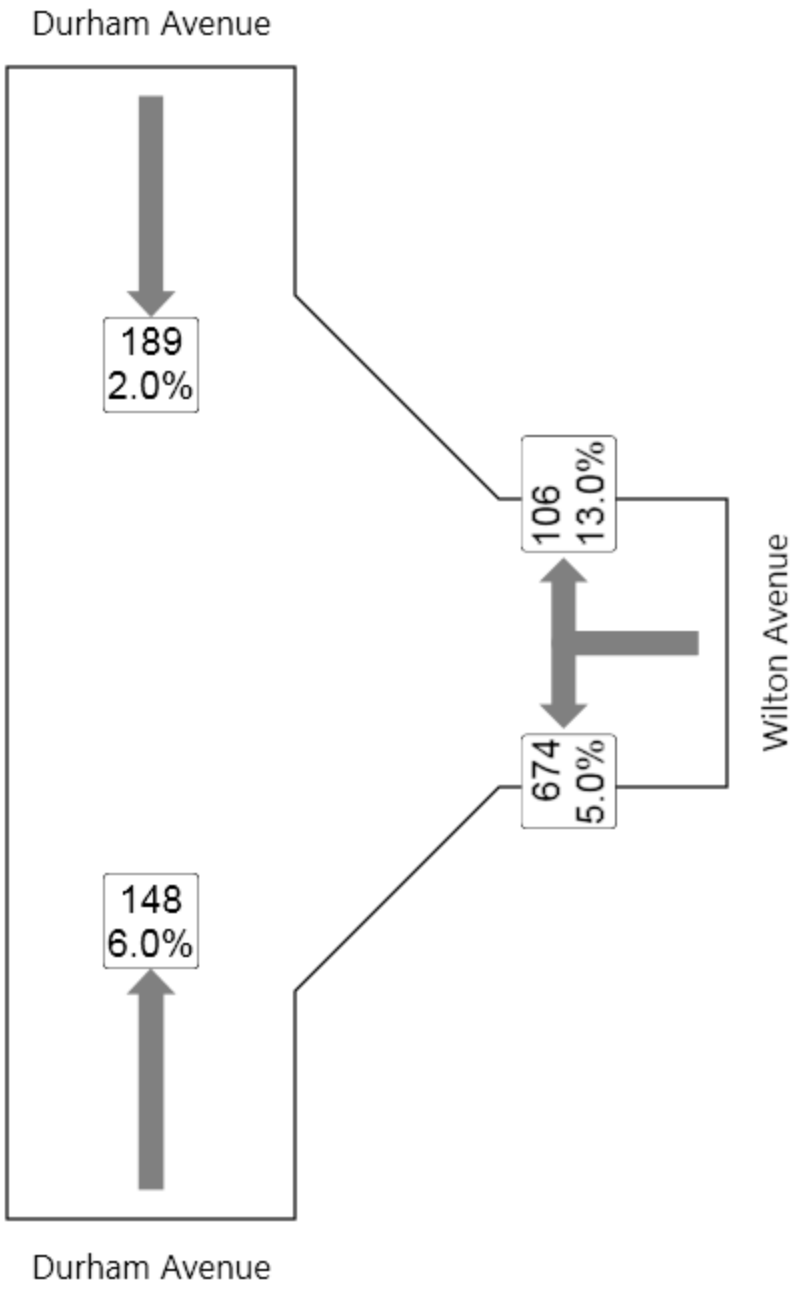
Site: Durham and Wilton - 2040 Future AM - One Way Pair

2011 Existing
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	170	2.0	0.106	6.0	LOS A	0.0	0.0	0.00	0.49	34.1
Approach		170	2.0	0.106	6.0	LOS A	0.0	0.0	0.00	0.49	34.1
East: Wilton Avenue											
1L	L	1650	2.0	0.666	13.9	LOS B	7.5	189.9	0.60	0.69	28.4
6R	R	141	13.0	0.133	8.1	LOS A	0.8	22.8	0.35	0.56	31.9
Approach		1791	2.9	0.666	13.5	LOS B	7.5	189.9	0.58	0.68	28.6
North: Durham Avenue											
4T	T	353	2.0	1.190	119.5	LOS F	28.2	717.0	1.00	2.21	8.9
Approach		353	2.0	1.189	119.5	LOS F	28.2	717.0	1.00	2.21	8.9
All Vehicles		2314	2.7	1.189	29.1	LOS C	28.2	717.0	0.60	0.90	21.8

Level of Service (Aver. Int. Delay): LOS C. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
189
2.0%
106
13.0%
Wilton Avenue
674
5.0%
148
6.0%
Durham Avenue

MOVEMENT SUMMARY

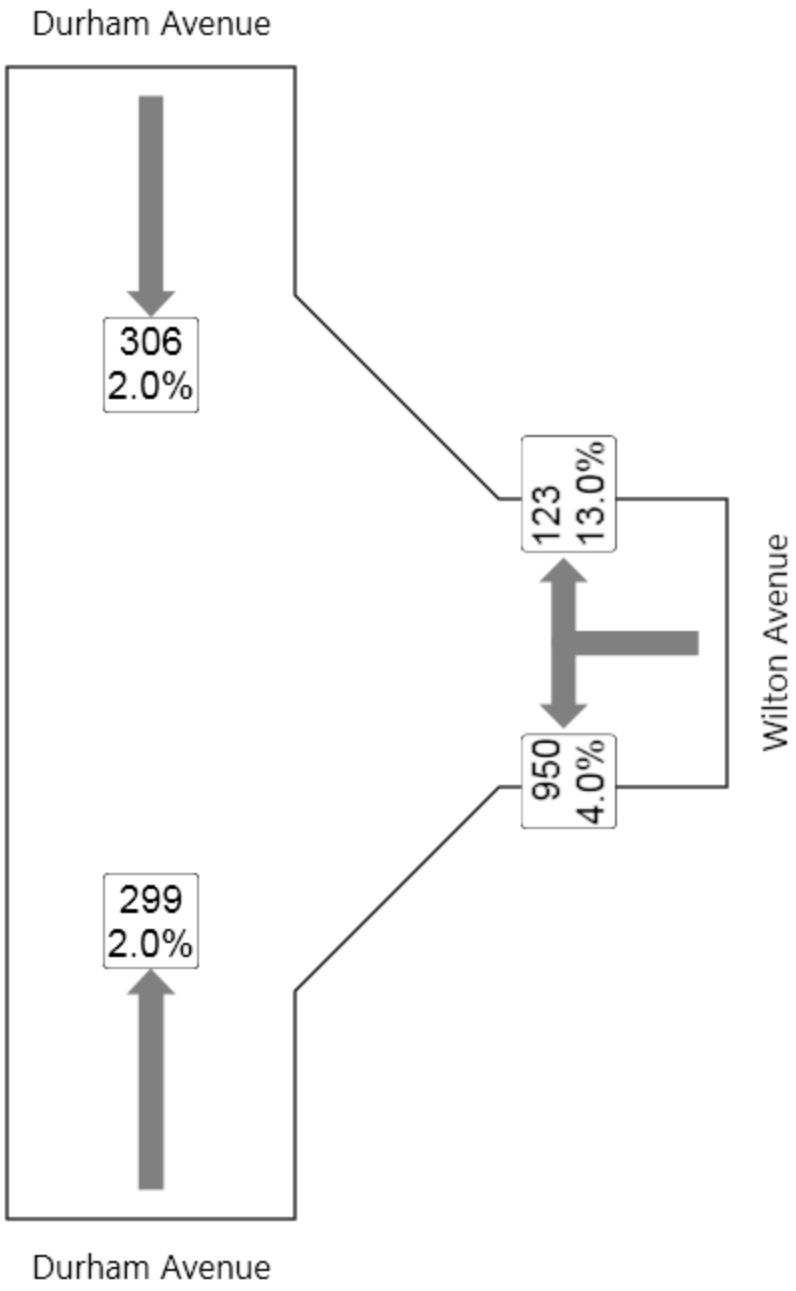
Site: Durham and Wilton - 2040 Future Midday - One Way Pair

2011 Existing
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	154	6.0	0.100	6.1	LOS A	0.0	0.0	0.00	0.49	34.1
Approach		154	6.0	0.100	6.1	LOS A	0.0	0.0	0.00	0.49	34.1
East: Wilton Avenue											
1L	L	741	5.0	0.315	13.3	LOS B	2.3	60.2	0.39	0.68	28.9
6R	R	116	13.0	0.109	8.0	LOS A	0.7	18.3	0.34	0.55	32.0
Approach		857	6.1	0.315	12.6	LOS B	2.3	60.2	0.38	0.66	29.3
North: Durham Avenue											
4T	T	210	2.0	0.377	11.0	LOS B	2.1	53.5	0.67	0.85	30.3
Approach		210	2.0	0.377	11.0	LOS B	2.1	53.5	0.67	0.85	30.3
All Vehicles		1221	5.4	0.377	11.5	LOS B	2.3	60.2	0.38	0.67	30.0

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.


Durham Avenue
306
2.0%
123
13.0%
Wilton Avenue
950
4.0%
299
2.0%
Durham Avenue

MOVEMENT SUMMARY

Site: Durham and Wilton - 2040 Future PM - One Way Pair

2011 Existing
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Durham Avenue											
8T	T	325	2.0	0.203	6.0	LOS A	0.0	0.0	0.00	0.49	34.1
Approach		325	2.0	0.203	6.0	LOS A	0.0	0.0	0.00	0.49	34.1
East: Wilton Avenue											
1L	L	1056	4.0	0.517	15.0	LOS B	4.5	115.8	0.64	0.78	28.3
6R	R	137	13.0	0.146	9.1	LOS A	0.9	25.5	0.48	0.63	31.4
Approach		1192	5.0	0.517	14.3	LOS B	4.5	115.8	0.62	0.76	28.6
North: Durham Avenue											
4T	T	340	2.0	0.798	20.9	LOS C	7.1	180.0	0.90	1.14	24.9
Approach		340	2.0	0.799	20.9	LOS C	7.1	180.0	0.90	1.14	24.9
All Vehicles		1857	3.9	0.799	14.1	LOS B	7.1	180.0	0.56	0.78	28.6

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.

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