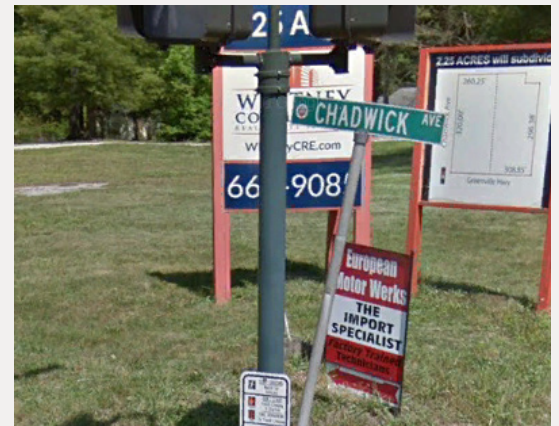


RAMEY KEMP ASSOCIATES
TOGETHER WE ARE LIMITLESS



Greenville Highway Apartments
Traffic Impact Analysis
Hendersonville, North Carolina

TRAFFIC IMPACT
ANALYSIS

FOR

GREENVILLE HIGHWAY
APARTMENTS

LOCATED

IN

HENDERSONVILLE, NC

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January 2022

RKA Project No. 21779

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TRAFFIC IMPACT ANALYSIS
GREENVILLE HIGHWAY APARTMENTS
HENDERSONVILLE, NORTH CAROLINA

EXECUTIVE SUMMARY

1. Development Overview

A Traffic Impact Analysis (TIA) was conducted for the proposed Greenville Highway Apartments development to be located in the southeast corner of Greenville Highway and Chadwick Avenue in Hendersonville, North Carolina. The proposed development, anticipated to be completed in 2023, is assumed to consist of 80 mid-rise multifamily units. The proposed development is assumed to consist of 80 mid-rise multifamily units with site access proposed via one full movement driveway along Chadwick Avenue.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2022 Existing Traffic Conditions
- 2023 No-Build Traffic Conditions
- 2023 Build Traffic Conditions
- 2040 TIP Design Year Analysis No-Build Conditions
- 2040 TIP Design Year Analysis Build Conditions

2. Existing Traffic Conditions

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in January 2022 during the typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods while local schools were in session:

- Greenville Highway and Spartanburg Highway
- Greenville Highway and Chadwick Avenue
- Spartanburg Highway and Chadwick Avenue
- Greenville Highway and White Street

3. Site Trip Generation

Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE Trip Generation Manual, 10th Edition. Table E-1 provides a summary of the trip generation potential for the site.

Table E-1: Site Trip Generation

LAND USE (ITE Code)	INTENSITY	DAILY TRIPS (VPD)	WEEKDAY AM PEAK HOUR (VPH)		WEEKDAY PM PEAK HOUR (VPH)	
			Enter	Exit	Enter	Exit
Mid-rise Multifamily (221)	80 DU	434	7	21	22	14

4. Future Traffic Conditions

Through coordination with the City and NCDOT, it was determined that an annual growth rate of 1% would be used to generate 2023 projected weekday AM and PM peak hour traffic volumes. Based on coordination with the NCDOT and the City, it was determined there were no adjacent developments to consider with this study. Based on coordination with the NCDOT and the City, it was determined that the roadway improvements associated with the NCDOT State Transportation Improvement Program (STIP) projects U-5886 and U-6049 should be considered in this study. Based on coordination with NCDOT and the City, a design year scenario including STIPs U-5886 and U-6049 was analyzed.

5. Capacity Analysis Summary

The analysis considered weekday AM and PM peak hour traffic for all traffic conditions. Refer to Section 7 of the TIA for the capacity analysis summary performed at each study intersection.

6. Recommendations

Based on the findings of this study, no specific geometric improvements have been identified or recommended to accommodate future traffic conditions. Refer to Figure E-1 for an illustration of the future lane configurations.

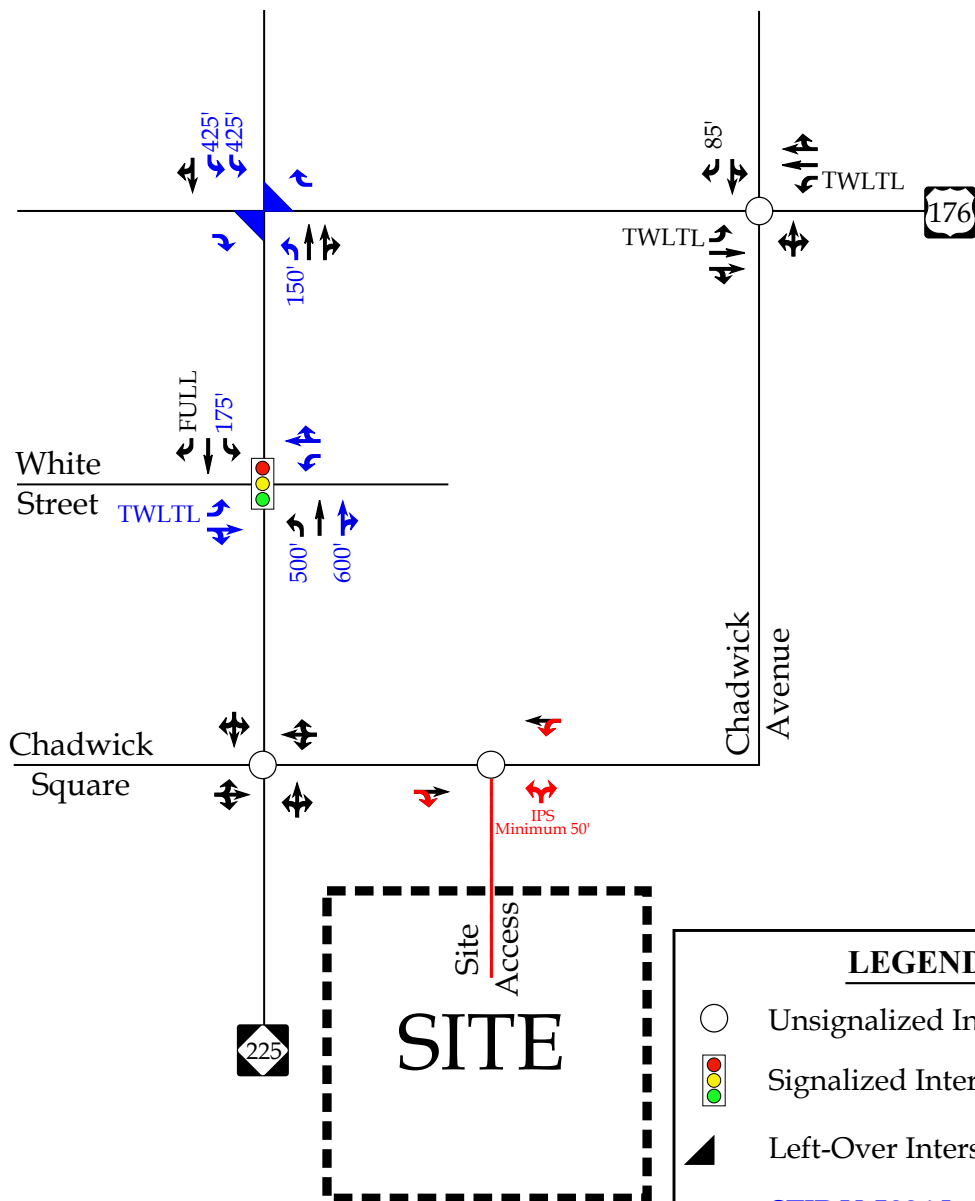
Improvements by NCDOT STIPs U-5886 and U-6049

STIP U-5886 is expected to convert Greenville Highway and Spartanburg Highway to the signalized left-over intersections and provide turn lane modifications at the intersection of Greenville Highway and White Street.

Recommended Improvements by Developer

Chadwick Avenue and Site Access

- Construct northbound approach [Site Access] with one ingress lane and one egress lane.



LEGEND

- Unsignalized Intersection
- ◫ Signalized Intersection
- ▲ Left-Over Intersection
- STIP U-5886 Improvements
- Existing Lane
- Improvement by Developer
- x' Storage (In Feet)



Greenville Highway
Apartments
Hendersonville, NC

Future Lane
Configurations

Scale: Not to Scale Figure E-1

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TRAFFIC IMPACT ANALYSIS
GREENVILLE HIGHWAY APARTMENTS
HENDERSONVILLE, NORTH CAROLINA

1. INTRODUCTION

The contents of this report present the findings of the Traffic Impact Analysis (TIA) conducted for the proposed Greenville Highway Apartments development to be located in the southeast corner of Greenville Highway and Chadwick Avenue in Hendersonville, North Carolina. The purpose of this study is to determine the potential impacts to the surrounding transportation system created by traffic generated by the proposed development, as well as recommend improvements to mitigate the impacts.

The proposed development, anticipated to be completed in 2023, is assumed to consist of 80 mid-rise multifamily units.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2022 Existing Traffic Conditions
- 2023 No-Build Traffic Conditions
- 2023 Build Traffic Conditions
- 2040 TIP Design Year Analysis No-Build Conditions
- 2040 TIP Design Year Analysis Build Conditions

1.1. Site Location and Study Area

The development is proposed to be located in the southeast corner of Greenville Highway and Chadwick Avenue in Hendersonville, North Carolina. Refer to Figure 1 for the site location map.

The study area for the TIA was determined through coordination with the North Carolina Department of Transportation (NCDOT) and the City of Hendersonville (City) and consists of the following existing intersections:

- Greenville Highway and Spartanburg Highway
- Greenville Highway and Chadwick Avenue
- Spartanburg Highway and Chadwick Avenue
- Greenville Highway and White Street

Refer to Appendix A for the approved scoping documentation.

1.2. Proposed Land Use and Site Access

The proposed development is assumed to consist of 80 mid-rise multifamily units with site access proposed via one full movement driveway along Chadwick Avenue. Refer to Figure 2 for a copy of the preliminary site plan.

1.3. Adjacent Land Uses

The proposed development is located in an area consisting of a commercial and residential land uses.

1.4. Existing Roadways

Existing lane configurations (number of traffic lanes on each intersection approach), lane widths, storage capacities, and other intersection and roadway information within the study area are shown in Figure 3. Table 1 provides a summary of this information, as well.

Table 1: Existing Roadway Inventory

Road Name	Route Number	Typical Cross Section	Speed Limit	Maintained By	2020 AADT (vpd)
Greenville Highway	NC 225	2-lane / 4-lane undivided	35 mph	NCDOT	13,000
Spartanburg Highway	US 25	4-lane TWLTL divided	35 mph	NCDOT	18,500
Chadwick Avenue	N / A	2-lane undivided	35 mph	Town	1,550*
White Street	SR 1170	2-lane undivided	35 mph	NCDOT	7,440*

*ADT based on the traffic counts from 2022 and assuming that weekday PM peak hour volume is 10% of the average daily traffic



LEGEND

- Proposed Site Location
- Study Intersection
- Study Area



Greenville Highway
Apartments
Hendersonville, NC

Site Location Map

Scale: Not to Scale Figure 1



1 Site Plan
1/32" = 1'-0"

SITE STATISTICS:

SITE: 904 GREENVILLE HWY, HENDERSONVILLE NC 28792-6224
PIN: 9568921924
ALL CALCULATIONS APPLY TO THE AREA OF THE SITE AFFECTED

LAND USE DESIGNATION: 100 - ACTIVITY CENTER

CURRENT USE	PROPOSED USE	OCCUPANCY
UNDEVELOPED	RESIDENTIAL	R-2

SITE DATA:

- DESCRIPTION
- 1.A) ZONING: GREENVILLE HIGHWAY MIXED USE ZONING (GHMU)
- 1.B) INTENSITY: PREVIOUS: 13 MOBILE HOMES
PROPOSED: RESIDENTIAL 3 (4 STORY) BUILDINGS
- 1.A) UNITS: 80 DWELLING UNITS
70% 2 BED/ 2 BATH
30% 1 BED/1 BATH

2.)	SITE AREA:	GROSS LOT S.F.: 98,010 SQ. FT. / 2.25 ACRES				
3.)	YARD DIMENSIONS:	REQUIRED		PROVIDED		
	FRONT (CHADWICK) SETBACK	0' - 0"		4'-0"		
	FRONT (GVILLE HWY) SETBACK	0' - 0"		9' - 6"		
	REAR SETBACK	25' - 0"		38' - 8"		
	SIDE SETBACK	25' - 0"		25' - 0"		
4.)	BUILDING HEIGHT:	42'-0" MAX		4 FLOORS / 42'- 0"		
5.)	MIN LOT SIZE:	5,000 SF		-		
6.)	MAX BLDG FOOTPRINT:	12,000 SF MAX.		9,800 SF		
7.)	DENSITY:	NO CAP		80 UNITS		
8.)	COMMON SPACE	10% 9,801 SF		14,800 SF		
9.)	PORCH/BALCONY	5' PROJECTION INTO SETBACK		-		
10.)	IMPERVIOUS AREAS:	PROPOSED		%		
	BUILDING FOOT PRINT:	29,400 SQ.FT		30%		
	PARKING AREA:	26,040 SQ,FT		27%		
	SIDEWALK/WALKWAYS:	3,120 SQ. FT.		3%		
	DUMPSTER AREA:	130 SQ. FT.		.001%		
	TOTAL IMPERVIOUS AREA	58,010 SQ. FT.		60%		
11.)	PERVIOUS AREAS:	REQUIRED	EXISTING	PROPOSED	%	
	A. TOTAL PERVIOUS AREA:		- SQ. FT.	58,010 SQ. FT.	60%	
	B. TOTAL OPEN SPACE	39,200 SQ. FT.	- SQ. FT.	39,300 SQ. FT.	40%	
	500 SF PER DWELLING UNIT OR 9% OF LOT AREA, WHICHEVER IS GREATER					
12.)	PARKING:	REQUIRED		PROVIDED		
	PARKING SPACES	80		80		
	ADA PARKING SPACES	4		4		
	BIKE RACKS	0		4 STATIONS		
13.)	TREES:	EXISTING		REMAIN	NEW	TOTAL
		61		26	39	65

TAMARA PEACOCK, R.A.
LICENSE NO. 12126

PROJ. DESIGNER
CAPT. APPROVER

DRAWN BY:
AUTHOR
REVIEWED BY:
CHECKER

ISSUED FOR	REVISION DATE	REVISION

THE TAMARA PEACOCK COMPANY
Architects

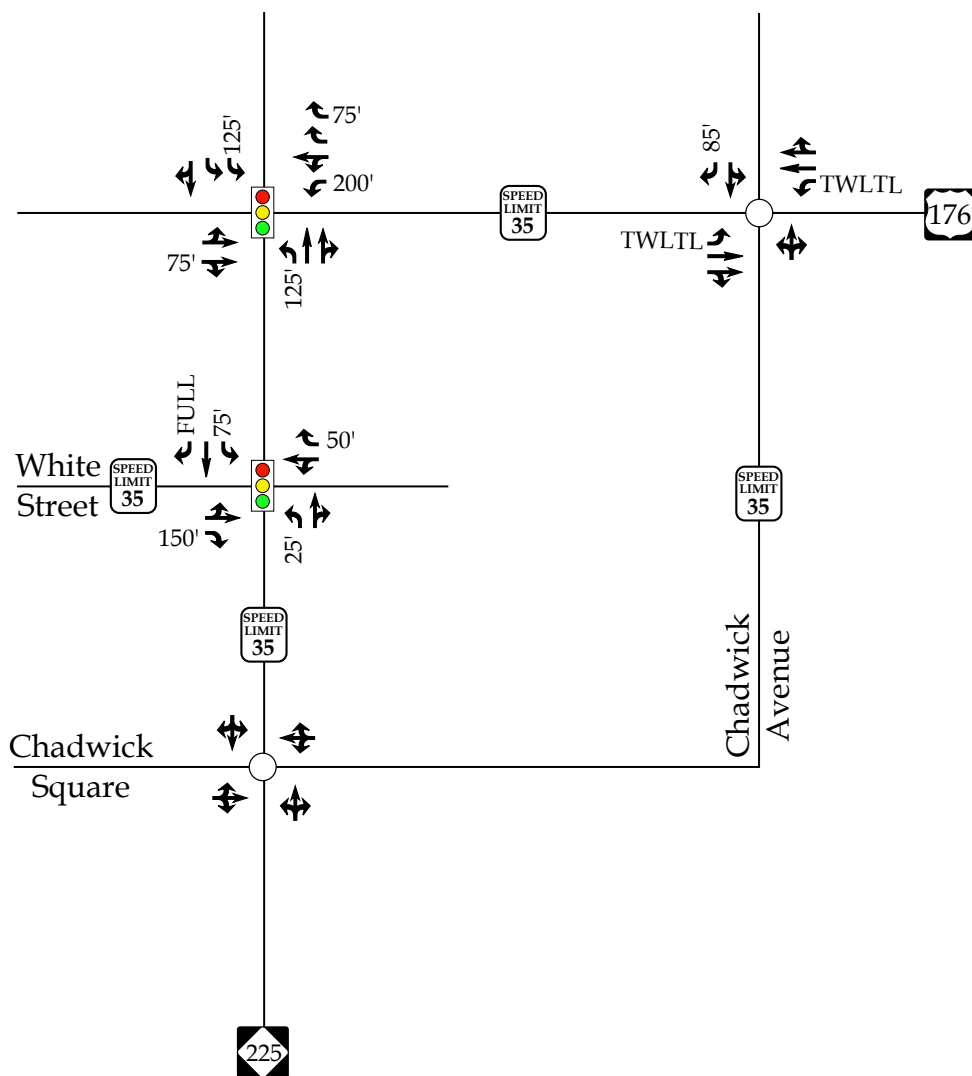
104 E. 1st Ave, Suite A, Hendersonville, NC 28792
Ph: 828-696-4000 Fax: 828-696-4952

PROJECT NAME:
**GVILLE HWY
MULTIFAMILY
904 GREENVILLE HWY
HENDERSONVILLE NC**

SHEET NAME:
**SITE PLAN/
MASTER
PLAN**

PROJ. No.: 17-0351
DATE: 1/11/2022
8:59:12 AM

SHEET No.: **SP 1.00**



LEGEND

- Unsignalized Intersection
- ⬆️⬆️⬆️ Signalized Intersection
- ➡️ Existing Lane
- x' Storage (In Feet)
- ⬆️⬆️⬆️ Posted Speed Limit



Greenville Highway
Apartments
Hendersonville, NC

2022 Existing
Lane Configurations

Scale: Not to Scale Figure 3

2. 2022 EXISTING PEAK HOUR CONDITIONS

2.1. 2022 Existing Peak Hour Traffic Volumes

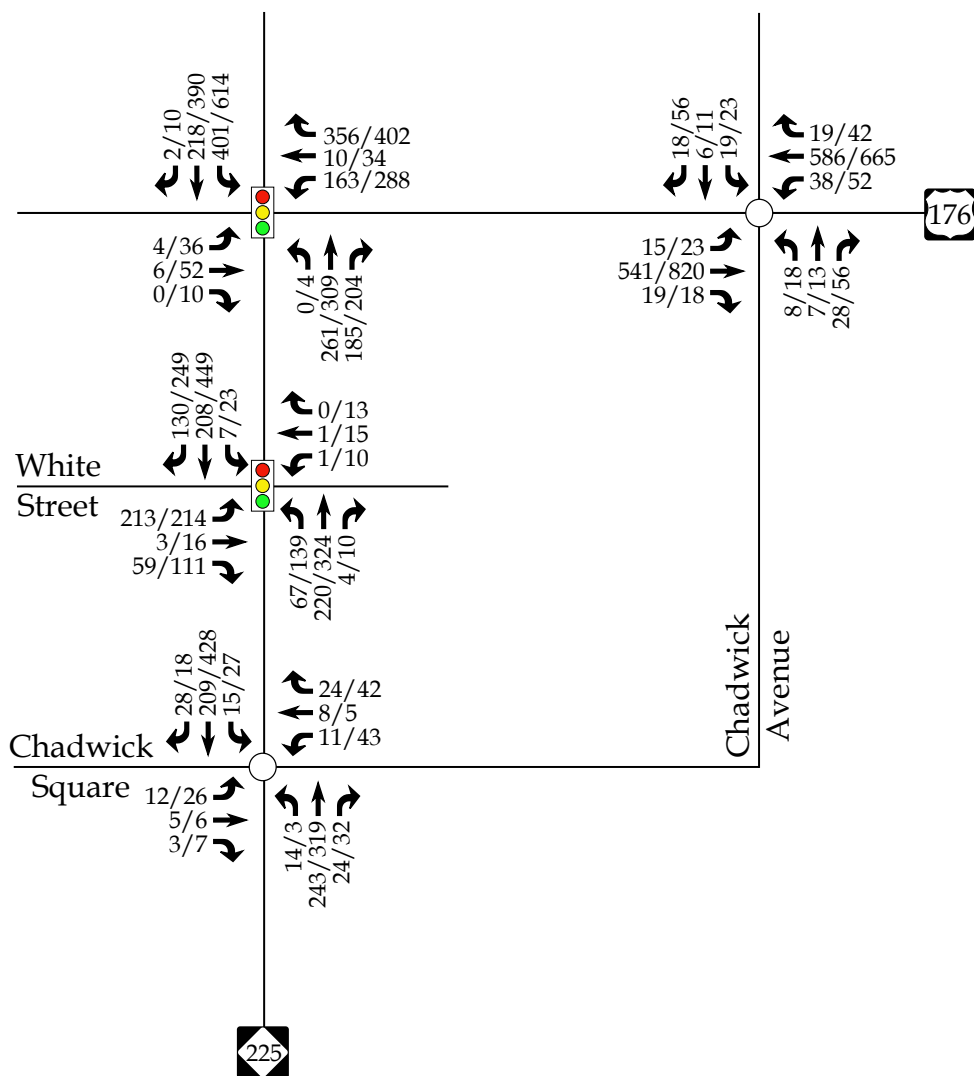
Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in January 2022 during the typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods while local schools were in session:

- Greenville Highway and Spartanburg Highway
- Greenville Highway and Chadwick Avenue
- Spartanburg Highway and Chadwick Avenue
- Greenville Highway and White Street

Refer to Figure 4 for 2022 existing weekday AM and PM peak hour traffic volumes. A copy of the count data is located in Appendix B of this report.

2.2. Analysis of 2022 Existing Peak Hour Traffic Conditions

The 2022 existing weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections under existing roadway conditions. Signal information was obtained from NCDOT and is included in Appendix C. It should be noted that coordinated timings plans were not provided for the existing signals, therefore, the intersections of Greenville Highway at Spartanburg Highway and White Street were analyzed as coordinated with splits and offsets optimized. The signalized intersection of Greenville Highway and Chadwick Avenue was analyzed as uncoordinated. The results of the analysis are presented in Section 7 of this report.



LEGEND



Unsignalized Intersection



Signalized Intersection

X / Y → Weekday AM / PM Peak Hour Traffic



Greenville Highway
Apartments
Hendersonville, NC

2022 Existing
Peak Hour Traffic

Scale: Not to Scale Figure 4

3. 2023 NO-BUILD PEAK HOUR CONDITIONS

In order to account for growth of traffic and subsequent traffic conditions at a future year, no-build traffic projections are needed. No-build traffic is the component of traffic due to the growth of the community and surrounding area that is anticipated to occur regardless of whether or not the proposed development is constructed. No-build traffic is comprised of existing traffic growth within the study area and additional traffic created as a result of adjacent approved developments.

3.1. Ambient Traffic Growth

Through coordination with the Town and NCDOT, it was determined that an annual growth rate of 1% would be used to generate 2023 projected weekday AM and PM peak hour traffic volumes.

3.2. Adjacent Development Traffic

Based on coordination with the NCDOT and the City, it was determined there were no adjacent developments to consider with this study.

3.3. Future Roadway Improvements

Based on coordination with the NCDOT and the City, it was determined that the roadway improvements associated with the NCDOT State Transportation Improvement Program (STIP) projects U-5886 and U-6049 should be considered in this study. U-5886 is provide improvements to the intersection Greenville Highway and White Street, while U-6049 is expected to reconfigure the intersection of Greenville Highway and Spartanburg Highway to a left-over which restricts the side-street approaches of the Fresh Market Entrance and Spartanburg Highway to rights-out only. The future roadway improvement plans for U-5886 and U-6049 can be found in Appendix D.

3.4. 2023 No-Build Peak Hour Traffic Volumes

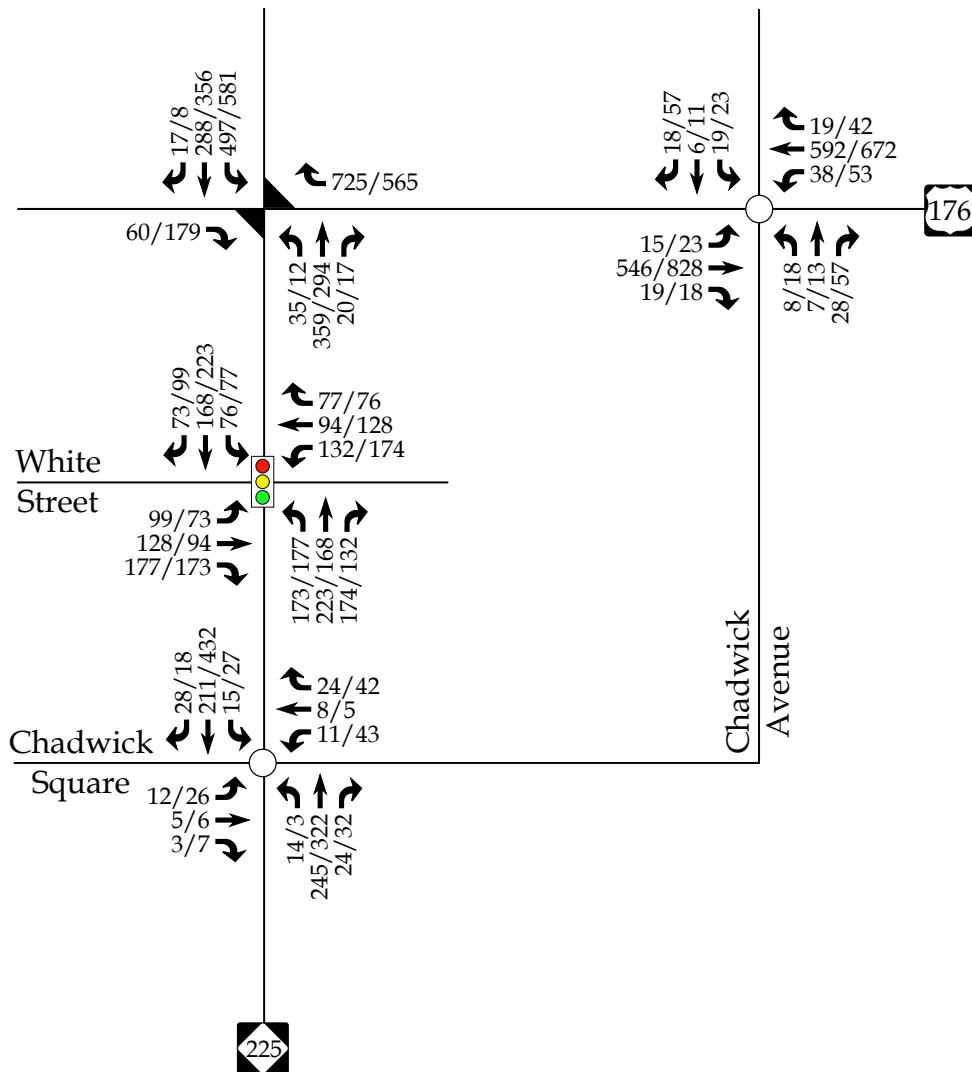
The NCDOT Intersection Analysis Utility (IAU) spreadsheet was utilized to breakout the traffic forecast volumes from the existing year and design year peak hour traffic volumes at the study intersections impacted by the STIP listed below:

- Greenville Highway and Spartanburg Highway
- Greenville Highway and White Street

The 2023 volumes were then interpolated between the 2017 build – alternative 2 and 2040 build – alternative 2 breakouts to determine the 2023 no-build traffic volumes. All other study intersections were projected to the build year with the previously mentioned growth rate. All future traffic volume calculations can be found in Appendix D. Refer to Figure 5 for an illustration of the 2023 no-build peak hour traffic volumes.

3.5. Analysis of 2023 No-Build Peak Hour Traffic Conditions

The 2023 no-build AM and PM peak hour traffic volumes at the study intersections were analyzed with future geometric roadway conditions and traffic control. For the signalized intersections impacted by the STIP project, Congestion Management Guidelines were used. As mentioned previously, the intersections of Greenville Highway at Spartanburg Highway and White Street were analyzed as coordinated with splits and offsets optimized. The signalized intersection of Greenville Highway and Chadwick Avenue was analyzed as uncoordinated. The analysis results are presented in Section 7 of this report.



LEGEND

- Unsignalized Intersection
- ◫ Signalized Intersection
- X / Y → Weekday AM / PM Peak Hour Traffic
- ▲ Left-Over Intersection



Greenville Highway
Apartments
Hendersonville, NC

2023 No-Build
Peak Hour Traffic

Scale: Not to Scale Figure 5

4. SITE TRIP GENERATION AND DISTRIBUTION

4.1. Trip Generation

Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE Trip Generation Manual, 10th Edition. Table 2 provides a summary of the trip generation potential for the site.

Table 2: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Mid-rise Multifamily (221)	80 DU	434	7	21	22	14

It is estimated that the proposed development will generate approximately 434 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 28 trips (7 entering and 21 exiting) will occur during the weekday AM peak hour and 36 trips (22 entering and 14 exiting) will occur during the weekday PM peak hour.

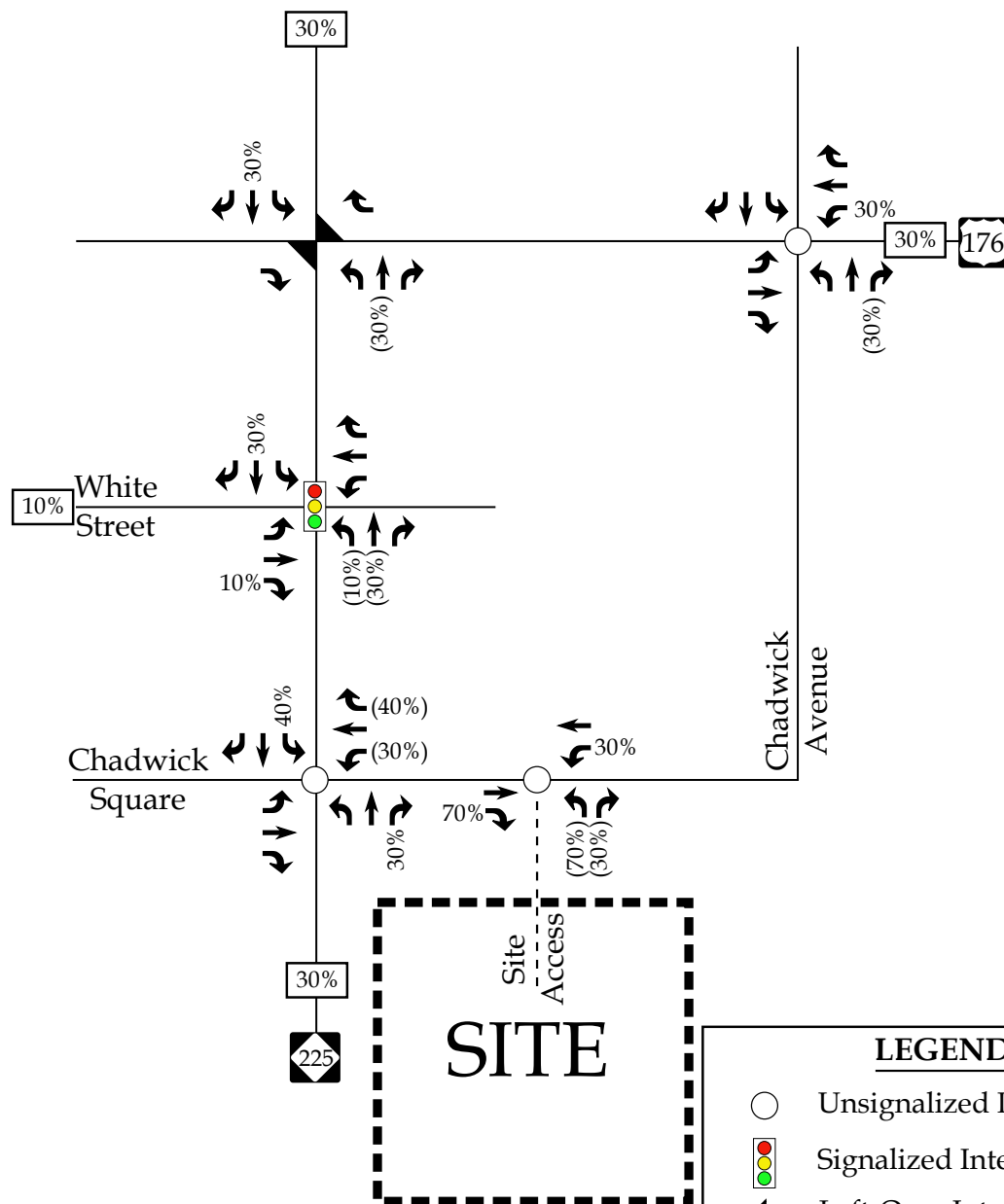
4.2. Site Trip Distribution and Assignment

Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment.

It is estimated that the residential site trips will be regionally distributed as follows:

- 30% to/from the north via Greenville Highway
- 10% to/from the east via White Street
- 30% to/from the south via Greenville Highway
- 30% to/from the west via Spartanburg Highway

The site trip distribution is shown in Figure 6. Refer to Figure 7 for the site trip assignment.



LEGEND

- Unsignalized Intersection
- 🚦 Signalized Intersection
- ▲ Left-Over Intersection
- X% → Entering Trip Distribution
- (Y%) → Exiting Trip Distribution
- XX% Regional Trip Distribution

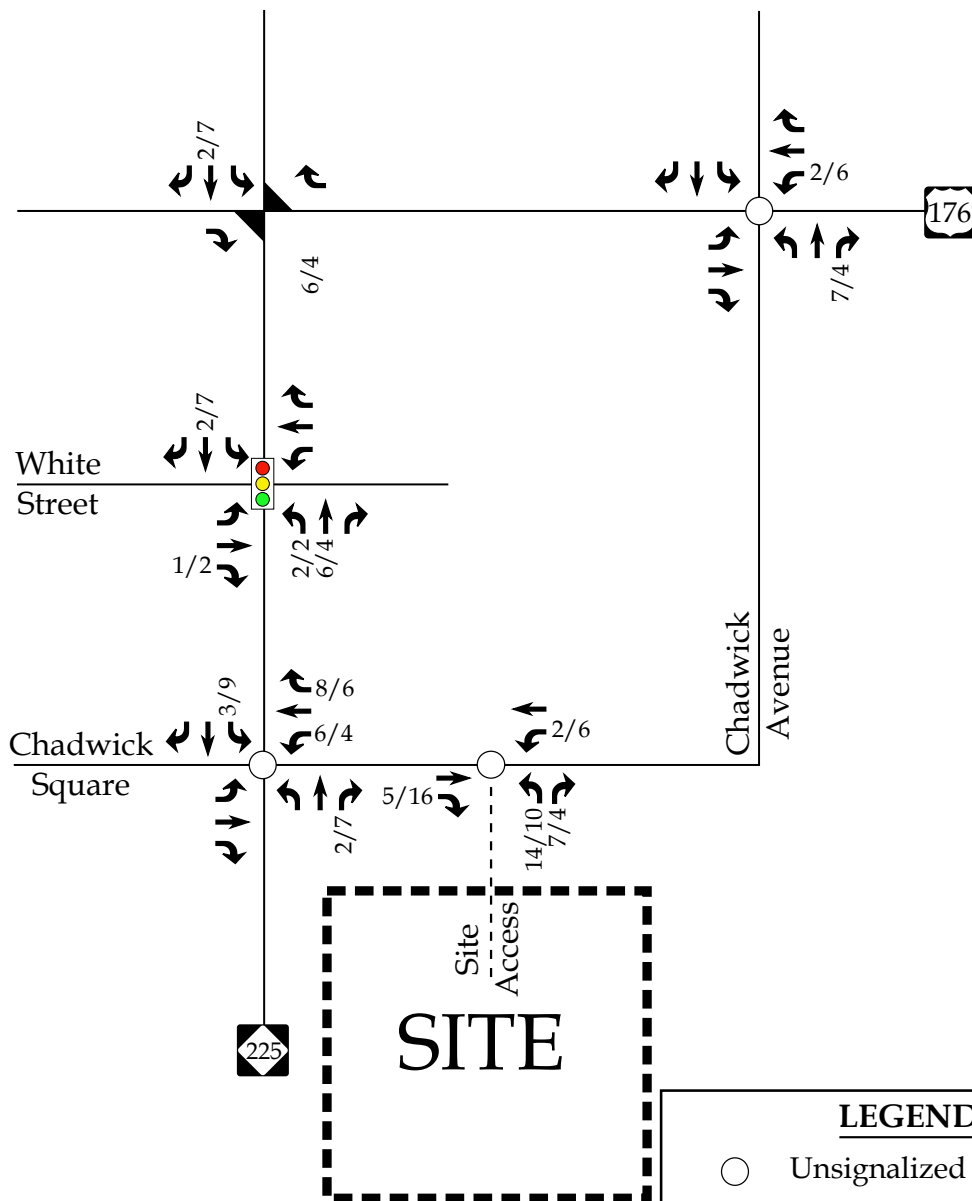


Greenville Highway
Apartments
Hendersonville, NC

Site Trip Distribution

Scale: Not to Scale

Figure 6



Greenville Highway
Apartments
Hendersonville, NC

Site Trip Assignment

Scale: Not to Scale

Figure 7

5. BUILD TRAFFIC CONDITIONS

5.1. 2023 Build Peak Hour Traffic Volumes

To estimate traffic conditions with the site fully built-out, the total site trips were added to the 2023 no-build traffic volumes to determine the 2023 build traffic volumes. Refer to Figure 8 for an illustration of the 2023 build peak hour traffic volumes with the proposed site fully developed.

5.2. Analysis of 2023 Build Peak Hour Traffic Conditions

Study intersections were analyzed with the build traffic volumes using the same methodology previously discussed for no-build traffic conditions. The results of the capacity analysis for each intersection are presented in Section 7 of this report.

5.3. 2040 Design Year Analysis

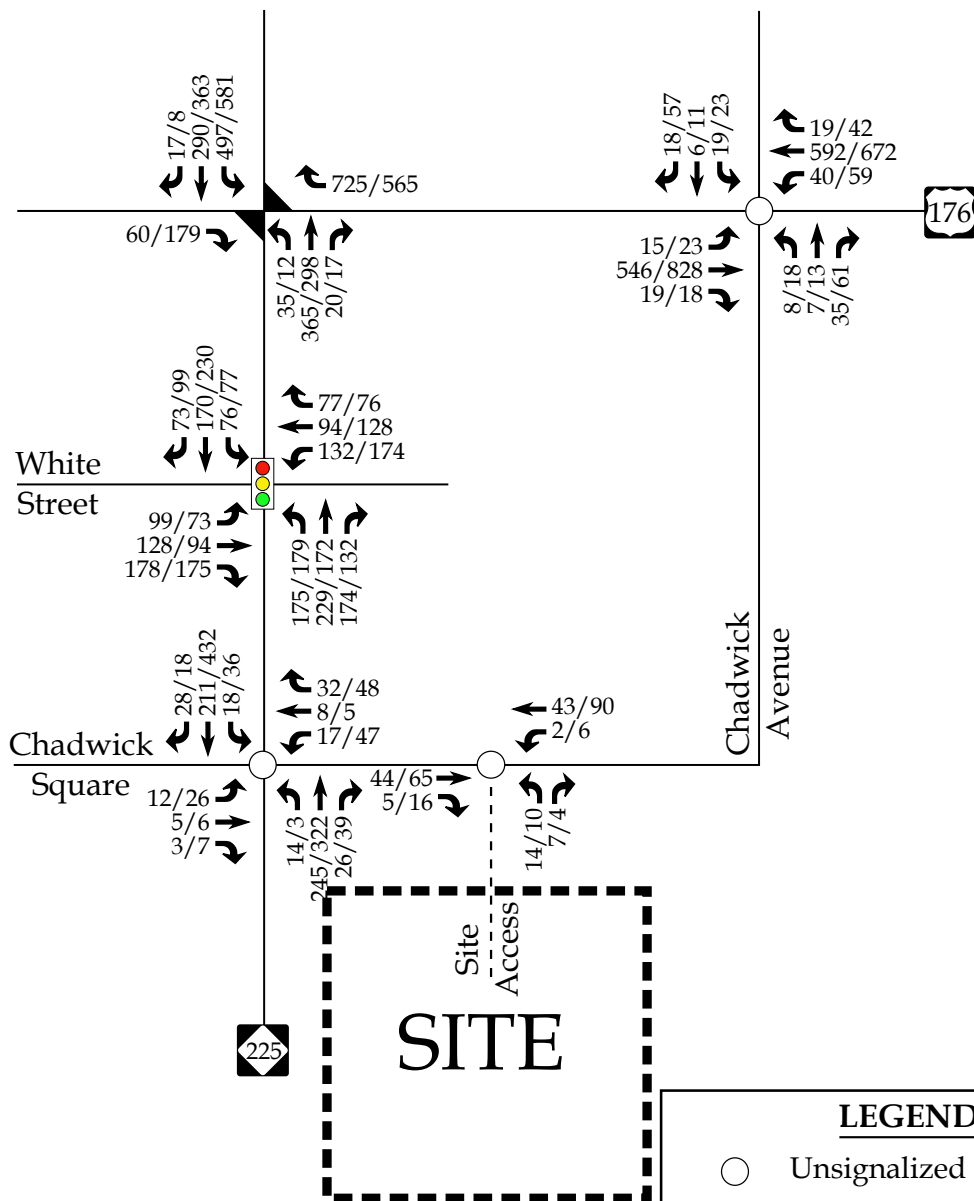
Based on coordination with NCDOT and the City, a design year scenario including U-5886 and U-6049 was analyzed. The aforementioned traffic forecast and the IAU spreadsheet were utilized to determine the 2040 volumes at the study intersections with improvements proposed under STIP U-5886 and U-6049:

- Greenville Highway and Spartanburg Highway
- Greenville Highway and White Street

Refer to Figure 9 for an illustration of the 2040 no-build peak hour traffic volumes at the intersections above. To estimate traffic conditions with the site fully built out, the 2040 no-build peak hour traffic volumes were combined with the site trip assignment (Figure 7) to determine the 2040 build peak hour traffic volumes. Refer to Figure 10 for the 2040 build peak hour traffic volumes. Refer to Appendix D for all 2040 traffic volume calculations.

5.4. Analysis of 2040 Design Year Peak Hour Traffic Conditions

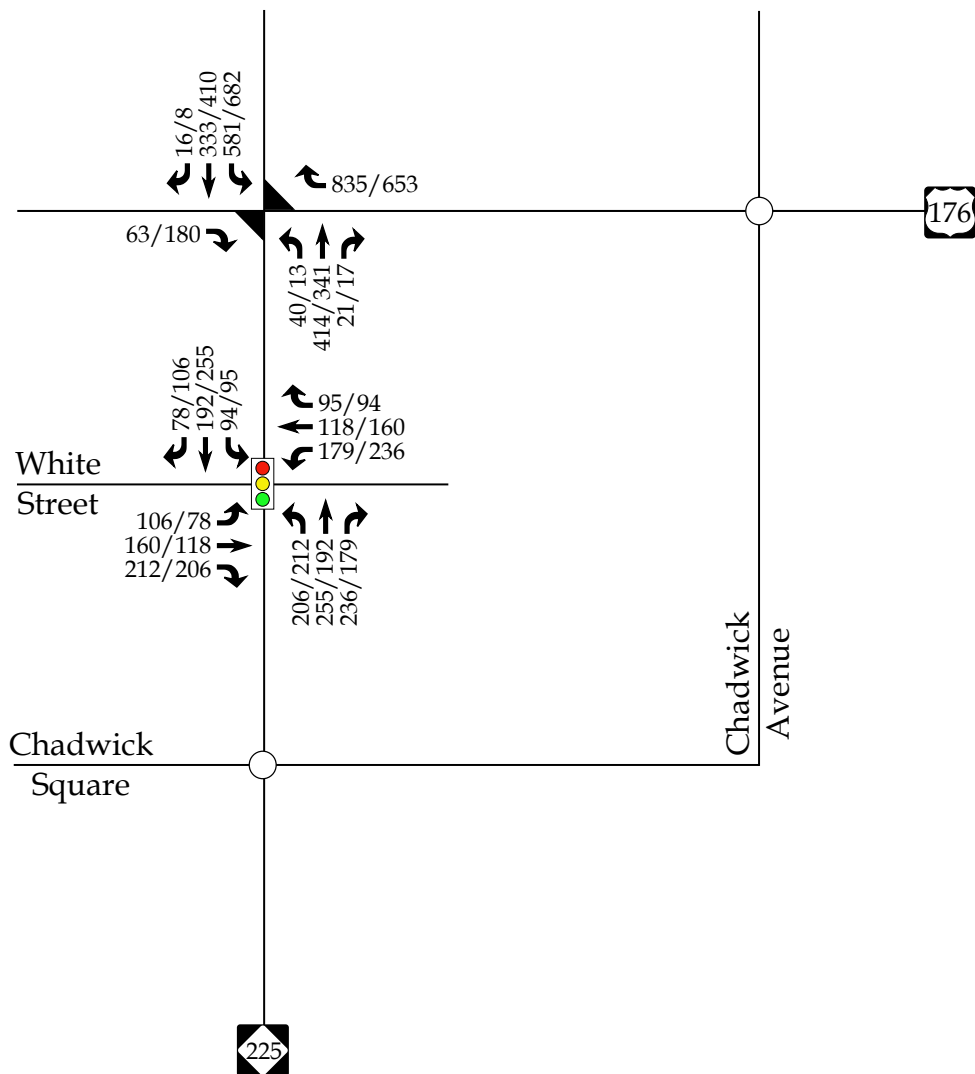
Study intersections were analyzed with the 2040 no-build and build traffic volumes using the same methodology previously discussed for no-build and build traffic conditions. The results of the capacity analysis for each intersection are presented in Section 7 of this report.



Greenville Highway
Apartments
Hendersonville, NC

2023 Build
Peak Hour Traffic

Scale: Not to Scale Figure 8



LEGEND

○ Unsignalized Intersection

◫ Signalized Intersection

X / Y → Weekday AM / PM Peak Hour Traffic

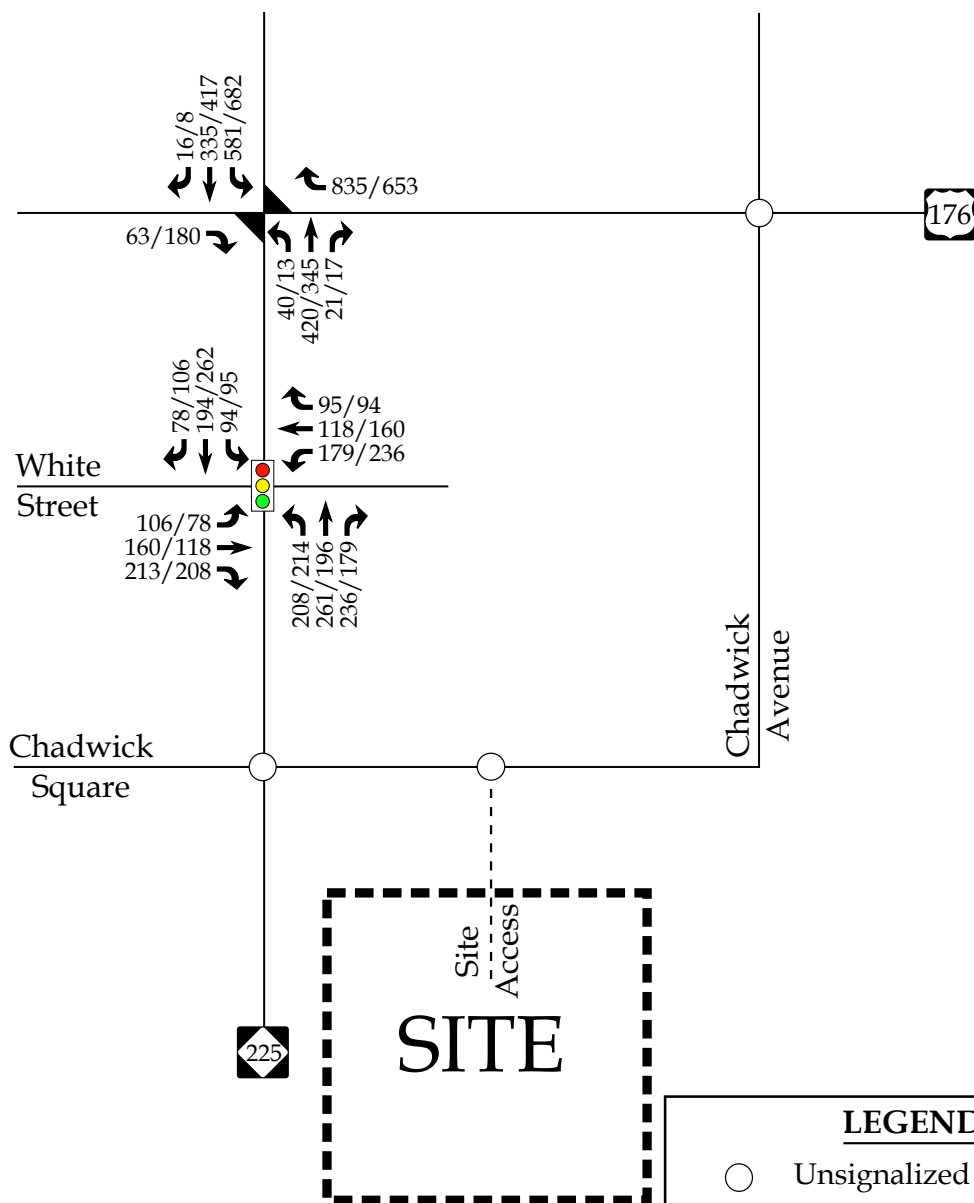
◼ Left-Over Intersection



Greenville Highway
Apartments
Hendersonville, NC

2040 No-Build
Peak Hour Traffic

Scale: Not to Scale Figure 9



LEGEND

- Unsignalized Intersection
- 🚦 Signalized Intersection
- X / Y → Weekday AM / PM Peak Hour Traffic
- ▲ Left-Over Intersection



Greenville Highway
Apartments
Hendersonville, NC

2040 Future Build
Peak Hour Traffic

Scale: Not to Scale Figure 10

6. TRAFFIC ANALYSIS PROCEDURE

Study intersections were analyzed using the methodology outlined in the Highway Capacity Manual (HCM), 6th Edition published by the Transportation Research Board. Capacity and level of service are the design criteria for this traffic study. A computer software package, Synchro (Version 10.3), was used to complete the analyses for most of the study area intersections. Please note that the unsignalized capacity analysis does not provide an overall level of service for an intersection; only delay for an approach with a conflicting movement.

The HCM defines capacity as “the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions.” Level of service (LOS) is a term used to represent different driving conditions and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers.” Level of service varies from Level “A” representing free flow, to Level “F” where breakdown conditions are evident. Refer to Table 3 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes “initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay”. An average control delay of 50 seconds at a signalized intersection results in LOS “D” operation at the intersection.

Table 3: Highway Capacity Manual – Levels-of-Service and Delay

UNSIGNALIZED INTERSECTION		SIGNALIZED INTERSECTION	
LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)
A	0-10	A	0-10
B	10-15	B	10-20
C	15-25	C	20-35
D	25-35	D	35-55
E	35-50	E	55-80
F	>50	F	>80

6.1. Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to the NCDOT Congestion Management Guidelines.

7. CAPACITY ANALYSIS

7.1. Greenville Highway and Spartanburg Highway

The existing signalized intersection was analyzed under all traffic conditions with the lane configurations and traffic control shown in Table 4. Refer to Table 4 for a summary of the analysis results. Refer to Appendix E for the Synchro capacity analysis reports.

Table 4: Analysis Summary of Greenville Highway and Spartanburg Highway

ANALYSIS SCENARIO	N O D E	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
				Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	1	EB WB NB SB	1 LT-TH, 1 TH-RT 1 LT, 1 LT-TH, 2 RT 1 LT, 1 TH, 1 TH-RT 2 LT, 1 TH-RT	D (52.6) D (40.3) A (9.9) D (37.9)	C (31.0)	E (57.1) D (37.6) C (30.0) D (37.4)	D (36.7)
2023 No-Build	1	EB NB* SB	2 RT 1 LT 1 TH-RT	C (22.5) C (29.8) A (4.2)	A (9.2)	C (22.6) B (16.3) A (6.4)	B (11.8)
	10	SB** WB SB	2 LT 2 RT 1 TH, 1 TH-RT	A (9.0) B (12.1) B (10.0)	B (10.6)	B (11.1) B (12.4) A (7.0)	B (10.7)
2023 Build	1	EB NB* SB	2 RT 1 LT 1 TH-RT	C (22.5) C (29.8) A (4.2)	A (9.2)	C (22.6) B (16.4) A (6.4)	B (11.8)
	10	SB** WB SB	2 LT 2 RT 1 TH, 1 TH-RT	A (9.1) B (12.3) A (9.9)	B (10.7)	B (11.1) B (12.4) A (6.9)	B (10.7)
2040 No-Build	1	EB NB* SB	2 RT 1 LT 1 TH-RT	C (22.5) C (30.6) A (4.5)	A (9.3)	C (22.5) B (17.0) A (6.8)	B (11.7)
	10	SB** WB SB	2 LT 2 RT 1 TH, 1 TH-RT	A (8.5) B (12.1) B (11.9)	B (10.9)	B (10.2) B (11.5) A (6.7)	A (10.0)
Build 2040	1	EB NB* SB	2 RT 1 LT 1 TH-RT	C (22.5) C (30.7) A (4.5)	A (9.3)	C (22.6) B (17.5) A (6.9)	B (11.7)
	10	SB** WB SB	2 LT 2 RT 1 TH, 1 TH-RT	A (8.5) B (12.1) B (12.0)	B (11.0)	B (10.2) B (11.5) A (6.7)	A (10.0)

*Due to superstreet configuration in synchro, the northbound left was analyzed as a westbound through movement.

**Due to superstreet configuration in synchro, the southbound left was analyzed as an eastbound through movement.

Capacity analysis of existing traffic conditions indicates the overall signalized intersection operates at LOS D or better during the weekday AM and PM peak hours.

Under all future conditions, the intersection is expected to be converted to a left-over with full movement on the mainline [Greenville Highway] and rights only on the side streets [Spartanburg Highway and Shopping Center Entrance]. With the left-over configuration under future conditions, the overall intersection is expected to operate at LOS B or better during both peak hours. Additionally, all approaches are expected to operate at LOS C or better during both peak hours. When comparing build to no-build conditions, all LOS are expected to be maintained with minimal change in delays. Due to minimal impacts from the proposed development site traffic and acceptable levels of service, no improvements are recommended.

7.2. Greenville Highway and Chadwick Avenue

The existing signalized intersection was analyzed under all 2022 and 2023 traffic conditions with the existing lane configurations and traffic control shown in Table 5. Refer to Table 5 for a summary of the analysis results. Refer to Appendix F for the Synchro capacity analysis reports.

Table 5: Analysis Summary of Greenville Highway and Chadwick Avenue

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB	1 LT-TH-RT	A (7.9)	A (3.4)	B (12.3)	A (7.7)
	WB	1 LT-TH-RT	A (8.4)		B (13.8)	
	NB	1 LT-TH-RT	A (2.8)		A (6.1)	
	SB	1 LT-TH-RT	A (2.8)		A (7.3)	
2023 No-Build	EB	1 LT-TH-RT	A (8.0)	A (3.4)	B (12.7)	A (8.7)
	WB	1 LT-TH-RT	A (8.5)		B (14.8)	
	NB	1 LT-TH-RT	A (2.8)		A (7.0)	
	SB	1 LT-TH-RT	A (2.8)		A (8.6)	
2023 Build	EB	1 LT-TH-RT	A (8.7)	A (5.2)	B (13.0)	A (9.1)
	WB	1 LT-TH-RT	A (9.8)		B (15.3)	
	NB	1 LT-TH-RT	A (4.6)		A (7.1)	
	SB	1 LT-TH-RT	A (4.6)		A (8.9)	

Capacity analysis indicates that the overall signalized intersection is expected to operate at LOS A during the weekday AM and PM peak hour for all traffic conditions. Additionally, all approaches are expected to operate at LOS B or better during both peak hours for all traffic conditions. When comparing build to no-build conditions, all LOS are expected to be maintained with minimal change in delays. Due to minimal impacts by the proposed development site traffic, no improvements are recommended.

7.3. Spartanburg Highway and Chadwick Avenue

The existing unsignalized intersection was analyzed under all 2022 and 2023 traffic conditions with the existing lane configurations and traffic control shown in Table 6. Refer to Table 6 for a summary of the analysis results. Refer to Appendix G for the Synchro capacity analysis reports.

Table 6: Analysis Summary of Spartanburg Highway and Chadwick Avenue

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB WB NB SB	1 LT, 1 TH, 1 TH-RT 1 LT, 1 TH, 1 TH-RT 1 LT-TH-RT 1 LT-TH, 1 RT	A ¹ (9.0) A ¹ (8.9) C ² (19.5) D ² (25.4)	N / A	A ¹ (9.5) B ¹ (10.3) F ² (68.2) E ² (49.9)	N / A
2023 No-Build	EB WB NB SB	1 LT, 1 TH, 1 TH-RT 1 LT, 1 TH, 1 TH-RT 1 LT-TH-RT 1 LT-TH, 1 RT	A ¹ (9.0) A ¹ (9.0) C ² (19.7) D ² (25.8)	N / A	A ¹ (9.5) B ¹ (10.4) F ² (72.2) F ² (51.8)	N / A
2023 Build	EB WB NB SB	1 LT, 1 TH, 1 TH-RT 1 LT, 1 TH, 1 TH-RT 1 LT-TH-RT 1 LT-TH, 1 RT	A ¹ (9.0) A ¹ (9.0) C ² (18.8) D ² (26.2)	N / A	A ¹ (9.5) B ¹ (10.5) F ² (74.3) F ² (55.5)	N / A

1. Level of service for major-street left-turn movement.

2. Level of service for minor-street approach.

Capacity analysis indicates that the major street left turn movements are expected to operate at LOS B or better during the weekday AM and PM peak hours for all traffic conditions. The minor street approaches are expected to operate at LOS D or better during the AM peak hour for all traffic conditions, while increased delays are expected during the PM peak hour. Increased delays are not uncommon for side-street approaches at unsignalized intersections, especially during the peak hours when mainline volumes are typically the heaviest. Additionally, while the minor street is expected to operate with unfavorable levels of service during the PM peak hour, queues are not expected to exceed 95 feet [approximately 4 vehicles]. When comparing build to no-build conditions, all LOS are expected to be

maintained with minimal change in delays. Due to minimal impacts from the proposed development site traffic, no improvements are recommended.

7.4. Greenville Highway and White Street

The existing signalized intersection was analyzed under all traffic conditions with the lane configurations and traffic control shown in Table 7. Refer to Table 7 for a summary of the analysis results. Refer to Appendix H for the Synchro capacity analysis reports.

Table 7: Analysis Summary of Greenville Highway and White Street

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB WB NB SB	1 LT-TH, 1 RT 1 LT-TH, 1 RT 1 LT, 1 TH-RT 1 LT, 1 TH, 1 RT	D (53.7) C (31.5) C (22.3) A (9.7)	C (27.1)	D (50.8) C (32.8) C (28.2) B (13.0)	C (26.2)
2023 No-Build	EB WB NB SB	1 LT, 1 TH-RT 1 LT, 1 TH-RT 1 LT, 1 TH, 1 TH-RT 1 LT, 1 TH, 1 RT	D (47.9) E (62.7) D (43.2) D (44.7)	D (48.4)	D (49.1) E (65.1) D (44.4) D (42.5)	D (49.8)
2023 Build	EB WB NB SB	1 LT, 1 TH-RT 1 LT, 1 TH-RT 1 LT, 1 TH, 1 TH-RT 1 LT, 1 TH, 1 RT	D (47.9) E (62.7) D (43.3) D (44.9)	D (48.5)	D (49.3) E (65.1) D (44.6) D (42.8)	D (49.9)
2040 No-Build	EB WB NB SB	1 LT, 1 TH-RT 1 LT, 1 TH-RT 1 LT, 1 TH, 1 TH-RT 1 LT, 1 TH, 1 RT	D (53.6) E (69.9) D (47.8) D (48.7)	D (53.9)	E (57.5) E (75.2) D (48.5) D (48.3)	E (57.1)
2040 Build	EB WB NB SB	1 LT, 1 TH-RT 1 LT, 1 TH-RT 1 LT, 1 TH, 1 TH-RT 1 LT, 1 TH, 1 RT	D (53.7) E (70.2) D (48.0) D (48.8)	D (54.0)	E (58.1) E (75.2) D (48.9) D (48.9)	E (57.4)

Capacity analysis indicates that the overall signalized intersection is expected operate at LOS D or better under existing and 2023 future conditions during the weekday AM and PM peak hours. Under 2040 future conditions, the overall intersection is expected to operate at LOS E or better. Under all traffic conditions, the intersection approaches are expected to operate at

LOS E or better. When comparing build to no-build conditions, all LOS are expected to be maintained with minimal change in delays. Due to minimal impacts from the proposed development site traffic, no improvements are recommended.

7.5. Chadwick Avenue and Site Access

The proposed unsignalized site access was analyzed under 2023 build traffic conditions with the lane configurations and traffic control shown in Table 8. Refer to Table 8 for a summary of the analysis results. Refer to Appendix I for the Synchro capacity analysis reports.

Table 8: Analysis Summary of Chadwick Avenue and Site Access

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2023 Build	EB WB NB	1 TH-RT 1 LT-TH 1 LT-RT	-- A ¹ (7.3) A ² (9.0)	N / A	-- A ¹ (7.4) A ² (9.4)	N / A

1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis indicates that the major street left turn movement and the minor street approach are expected to operate at LOS A during the weekday AM and PM peak hours for 2023 build conditions. Additionally, the minor street approach queues are not expected to exceed 40' during the weekday AM and PM peak hours. Due to acceptable levels of service and minimal existing mainline traffic, no improvements are recommended.

8. CONCLUSIONS

This Traffic Impact Analysis was conducted to determine the potential traffic impacts of the proposed residential development that is to be located in the southeast quadrant of the intersection of Greenville Highway and Chadwick Avenue in Hendersonville, North Carolina. The proposed development is expected to be built out in 2023. Site access is proposed one full movement driveway along Chadwick Avenue.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2022 Existing Traffic Conditions
- 2023 No-Build Traffic Conditions
- 2023 Build Traffic Conditions
- 2040 No-Build Traffic Conditions
- 2040 Build Traffic Conditions

Trip Generation

It is estimated that the proposed development will generate approximately 28 trips (7 entering and 21 exiting) during the weekday AM peak hour and 36 trips (22 entering and 14 exiting) during the weekday PM peak hour.

Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to NCDOT Congestion Management Guidelines. Refer to section 6.1 of this report for a detailed description of any adjustments to these guidelines made throughout the analysis.

Intersection Capacity Analysis Summary

All the study area intersections (including the proposed site driveways) are expected to operate at acceptable levels-of-service under existing and future year conditions.

8.1. RECOMMENDATIONS

Based on the findings of this study, no specific geometric improvements have been identified to accommodate future traffic conditions. Refer to Figure 11 for an illustration of the future lane configurations.

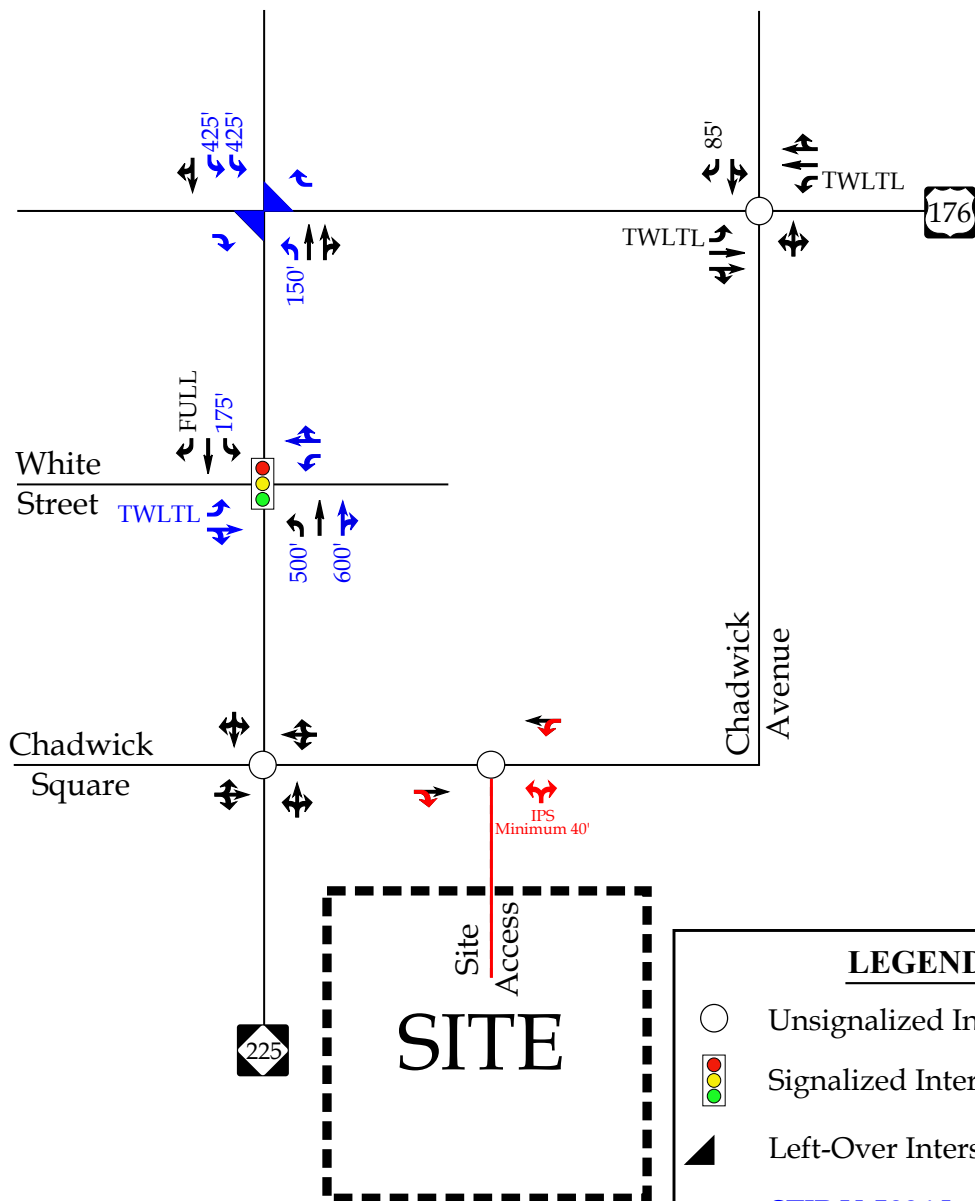
Improvements by NCDOT STIPs U-5886 and U-6049

STIP U-5886 is expected to provide improvements to Greenville Highway and White Street, while U-6049 is expected to convert Greenville Highway and Spartanburg Highway to a signalized left-over intersection restricting the minor-street approaches to right turns only.

Recommended Improvements by Developer

Chadwick Avenue and Site Access

- Construct northbound approach [Site Access] with one ingress lane and one egress lane.



LEGEND

- Unsignalized Intersection
- ◫ Signalized Intersection
- ▲ Left-Over Intersection
- STIP U-5886 Improvements
- Existing Lane
- Improvement by Developer
- x' Storage (In Feet)



Greenville Highway
Apartments
Hendersonville, NC

Future Lane
Configurations

Scale: Not to Scale Figure 11

TECHNICAL APPENDIX

APPENDIX A

SCOPING DOCUMENTATIONS

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

Project Name: Greenville Highway Apartments **Previous Name:** If Applicable
Location: SE corner of Greenville Hwy&Chadwick Ave **County:** Henderson **Municipality:** Henderson
Project Description: 4 story multifamily residential development

Project Contact:	Applicant
Company Name	Tamara Peacock Company Architects
Contact Person	Joey Burnett
Phone Number	828-696-4000
Email	joey@tamarapeacock.com
Mailing Address	104 First Avenue East, Suite A Hendersonville, NC 28792

TIA Consultant
Ramey Kemp & Associates, Inc
Chase Smith
336-725-5470
csmith@rameykemp.com
PO Box 26932
Winston Salem, NC 27114

Site Plan Prepared By: Tamara Peacock Company Architects

See site plan/vicinity map requirements on page 2.

Site Plan Date: 11-16-21

Parcel Size: 2.25 Acre(s)

Anticipated Build-Out Year: 2023

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

[illegible]

Refer to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#) for acceptable trip calculation methods and data sources.

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

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

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

☒ This project is located in a known [STIP](#) and/ or local CIP project # U-5886/U-6049

☐ This project includes a rezoning request.

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

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

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

Applicant's Signature

Joey Burnett
Print Name

12-21-2021

Date _____

Effective Date: 10/01/2017 (Version 17-721)

Page 1 of 2



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



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

Project Name: Greenville Highway Apartments **Project Reference Number:** _____

- ☒ **A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.
- ☒ **A TIA is Required by NCDOT,** per the [Policy on Street and Driveway Access to North Carolina Highways](#).

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

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

Additional Comments:

-

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

NCDOT District Representative's Signature
Email concurrence may be used in lieu of the signature.

Print Name



NCDOT TIA Scoping Checklist



Project Name: Greenville Highway Apartments

TIA Scoping Date: 12-21-21

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

☒ **Site Plan and Access**

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

Refer to NCDOT's [Policy on Street and Driveway Access to North Carolina Highways](#) pages 14 and 15 for site plan requirements.

☒ Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Chadwick Avenue	Conventional Full-Mvmt	Please Select	175	East	Greenville Hwy
Access B						
Access C						
Access D						
Access E						
Access F						
Access G						
Access H						
Existing Access	Existing Intersection of		Access	Proposed Interconnectivity (If Applicable)		
	Road A	Road B	Modification	Connector #	Road Connected	Adjacent Development
Access 1			Please Select	Connector 1		
Access 2				Connector 2		
Access 3				Connector 3		
Access 4				Connector 4		

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

☐ **Proposed K-12 School Site**

☐ NCDOT [MSTA School Traffic Calculator](#) for Select School Type shall be used.

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

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

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



NCDOT TIA Scoping Checklist



☒ Trip Generation

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

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
221	Mid-rise Multifam	80	DU	434	Adj. Street	7	21	28	22	14	36	ITE Equation
					Adj. Street							ITE Equation
Unadjusted Site Trips												
Internal Capture Trips (Attach Calculation Sheets)												Please Select
Internal Capture % of Unadjusted Site Trips				%		%			%			
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
		Please Select		%		%			%			Please Select
				%		%			%			
				%		%			%			
				%		%			%			
				%		%			%			
Pass-By Trips (Attach Calculation Sheets)												
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips												
Diverted Trips, if Applicable and Justifiable												Please Select

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

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

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



NCDOT TIA Scoping Checklist



☒ Trip Distribution

- ☒ Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).
- ☐ Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

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

- ☐ Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)
- ☐ Inter-Development Trips (if 'internal' trips cross public streets)
- ☐ Pass-By Trips
- ☐ Diverted Trips
- ☐ Each Analysis Period

☐ Mode Split

- ☐ Provide Data Source and Justification

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

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

☒ Analysis Peak Periods:

- ☒ Weekday AM Peak 7-9
- ☒ Weekday PM Peak 4-6
- ☐ Weekday Midday Peak _____
- ☐ Weekday PM School Peak _____
- ☐ Weekend _____ Peak _____
- ☐ Other _____



NCDOT TIA Scoping Checklist



☒ Study Area Intersections and Data Collection

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

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	Greenville Hwy	Chadwick Ave	Signal	Require New Counts			
#2	Spartanburg Hwy	Chadwick Ave	2-Way Stop	Require New Counts			
#3	Greenville Hwy	White Street	Signal	Require New Counts			
#4	Greenville Hwy	Spartanburg Hwy	Signal	Require new counts			
#5							
#6							
#7							
#8							
#9							
#10							
#11							
#12							

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

The following data will be collected:

- ☒ New traffic turning movement counts in ☒ 15-min intervals ☐ 5-min intervals (near schools)
 Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.

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

intersections numbered: _____

and access points numbered: _____

☒ Traffic Forecast Data for TIP: U - 5886/U - 6049

☒ Roadway/Intersection Configuration & Traffic Control

☒ Traffic Signal Phasing & Timing Data

☐ Crash Data: _____ Period: _____

☐ Other: _____



NCDOT TIA Scoping Checklist



☒ Future Year Conditions

☒ Project Build-Out Year: 2023

☒ Future Analysis Year(s): 2040

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

Funded STIP / Local CIP Project	Project Description		Year Complete
U-5886/U-6049	Road widening		
Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements
Please advise			

☐ Annual Growth Factor: 1 %

Justification/Data Source: Historical growth

☐ Local Comprehensive Transportation Plan Compliance

☐ Identify Applicable Local Transportation Planning Documents

☐ Identify Applicable Roadways inside the Study Area

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



NCDOT TIA Scoping Checklist



☒ Study Method

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

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

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

- ☒ 5. TIP Design Year Analysis 2040
- ☐ 6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

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

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

☒ Submittals

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

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

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

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



NCDOT TIA Scoping Checklist



Agreement by All Parties

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

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

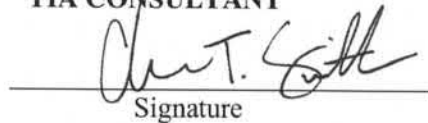
APPLICANT


Signature

Joey Burnett
Print Name

12-21-21
Date

TIA CONSULTANT


Signature

Chase Smith
Print Name

12-21-21
Date

LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

Signature

Print Name

Date

Email concurrence may be used in lieu of the signature.

NCDOT DISTRICT REPRESENTATIVE

Reviewed and approved by the NCDOT Division ____ District ____ on ____.

Signature

Email concurrence may be used in lieu of the signature.

Print Name



1 Site Plan
1/32" = 1'-0"

SITE STATISTICS:

SITE: 904 GREENVILLE HWY, HENDERSONVILLE NC 28792-6224
PIN: 9568921924
ALL CALCULATIONS APPLY TO THE AREA OF THE SITE AFFECTED

LAND USE DESIGNATION: 100 - ACTIVITY CENTER		
CURRENT USE	PROPOSED USE	OCCUPANCY
UNDEVELOPED	RESIDENTIAL	R-2

SITE DATA:

- | DESCRIPTION | | |
|-----------------|--|--|
| 1.A) ZONING: | GREENVILLE HIGHWAY MIXED USE ZONING (GHMU) | |
| 1.B) INTENSITY: | <u>PREVIOUS:</u> 13 MOBILE HOMES
<u>PROPOSED:</u> RESIDENTIAL 3 (4 STORY) BUILDINGS | |
| 1.A) UNITS: | 80 DWELLING UNITS
70% 2 BED/ 2 BATH
30% 1 BED/1 BATH | |

2.)	SITE AREA:	GROSS LOT S.F.: 98,010 SQ. FT. / 2.25 ACRES			
3.)	YARD DIMENSIONS:	REQUIRED	PROVIDED		
	FRONT (CHADWICK) SETBACK	0' - 0"	0'-0"		
	FRONT (GVILLE HWY) SETBACK	0' - 0"	4' - 0"		
	REAR SETBACK	25' - 0"	25' - 0"		
	SIDE SETBACK	25' - 0"	25' - 0"		
4.)	BUILDING HEIGHT:	42'-0" MAX	4 FLOORS / 42'- 0"		
5.)	MIN LOT SIZE:	5,000 SF	-		
6.)	MAX BLDG FOOTPRINT:	12,000 SF MAX.	9,800 SF		
7.)	DENSITY:	NO CAP	80 UNITS		
8.)	COMMON SPACE	10% 9,801 SF	14,800 SF		
9.)	PORCH/BALCONY	5' PROJECTION INTO SETBACK	-		
10.)	IMPERVIOUS AREAS:	PROPOSED	%		
	BUILDING FOOT PRINT:	29,400 SQ.FT	30%		
	PARKING AREA:	25,360 SQ.FT	26%		
	SIDEWALK/WALKWAYS:	3,120 SQ. FT.	3%		
	DUMPSTER AREA:	130 SQ. FT.	.001%		
	TOTAL IMPERVIOUS AREA	58,010 SQ. FT.	59%		
11.)	PERVIOUS AREAS:	REQUIRED	EXISTING	PROPOSED	%
	A. TOTAL PERVIOUS AREA:		- SQ. FT.	58,010 SQ. FT.	59%
	B. TOTAL OPEN SPACE	39,204 SQ. FT.	- SQ. FT.	40,000 SQ. FT.	41%
	500 SF PER DWELLING UNIT OR 9% OF LOT AREA, WHICHEVER IS GREATER				
12.)	PARKING:	REQUIRED	PROVIDED		
	PARKING SPACES	80	80		
	ADA PARKING SPACES	4	4		
	BIKE RACKS	0	4 STATIONS		

TAMARA PEACOCK, R.A.
LICENSE NO. 12126

THE PROJECT IS THE PROPERTY OF TAMARA PEACOCK COMPANY. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF TAMARA PEACOCK COMPANY. THE PROJECT NAME AND ADDRESS ARE THE PROPERTY OF TAMARA PEACOCK COMPANY. THE PROJECT NAME AND ADDRESS ARE THE PROPERTY OF TAMARA PEACOCK COMPANY. THE PROJECT NAME AND ADDRESS ARE THE PROPERTY OF TAMARA PEACOCK COMPANY.

PROJ. DESIGNER	DRAWN BY
CAPT. APPROVER	AUTHOR
	REVISOR
	CHECKER

ISSUED FOR	REVISION DATE	REVISION

THE TAMARA PEACOCK COMPANY

Architects

104 E. 1st Ave, Suite A, Hendersonville, NC 28792
Ph: 828-696-4000 Fax: 828-696-4952

PROJECT NAME:

Apartment's Feasibility

185 Cowan St, Rutherfordton, NC 28139

SHEET NAME:

SITE PLAN/ MASTER PLAN

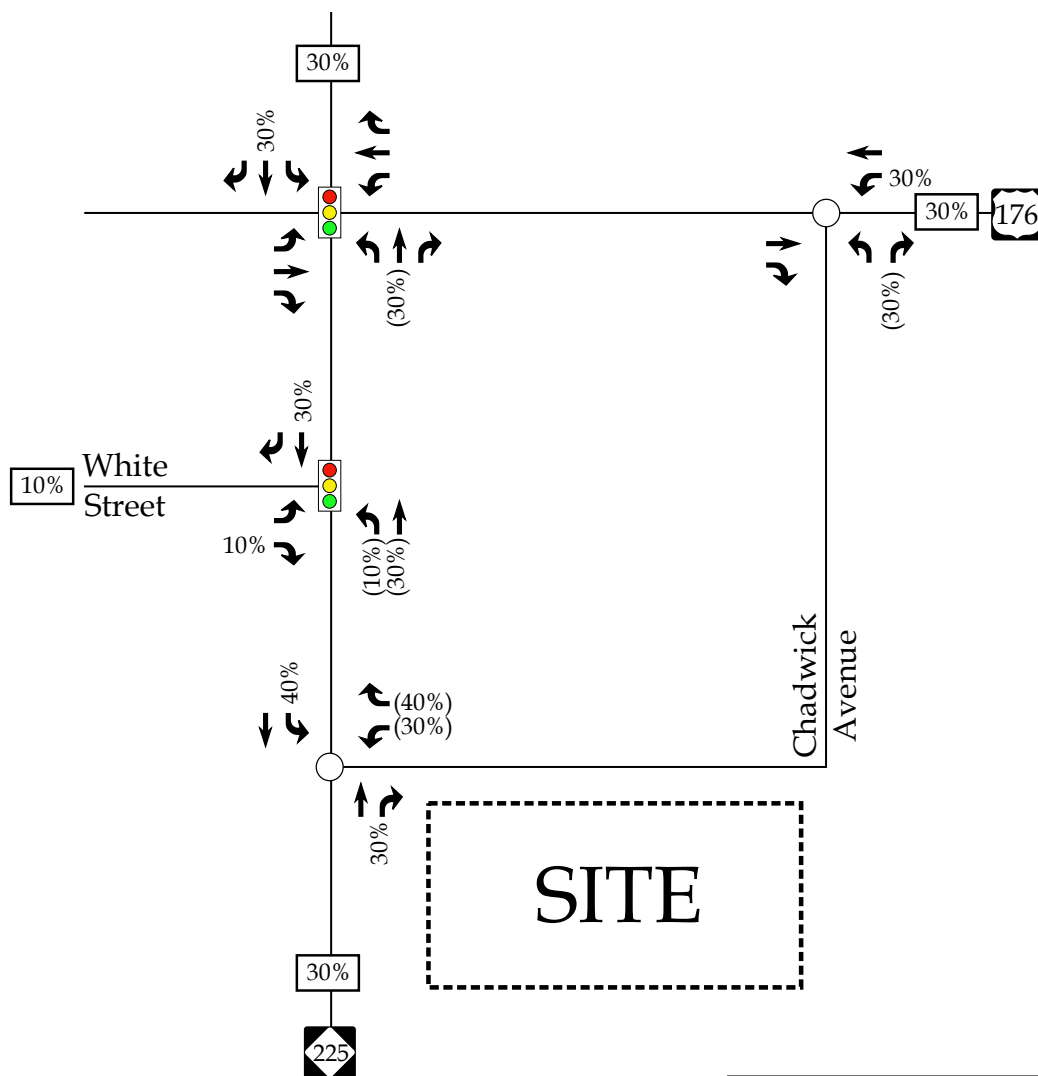
PROJ. NO.: 17-0351

DATE: 11/16/2021

SHEET NO.:

12:02:56 PM

SP 1.00



LEGEND

- Unsignalized Intersection
- 🚦 Signalized Intersection
- X% ➡ Entering Trip Distribution
- (Y%) ➡ Exiting Trip Distribution
- XX% Regional Trip Distribution



Greenville Highway
Apartments
Hendersonville, NC

Site Trip Distribution

Scale: Not to Scale

Ownbey, Carl H

From: Gallo, Robert S
Sent: Thursday, January 20, 2022 10:18 AM
To: Ownbey, Carl H
Cc: Reese, Michael P; Watkins, Lonnie R; Darnell, Russell H
Subject: Greenville Highway Apartments -- CMS Scope Review (SC-2022-018)

Carl,

Below are CMS comment for the subject scope:

General

- TIP Projects U-5886 and R-5748 are in the immediate area of this project. The scoping documents indicate that TIP Design Year Analyses will be provided and that a rezoning request will NOT be made for this project.
[Observation]
 - LET date for U-5886 is 10/21/2025
 - LET date for R-5748 is POST YEAR

Trip Generation

- Trip generation appears reasonable.

Study Intersections, Trip Distribution, and Growth Rate

- Study intersections and trip distribution appear reasonable.
- Growth rate of 1 percent appears reasonable.

Site Plan and Proposed Driveway(s)

- Site plan appears reasonable and appears to match with the trip generation; however, please ensure that the proposed driveway(s) are in accordance with the NCDOT Driveway Manual and Internal Protected Stem lengths are provided with the TIA.

Thank you, and please feel free to let us know if you have any questions or comments. Otherwise, CMS will defer to the District to provide these comments to the PEF.

Regards,

Robert S. Gallo

Congestion Management Design Engineer

Traffic Management Unit

North Carolina Department of Transportation

(919) 814- 5064 office

rsgallo@ncdot.gov

1561 Mail Service Center

750 North Greenfield Parkway

Garner, NC 27529-6949

APPENDIX B

TRAFFIC COUNTS



TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and Chadwick)AM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 1

Groups Printed- Cars + - Trucks

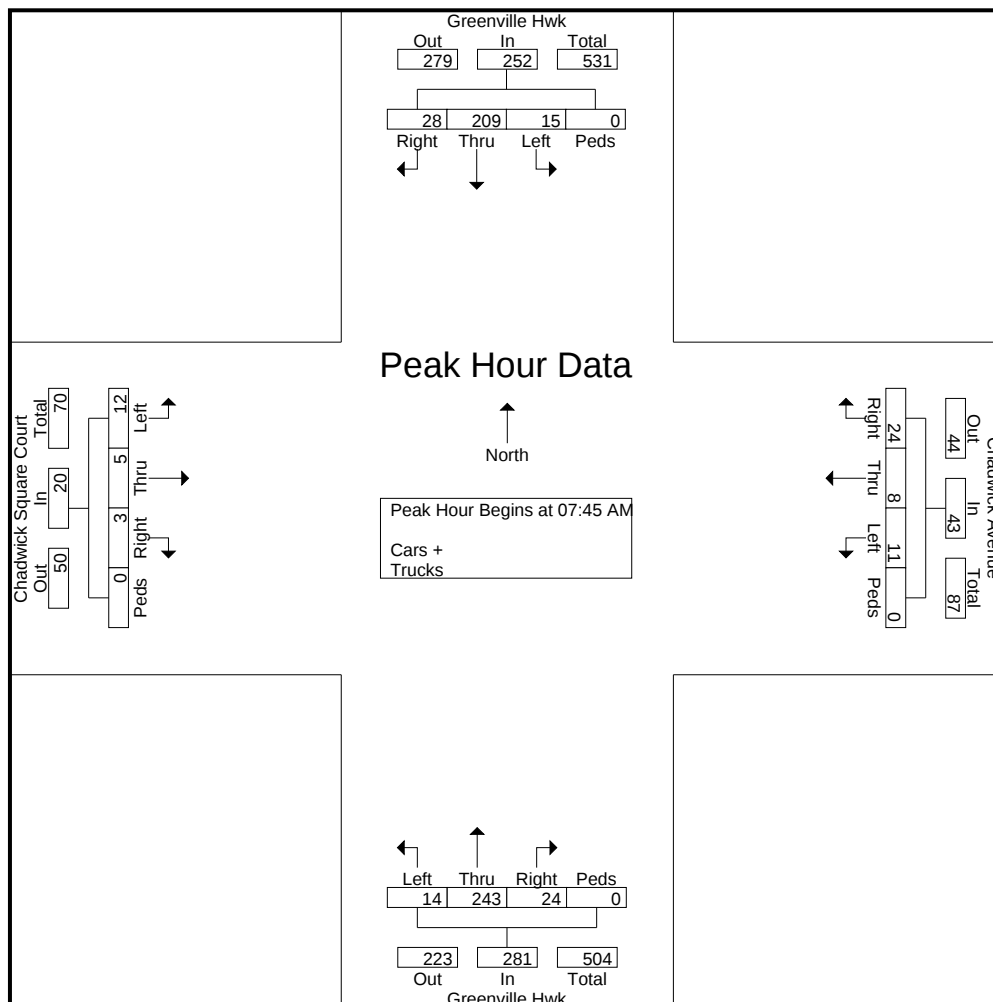
	Greenville Hwk Southbound					Chadwick Avenue Westbound					Greenville Hwk Northbound					Chadwick Square Court Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	2	23	1	1	27	1	0	2	0	3	2	38	2	0	42	0	1	1	0	2	74
07:15 AM	1	30	0	0	31	5	0	2	0	7	4	42	0	0	46	1	0	6	1	8	92
07:30 AM	6	27	2	0	35	3	2	1	0	6	7	67	2	0	76	1	1	6	0	8	125
07:45 AM	6	48	7	0	61	7	0	4	0	11	7	67	8	0	82	2	2	4	0	8	162
Total	15	128	10	1	154	16	2	9	0	27	20	214	12	0	246	4	4	17	1	26	453
08:00 AM	13	64	3	0	80	6	5	2	0	13	4	57	4	0	65	0	1	2	0	3	161
08:15 AM	3	46	2	0	51	7	2	2	0	11	6	52	1	0	59	1	2	2	0	5	126
08:30 AM	6	51	3	0	60	4	1	3	0	8	7	67	1	0	75	0	0	4	0	4	147
08:45 AM	7	56	6	0	69	4	1	4	0	9	4	56	1	0	61	0	0	1	0	1	140
Total	29	217	14	0	260	21	9	11	0	41	21	232	7	0	260	1	3	9	0	13	574
Grand Total	44	345	24	1	414	37	11	20	0	68	41	446	19	0	506	5	7	26	1	39	1027
Apprch %	10.6	83.3	5.8	0.2		54.4	16.2	29.4	0		8.1	88.1	3.8	0		12.8	17.9	66.7	2.6		
Total %	4.3	33.6	2.3	0.1	40.3	3.6	1.1	1.9	0	6.6	4	43.4	1.9	0	49.3	0.5	0.7	2.5	0.1	3.8	
Cars +	44	338	21	1	404	37	11	20	0	68	39	442	19	0	500	5	7	26	1	39	1011
% Cars +	100	98	87.5	100	97.6	100	100	100	0	100	95.1	99.1	100	0	98.8	100	100	100	100	100	98.4
Trucks	0	7	3	0	10	0	0	0	0	0	2	4	0	0	6	0	0	0	0	0	16
% Trucks	0	2	12.5	0	2.4	0	0	0	0	0	4.9	0.9	0	0	1.2	0	0	0	0	0	1.6



TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and Chadwick)AM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 2

	Greenville Hwk Southbound					Chadwick Avenue Westbound					Greenville Hwk Northbound					Chadwick Square Court Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	6	48	7	0	61	7	0	4	0	11	7	67	8	0	82	2	2	4	0	8	162
08:00 AM	13	64	3	0	80	6	5	2	0	13	4	57	4	0	65	0	1	2	0	3	161
08:15 AM	3	46	2	0	51	7	2	2	0	11	6	52	1	0	59	1	2	2	0	5	126
08:30 AM	6	51	3	0	60	4	1	3	0	8	7	67	1	0	75	0	0	4	0	4	147
Total Volume	28	209	15	0	252	24	8	11	0	43	24	243	14	0	281	3	5	12	0	20	596
% App. Total	11.1	82.9	6	0		55.8	18.6	25.6	0		8.5	86.5	5	0		15	25	60	0		
PHF	.538	.816	.536	.000	.788	.857	.400	.688	.000	.827	.857	.907	.438	.000	.857	.375	.625	.750	.000	.625	.920





TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and Chadwick)PM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 1

Groups Printed- Cars + - Trucks

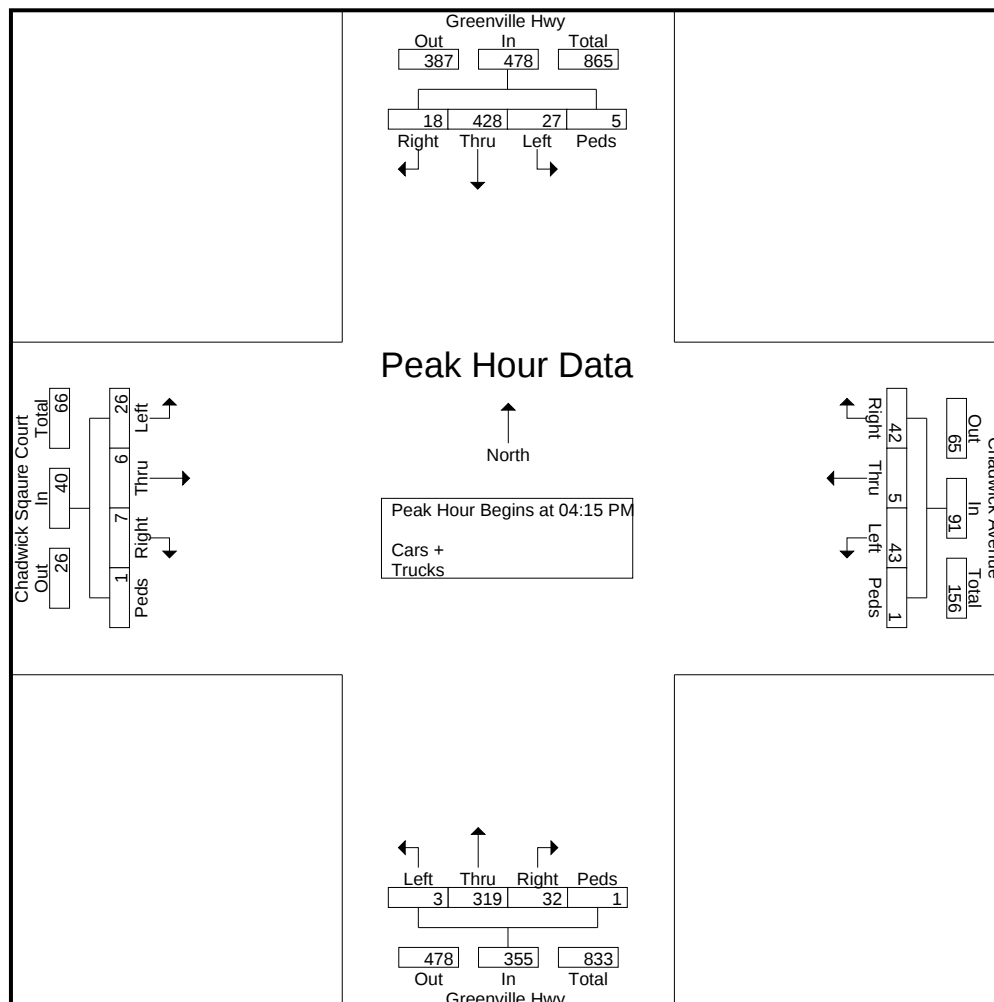
	Greenville Hwy Southbound					Chadwick Avenue Westbound					Greenville Hwy Northbound					Chadwick Sqaure Court Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	5	90	7	0	102	11	0	9	0	20	3	86	1	2	92	2	0	2	0	4	218
04:15 PM	5	102	7	0	114	8	2	8	0	18	9	88	0	0	97	1	0	2	1	4	233
04:30 PM	7	117	5	3	132	14	1	14	0	29	10	74	2	0	86	2	3	5	0	10	257
04:45 PM	2	108	12	2	124	6	0	8	1	15	2	84	1	1	88	1	0	7	0	8	235
Total	19	417	31	5	472	39	3	39	1	82	24	332	4	3	363	6	3	16	1	26	943
05:00 PM	4	101	3	0	108	14	2	13	0	29	11	73	0	0	84	3	3	12	0	18	239
05:15 PM	4	101	5	0	110	4	4	8	0	16	2	83	0	0	85	2	3	4	2	11	222
05:30 PM	5	86	4	4	99	8	3	11	0	22	5	55	0	3	63	1	0	1	0	2	186
05:45 PM	5	87	6	0	98	6	3	2	0	11	5	69	1	0	75	3	1	5	0	9	193
Total	18	375	18	4	415	32	12	34	0	78	23	280	1	3	307	9	7	22	2	40	840
Grand Total	37	792	49	9	887	71	15	73	1	160	47	612	5	6	670	15	10	38	3	66	1783
Apprch %	4.2	89.3	5.5	1		44.4	9.4	45.6	0.6		7	91.3	0.7	0.9		22.7	15.2	57.6	4.5		
Total %	2.1	44.4	2.7	0.5	49.7	4	0.8	4.1	0.1	9	2.6	34.3	0.3	0.3	37.6	0.8	0.6	2.1	0.2	3.7	
Cars +	37	787	46	9	879	70	15	73	1	159	46	602	5	6	659	15	10	38	3	66	1763
% Cars +	100	99.4	93.9	100	99.1	98.6	100	100	100	99.4	97.9	98.4	100	100	98.4	100	100	100	100	100	98.9
Trucks	0	5	3	0	8	1	0	0	0	1	1	10	0	0	11	0	0	0	0	0	20
% Trucks	0	0.6	6.1	0	0.9	1.4	0	0	0	0.6	2.1	1.6	0	0	1.6	0	0	0	0	0	1.1



TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and Chadwick)PM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 2

	Greenville Hwy Southbound					Chadwick Avenue Westbound					Greenville Hwy Northbound					Chadwick Sqaure Court Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	5	102	7	0	114	8	2	8	0	18	9	88	0	0	97	1	0	2	1	4	233
04:30 PM	7	117	5	3	132	14	1	14	0	29	10	74	2	0	86	2	3	5	0	10	257
04:45 PM	2	108	12	2	124	6	0	8	1	15	2	84	1	1	88	1	0	7	0	8	235
05:00 PM	4	101	3	0	108	14	2	13	0	29	11	73	0	0	84	3	3	12	0	18	239
Total Volume	18	428	27	5	478	42	5	43	1	91	32	319	3	1	355	7	6	26	1	40	964
% App. Total	3.8	89.5	5.6	1		46.2	5.5	47.3	1.1		9	89.9	0.8	0.3		17.5	15	65	2.5		
PHF	.643	.915	.563	.417	.905	.750	.625	.768	.250	.784	.727	.906	.375	.250	.915	.583	.500	.542	.250	.556	.938





TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and Spartanburg Hwy)AM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 1

Groups Printed- Cars + - Trucks

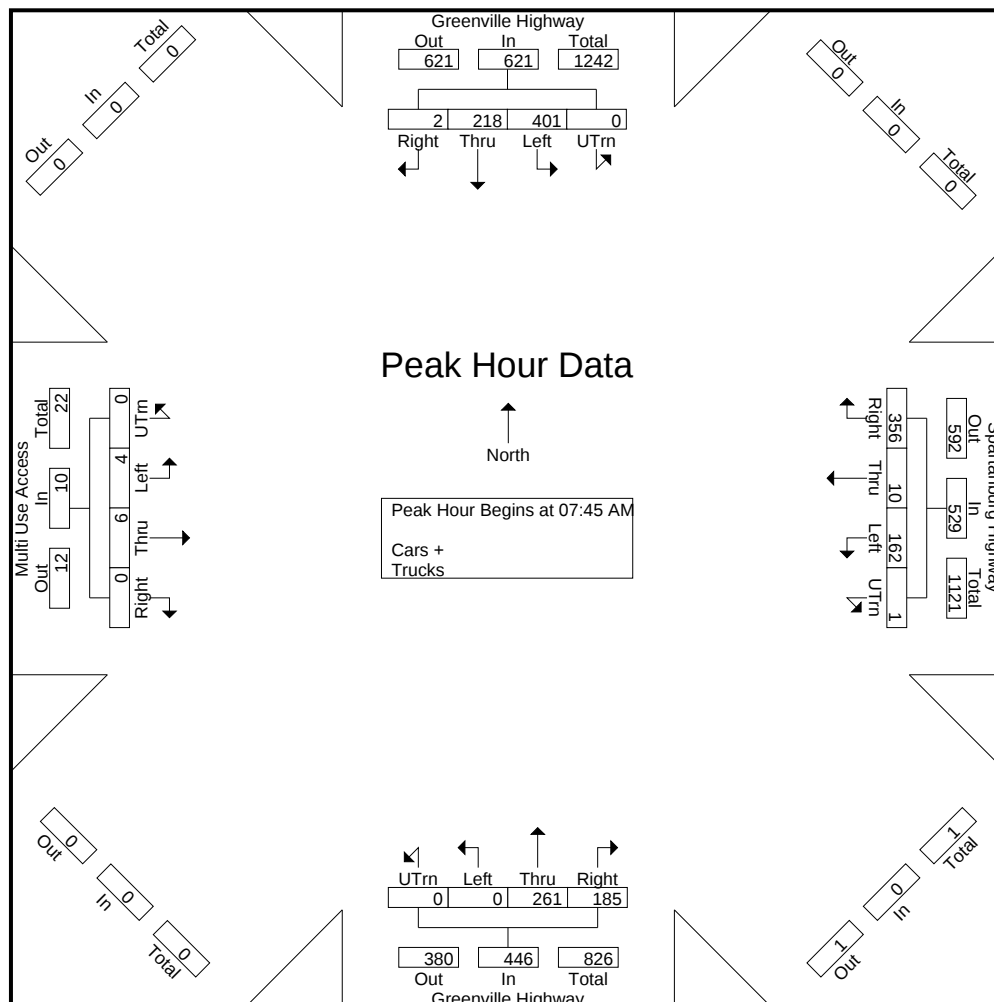
	Greenville Highway Southbound					Spartanburg Highway Westbound					Greenville Highway Northbound					Multi Use Access Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
07:00 AM	2	36	70	0	108	51	2	26	0	79	30	56	0	0	86	0	0	0	0	0	273
07:15 AM	0	29	81	0	110	74	2	29	0	105	28	71	0	0	99	0	0	0	0	0	314
07:30 AM	0	33	91	0	124	109	2	29	0	140	49	73	0	0	122	1	0	0	0	1	387
07:45 AM	1	43	110	0	154	114	0	28	0	142	59	81	0	0	140	0	2	0	0	2	438
Total	3	141	352	0	496	348	6	112	0	466	166	281	0	0	447	1	2	0	0	3	1412
08:00 AM	0	55	106	0	161	73	4	53	1	131	46	54	0	0	100	0	0	3	0	3	395
08:15 AM	0	58	83	0	141	67	3	46	0	116	36	63	0	0	99	0	2	1	0	3	359
08:30 AM	1	62	102	0	165	102	3	35	0	140	44	63	0	0	107	0	2	0	0	2	414
08:45 AM	0	57	96	0	153	85	3	51	0	139	49	51	1	0	101	1	3	0	0	4	397
Total	1	232	387	0	620	327	13	185	1	526	175	231	1	0	407	1	7	4	0	12	1565
Grand Total	4	373	739	0	1116	675	19	297	1	992	341	512	1	0	854	2	9	4	0	15	2977
Apprch %	0.4	33.4	66.2	0		68	1.9	29.9	0.1		39.9	60	0.1	0		13.3	60	26.7	0		
Total %	0.1	12.5	24.8	0	37.5	22.7	0.6	10	0	33.3	11.5	17.2	0	0	28.7	0.1	0.3	0.1	0	0.5	
Cars +	4	366	719	0	1089	648	19	281	1	949	339	507	1	0	847	2	9	4	0	15	2900
% Cars +	100	98.1	97.3	0	97.6	96	100	94.6	100	95.7	99.4	99	100	0	99.2	100	100	100	0	100	97.4
Trucks	0	7	20	0	27	27	0	16	0	43	2	5	0	0	7	0	0	0	0	0	77
% Trucks	0	1.9	2.7	0	2.4	4	0	5.4	0	4.3	0.6	1	0	0	0.8	0	0	0	0	0	2.6



TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and Spartanburg Hwy)AM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 2

	Greenville Highway Southbound					Spartanburg Highway Westbound					Greenville Highway Northbound					Multi Use Access Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	1	43	110	0	154	114	0	28	0	142	59	81	0	0	140	0	2	0	0	2	438
08:00 AM	0	55	106	0	161	73	4	53	1	131	46	54	0	0	100	0	0	3	0	3	395
08:15 AM	0	58	83	0	141	67	3	46	0	116	36	63	0	0	99	0	2	1	0	3	359
08:30 AM	1	62	102	0	165	102	3	35	0	140	44	63	0	0	107	0	2	0	0	2	414
Total Volume	2	218	401	0	621	356	10	162	1	529	185	261	0	0	446	0	6	4	0	10	1606
% App. Total	0.3	35.1	64.6	0		67.3	1.9	30.6	0.2		41.5	58.5	0	0		0	60	40	0		
PHF	.500	.879	.911	.000	.941	.781	.625	.764	.250	.931	.784	.806	.000	.000	.796	.000	.750	.333	.000	.833	.917





TRAFFIC DATA COLLECTION

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Groups Printed- Cars + - Trucks

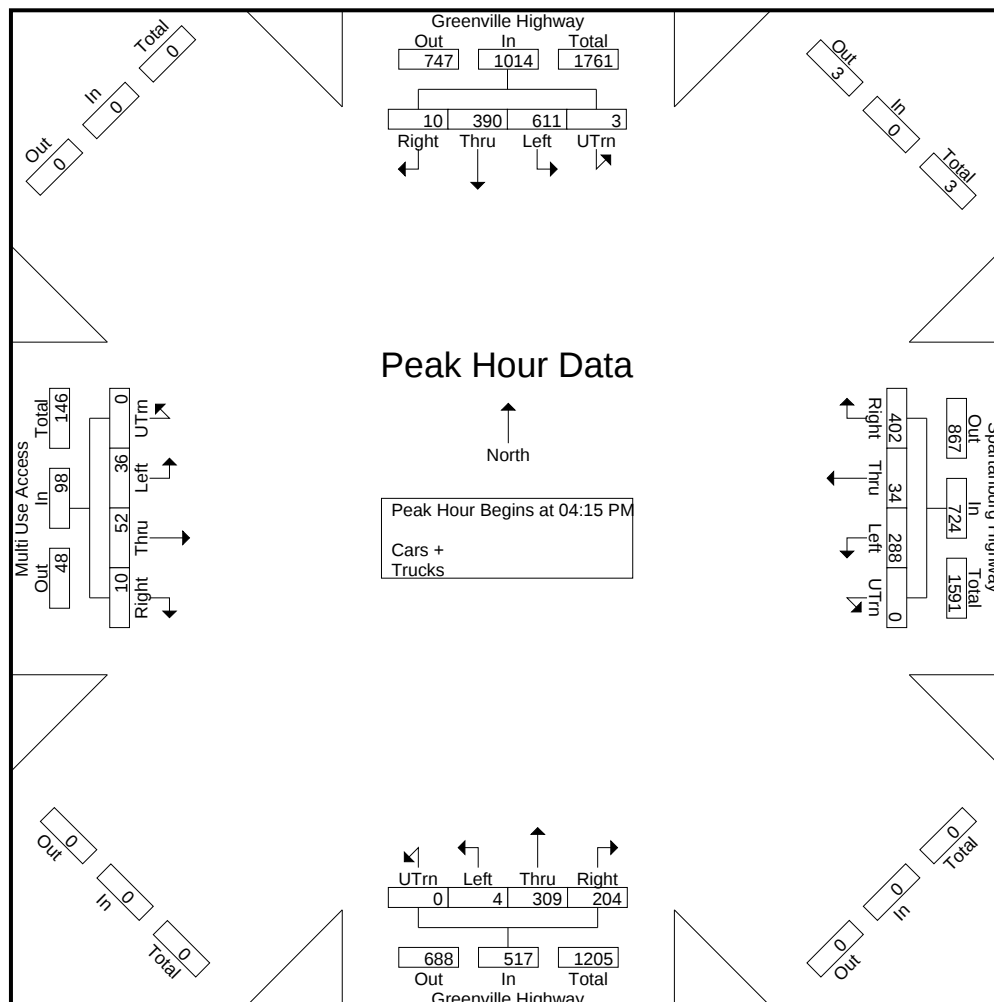
	Greenville Highway Southbound					Spartanburg Highway Westbound					Greenville Highway Northbound					Multi Use Access Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
04:00 PM	1	73	132	0	206	76	12	56	0	144	50	87	1	0	138	3	11	6	0	20	508
04:15 PM	2	95	145	3	245	105	10	67	0	182	55	74	2	0	131	4	12	11	0	27	585
04:30 PM	2	105	153	0	260	97	10	71	0	178	46	70	2	0	118	3	13	10	0	26	582
04:45 PM	2	94	155	0	251	90	8	86	0	184	54	78	0	0	132	2	8	8	0	18	585
Total	7	367	585	3	962	368	40	280	0	688	205	309	5	0	519	12	44	35	0	91	2260
05:00 PM	4	96	158	0	258	110	6	64	0	180	49	87	0	0	136	1	19	7	0	27	601
05:15 PM	2	111	125	0	238	102	8	64	0	174	36	103	1	0	140	6	5	7	0	18	570
05:30 PM	1	95	125	0	221	81	3	69	0	153	46	74	0	0	120	2	15	5	0	22	516
05:45 PM	1	67	129	0	197	112	12	64	0	188	39	76	3	0	118	4	10	8	0	22	525
Total	8	369	537	0	914	405	29	261	0	695	170	340	4	0	514	13	49	27	0	89	2212
Grand Total	15	736	1122	3	1876	773	69	541	0	1383	375	649	9	0	1033	25	93	62	0	180	4472
Apprch %	0.8	39.2	59.8	0.2		55.9	5	39.1	0		36.3	62.8	0.9	0		13.9	51.7	34.4	0		
Total %	0.3	16.5	25.1	0.1	41.9	17.3	1.5	12.1	0	30.9	8.4	14.5	0.2	0	23.1	0.6	2.1	1.4	0	4	
Cars +	14	727	1093	3	1837	757	69	540	0	1366	370	641	9	0	1020	25	93	62	0	180	4403
% Cars +	93.3	98.8	97.4	100	97.9	97.9	100	99.8	0	98.8	98.7	98.8	100	0	98.7	100	100	100	0	100	98.5
Trucks	1	9	29	0	39	16	0	1	0	17	5	8	0	0	13	0	0	0	0	0	69
% Trucks	6.7	1.2	2.6	0	2.1	2.1	0	0.2	0	1.2	1.3	1.2	0	0	1.3	0	0	0	0	0	1.5



TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and Spartanburg Hwy)PM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 2

	Greenville Highway Southbound					Spartanburg Highway Westbound					Greenville Highway Northbound					Multi Use Access Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	2	95	145	3	245	105	10	67	0	182	55	74	2	0	131	4	12	11	0	27	585
04:30 PM	2	105	153	0	260	97	10	71	0	178	46	70	2	0	118	3	13	10	0	26	582
04:45 PM	2	94	155	0	251	90	8	86	0	184	54	78	0	0	132	2	8	8	0	18	585
05:00 PM	4	96	158	0	258	110	6	64	0	180	49	87	0	0	136	1	19	7	0	27	601
Total Volume	10	390	611	3	1014	402	34	288	0	724	204	309	4	0	517	10	52	36	0	98	2353
% App. Total	1	38.5	60.3	0.3		55.5	4.7	39.8	0		39.5	59.8	0.8	0		10.2	53.1	36.7	0		
PHF	.625	.929	.967	.250	.975	.914	.850	.837	.000	.984	.927	.888	.500	.000	.950	.625	.684	.818	.000	.907	.979





TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and White)AM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 1

Groups Printed- Cars + - Trucks

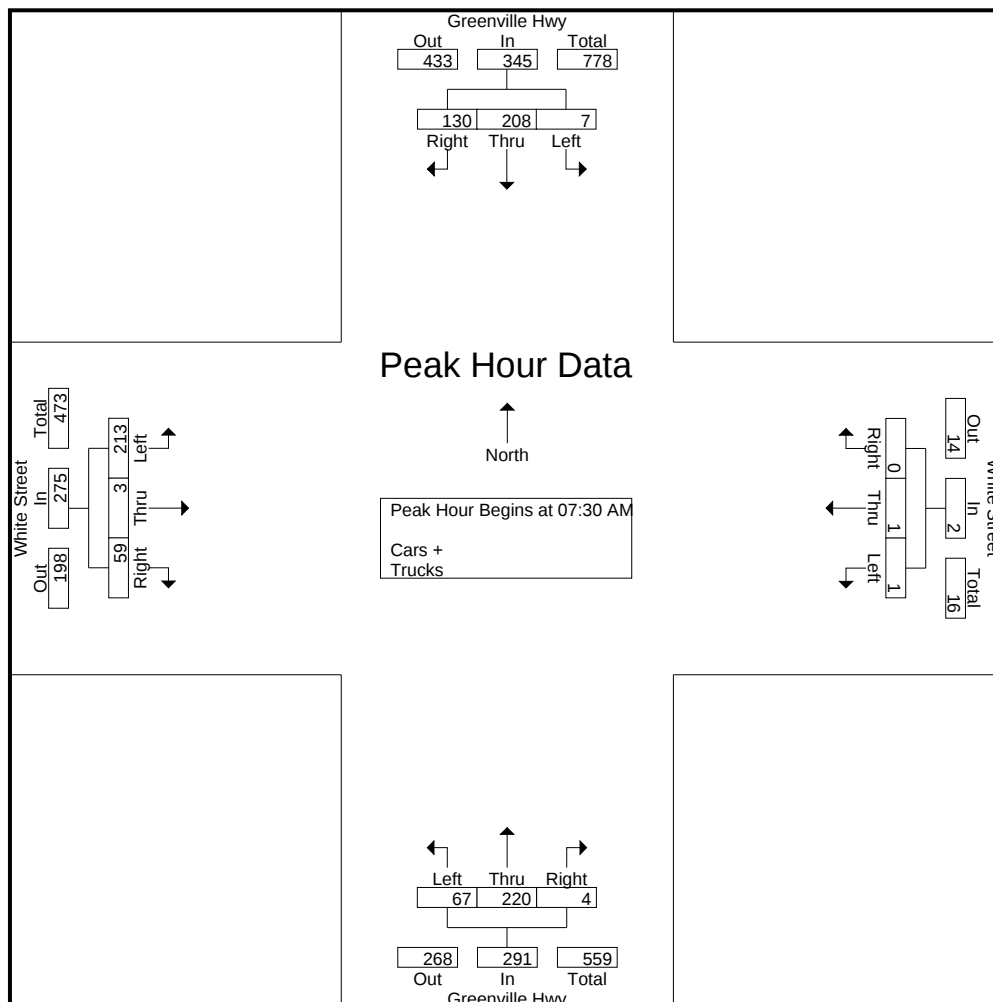
	Greenville Hwy Southbound				White Street Westbound				Greenville Hwy Northbound				White Street Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	21	26	0	47	0	0	0	0	0	32	8	40	3	1	54	58	145
07:15 AM	21	29	2	52	0	0	0	0	0	47	13	60	9	0	45	54	166
07:30 AM	23	39	2	64	0	0	0	0	0	54	16	70	14	1	70	85	219
07:45 AM	33	56	1	90	0	1	0	1	2	64	16	82	10	1	52	63	236
Total	98	150	5	253	0	1	0	1	2	197	53	252	36	3	221	260	766
08:00 AM	39	63	3	105	0	0	0	0	1	53	16	70	21	0	48	69	244
08:15 AM	35	50	1	86	0	0	1	1	1	49	19	69	14	1	43	58	214
08:30 AM	31	53	2	86	0	0	1	1	2	62	11	75	12	1	35	48	210
08:45 AM	43	64	2	109	2	1	0	3	1	60	17	78	15	2	38	55	245
Total	148	230	8	386	2	1	2	5	5	224	63	292	62	4	164	230	913
Grand Total	246	380	13	639	2	2	2	6	7	421	116	544	98	7	385	490	1679
Apprch %	38.5	59.5	2		33.3	33.3	33.3		1.3	77.4	21.3		20	1.4	78.6		
Total %	14.7	22.6	0.8	38.1	0.1	0.1	0.1	0.4	0.4	25.1	6.9	32.4	5.8	0.4	22.9	29.2	
Cars +	232	366	13	611	2	2	2	6	7	416	115	538	96	7	375	478	1633
% Cars +	94.3	96.3	100	95.6	100	100	100	100	100	98.8	99.1	98.9	98	100	97.4	97.6	97.3
Trucks	14	14	0	28	0	0	0	0	0	5	1	6	2	0	10	12	46
% Trucks	5.7	3.7	0	4.4	0	0	0	0	0	1.2	0.9	1.1	2	0	2.6	2.4	2.7



TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and White)AM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 2

	Greenville Hwy Southbound				White Street Westbound				Greenville Hwy Northbound				White Street Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	23	39	2	64	0	0	0	0	0	54	16	70	14	1	70	85	219
07:45 AM	33	56	1	90	0	1	0	1	2	64	16	82	10	1	52	63	236
08:00 AM	39	63	3	105	0	0	0	0	1	53	16	70	21	0	48	69	244
08:15 AM	35	50	1	86	0	0	1	1	1	49	19	69	14	1	43	58	214
Total Volume	130	208	7	345	0	1	1	2	4	220	67	291	59	3	213	275	913
% App. Total	37.7	60.3	2		0	50	50		1.4	75.6	23		21.5	1.1	77.5		
PHF	.833	.825	.583	.821	.000	.250	.250	.500	.500	.859	.882	.887	.702	.750	.761	.809	.935





TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and White)PM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 1

Groups Printed- Cars + - Trucks

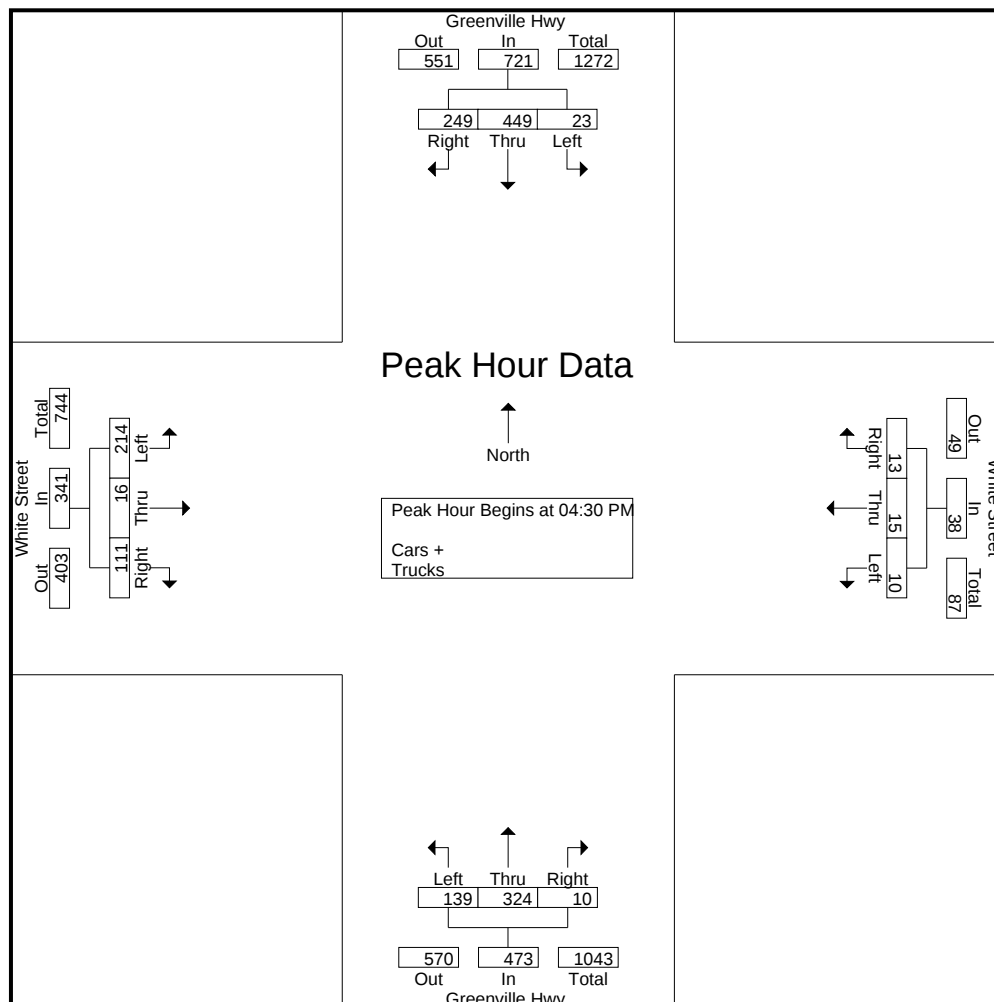
	Greenville Hwy Southbound				White Street Westbound				Greenville Hwy Northbound				White Street Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
04:00 PM	52	99	4	155	1	2	0	3	4	82	35	121	28	4	42	74	353
04:15 PM	61	105	3	169	0	2	6	8	4	84	27	115	28	2	63	93	385
04:30 PM	63	111	8	182	1	3	1	5	4	70	35	109	30	7	49	86	382
04:45 PM	62	114	3	179	3	4	2	9	4	81	36	121	27	1	53	81	390
Total	238	429	18	685	5	11	9	25	16	317	133	466	113	14	207	334	1510
05:00 PM	62	112	7	181	2	4	5	11	1	87	37	125	27	2	69	98	415
05:15 PM	62	112	5	179	7	4	2	13	1	86	31	118	27	6	43	76	386
05:30 PM	62	114	4	180	2	4	3	9	4	54	28	86	20	1	51	72	347
05:45 PM	54	98	1	153	1	3	1	5	3	75	27	105	17	0	46	63	326
Total	240	436	17	693	12	15	11	38	9	302	123	434	91	9	209	309	1474
Grand Total	478	865	35	1378	17	26	20	63	25	619	256	900	204	23	416	643	2984
Apprch %	34.7	62.8	2.5		27	41.3	31.7		2.8	68.8	28.4		31.7	3.6	64.7		
Total %	16	29	1.2	46.2	0.6	0.9	0.7	2.1	0.8	20.7	8.6	30.2	6.8	0.8	13.9	21.5	
Cars +	477	858	35	1370	17	26	20	63	25	613	253	891	203	23	404	630	2954
% Cars +	99.8	99.2	100	99.4	100	100	100	100	100	99	98.8	99	99.5	100	97.1	98	99
Trucks	1	7	0	8	0	0	0	0	0	6	3	9	1	0	12	13	30
% Trucks	0.2	0.8	0	0.6	0	0	0	0	0	1	1.2	1	0.5	0	2.9	2	1



TRAFFIC DATA COLLECTION

File Name : Hendersonville(Greenville Hwy and White)PM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 2

	Greenville Hwy Southbound				White Street Westbound				Greenville Hwy Northbound				White Street Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	63	111	8	182	1	3	1	5	4	70	35	109	30	7	49	86	382
04:45 PM	62	114	3	179	3	4	2	9	4	81	36	121	27	1	53	81	390
05:00 PM	62	112	7	181	2	4	5	11	1	87	37	125	27	2	69	98	415
05:15 PM	62	112	5	179	7	4	2	13	1	86	31	118	27	6	43	76	386
Total Volume	249	449	23	721	13	15	10	38	10	324	139	473	111	16	214	341	1573
% App. Total	34.5	62.3	3.2		34.2	39.5	26.3		2.1	68.5	29.4		32.6	4.7	62.8		
PHF	.988	.985	.719	.990	.464	.938	.500	.731	.625	.931	.939	.946	.925	.571	.775	.870	.948





TRAFFIC DATA COLLECTION

File Name : Hendersonville(Spartanburg Hwy and Chadwick)AM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 1

Groups Printed- Cars + - Trucks

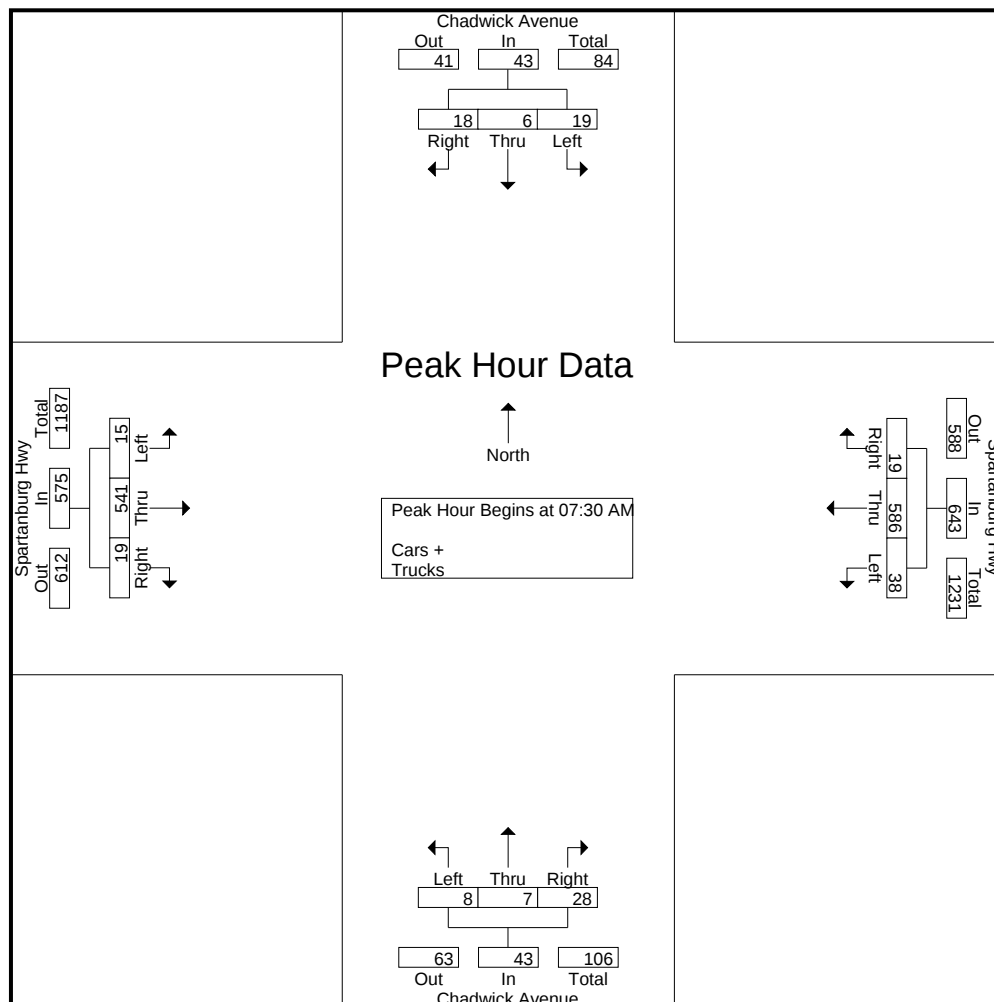
	Chadwick Avenue Southbound				Spartanburg Hwy Westbound				Chadwick Avenue Northbound				Spartanburg Hwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	4	0	4	8	6	94	10	110	5	0	1	6	2	74	3	79	203
07:15 AM	0	0	8	8	2	102	6	110	4	0	1	5	1	97	1	99	222
07:30 AM	4	0	3	7	9	143	9	161	8	2	3	13	2	119	3	124	305
07:45 AM	4	1	5	10	4	173	12	189	8	1	3	12	5	179	3	187	398
Total	12	1	20	33	21	512	37	570	25	3	8	36	10	469	10	489	1128
08:00 AM	6	1	5	12	2	150	11	163	7	1	1	9	6	138	3	147	331
08:15 AM	4	4	6	14	4	120	6	130	5	3	1	9	6	105	6	117	270
08:30 AM	5	1	3	9	10	119	5	134	4	1	0	5	1	110	3	114	262
08:45 AM	8	1	3	12	9	126	14	149	4	2	2	8	5	115	3	123	292
Total	23	7	17	47	25	515	36	576	20	7	4	31	18	468	15	501	1155
Grand Total	35	8	37	80	46	1027	73	1146	45	10	12	67	28	937	25	990	2283
Apprch %	43.8	10	46.2		4	89.6	6.4		67.2	14.9	17.9		2.8	94.6	2.5		
Total %	1.5	0.4	1.6	3.5	2	45	3.2	50.2	2	0.4	0.5	2.9	1.2	41	1.1	43.4	
Cars +	35	8	37	80	42	971	63	1076	42	9	12	63	28	907	24	959	2178
% Cars +	100	100	100	100	91.3	94.5	86.3	93.9	93.3	90	100	94	100	96.8	96	96.9	95.4
Trucks	0	0	0	0	4	56	10	70	3	1	0	4	0	30	1	31	105
% Trucks	0	0	0	0	8.7	5.5	13.7	6.1	6.7	10	0	6	0	3.2	4	3.1	4.6



TRAFFIC DATA COLLECTION

File Name : Hendersonville(Spartanburg Hwy and Chadwick)AM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 2

	Chadwick Avenue Southbound				Spartanburg Hwy Westbound				Chadwick Avenue Northbound				Spartanburg Hwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	4	0	3	7	9	143	9	161	8	2	3	13	2	119	3	124	305
07:45 AM	4	1	5	10	4	173	12	189	8	1	3	12	5	179	3	187	398
08:00 AM	6	1	5	12	2	150	11	163	7	1	1	9	6	138	3	147	331
08:15 AM	4	4	6	14	4	120	6	130	5	3	1	9	6	105	6	117	270
Total Volume	18	6	19	43	19	586	38	643	28	7	8	43	19	541	15	575	1304
% App. Total	41.9	14	44.2		3	91.1	5.9		65.1	16.3	18.6		3.3	94.1	2.6		
PHF	.750	.375	.792	.768	.528	.847	.792	.851	.875	.583	.667	.827	.792	.756	.625	.769	.819





TRAFFIC DATA COLLECTION

File Name : Hendersonville(Spartanburg Hwy and Chadwick)PM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 1

Groups Printed- Cars + - Trucks

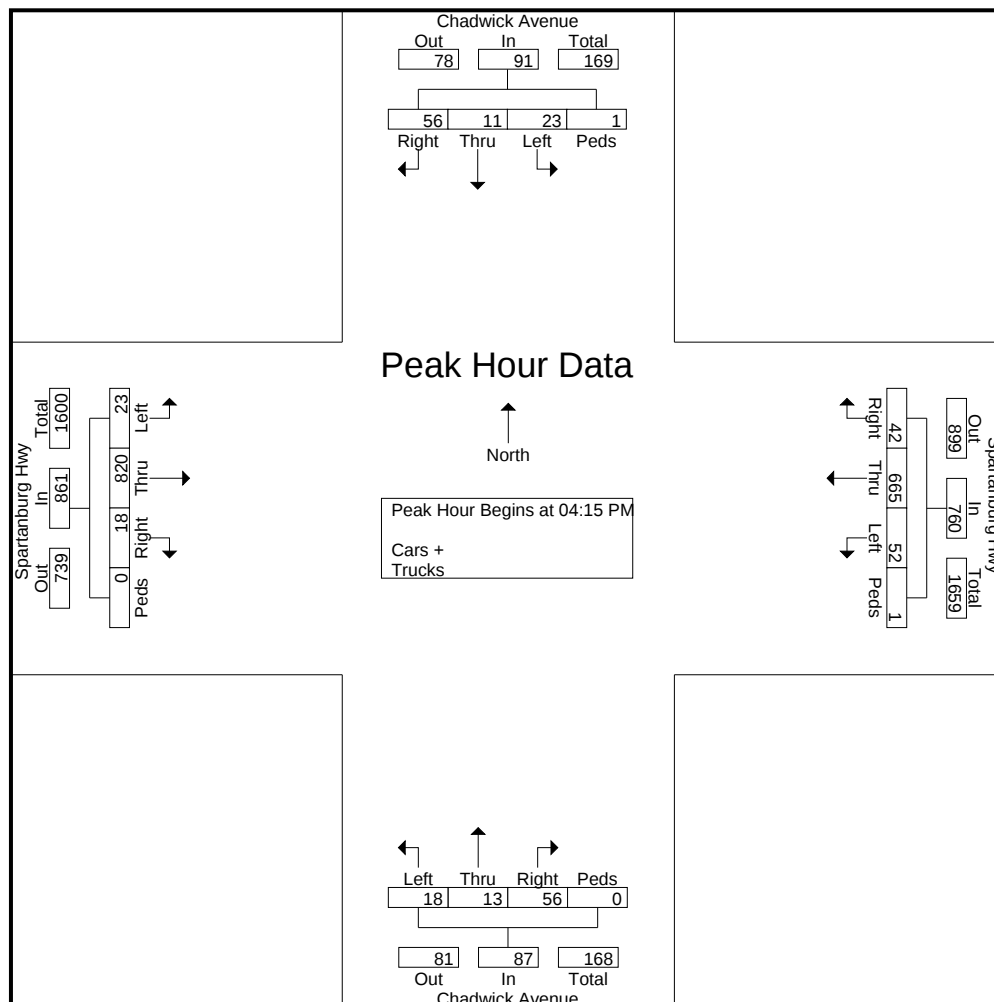
	Chadwick Avenue Southbound					Spartanburg Hwy Westbound					Chadwick Avenue Northbound					Spartanburg Hwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	7	0	5	0	12	12	167	11	0	190	7	0	1	0	8	8	158	3	0	169	379
04:15 PM	9	6	4	0	19	9	173	16	1	199	9	5	5	0	19	6	190	5	0	201	438
04:30 PM	11	2	13	1	27	14	180	11	0	205	10	1	2	0	13	3	190	5	0	198	443
04:45 PM	14	1	3	0	18	8	145	13	0	166	15	4	5	0	24	3	208	6	0	217	425
Total	41	9	25	1	76	43	665	51	1	760	41	10	13	0	64	20	746	19	0	785	1685
05:00 PM	22	2	3	0	27	11	167	12	0	190	22	3	6	0	31	6	232	7	0	245	493
05:15 PM	10	4	7	0	21	11	147	18	0	176	12	1	4	0	17	10	186	6	0	202	416
05:30 PM	14	4	5	0	23	7	130	11	0	148	13	1	3	0	17	10	189	8	0	207	395
05:45 PM	17	4	7	0	28	5	133	8	0	146	8	1	1	0	10	4	168	3	0	175	359
Total	63	14	22	0	99	34	577	49	0	660	55	6	14	0	75	30	775	24	0	829	1663
Grand Total	104	23	47	1	175	77	1242	100	1	1420	96	16	27	0	139	50	1521	43	0	1614	3348
Apprch %	59.4	13.1	26.9	0.6		5.4	87.5	7	0.1		69.1	11.5	19.4	0		3.1	94.2	2.7	0		
Total %	3.1	0.7	1.4	0	5.2	2.3	37.1	3	0	42.4	2.9	0.5	0.8	0	4.2	1.5	45.4	1.3	0	48.2	
Cars +	104	23	47	1	175	77	1219	98	1	1395	95	16	27	0	138	50	1478	43	0	1571	3279
% Cars +	100	100	100	100	100	100	98.1	98	100	98.2	99	100	100	0	99.3	100	97.2	100	0	97.3	97.9
Trucks	0	0	0	0	0	0	23	2	0	25	1	0	0	0	1	0	43	0	0	43	69
% Trucks	0	0	0	0	0	0	1.9	2	0	1.8	1	0	0	0	0.7	0	2.8	0	0	2.7	2.1



TRAFFIC DATA COLLECTION

File Name : Hendersonville(Spartanburg Hwy and Chadwick)PM Peak
 Site Code :
 Start Date : 1/11/2022
 Page No : 2

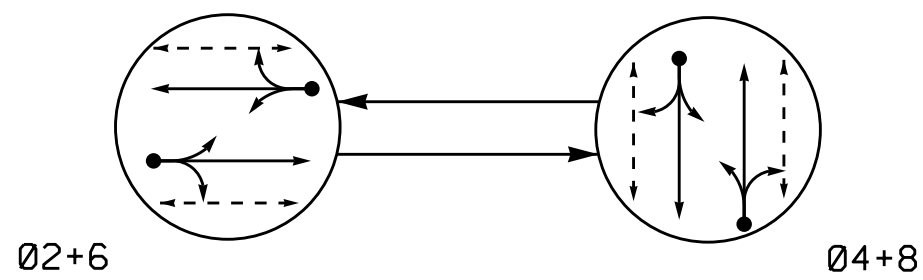
	Chadwick Avenue Southbound					Spartanburg Hwy Westbound					Chadwick Avenue Northbound					Spartanburg Hwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	9	6	4	0	19	9	173	16	1	199	9	5	5	0	19	6	190	5	0	201	438
04:30 PM	11	2	13	1	27	14	180	11	0	205	10	1	2	0	13	3	190	5	0	198	443
04:45 PM	14	1	3	0	18	8	145	13	0	166	15	4	5	0	24	3	208	6	0	217	425
05:00 PM	22	2	3	0	27	11	167	12	0	190	22	3	6	0	31	6	232	7	0	245	493
Total Volume	56	11	23	1	91	42	665	52	1	760	56	13	18	0	87	18	820	23	0	861	1799
% App. Total	61.5	12.1	25.3	1.1		5.5	87.5	6.8	0.1		64.4	14.9	20.7	0		2.1	95.2	2.7	0		
PHF	.636	.458	.442	.250	.843	.750	.924	.813	.250	.927	.636	.650	.750	.000	.702	.750	.884	.821	.000	.879	.912



APPENDIX C

SIGNAL PLANS

PHASING DIAGRAM



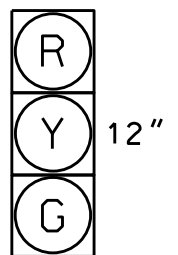
PHASING DIAGRAM DETECTION LEGEND

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

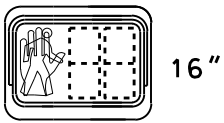
SIGNAL FACE	PHASE		
	02+6	04+8	FLASH
21,22	G	R	Y
41,42	R	G	R
61,62	G	R	Y
81,82	R	G	R
P21,P22	W	DW	DRK
P41,P42	DW	W	DRK
P61,P62	W	DW	DRK
P81,P82	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



21, 22
41, 42
61, 62
81, 82



P21, P22
P41, P42
P61, P62
P81, P82

DETECTOR INSTALLATION CHART

DETECTOR				PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE
2A	6X6	70	3	-	2	Yes	-	-	-	N
4A	6X40	+5	2-4-2	-	4	Yes	-	5	-	N
4B	6X6	+5	2	-	4	Yes	-	15	-	N
6A	6X6	70	3	-	6	Yes	-	-	-	N
8A	6X40	+5	2-4-2	-	8	Yes	-	5	-	N
S1	6X6	+110	4	-	-	No	-	-	-	N

2 Phase
Fully Actuated
Signal System # 11407

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pedestrian heads P21, P22, P61 and P62 do not include push buttons. Program phase 2Ped and 6Ped for ped recall.
- Enable Walk Rest for phases 2 and 6 during periods of coordination.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Metal signal poles installed at this intersection have been designed without backplates on signal heads. Do not add backplates or additional loads to mast arms without having a structural analysis performed.

LEGEND

PROPOSED	EXISTING
	N/A
N/A	
N/A	
N/A	

TIMING CHART				
FEATURE	PHASE			
	2	4	6	8
Min Green *	10	7	10	7
Walk *	7	7	7	7
Ped Clear	4	12	13	9
Veh. Extension *	3.0	1.5	3.0	1.5
Max I *	45	15	45	15
Yellow	4.0	3.8	4.0	3.8
Red Clear	1.2	1.9	1.2	1.9
Red Revert	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-
Seconds /Actuation *	-	-	-	-
Max Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Locking Detector	X	-	X	-
Recall Position	VEH/PED RECALL	-	VEH/PED RECALL	-
Dual Entry	-	X	-	X
Simultaneous Gap	X	X	X	X

* 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.

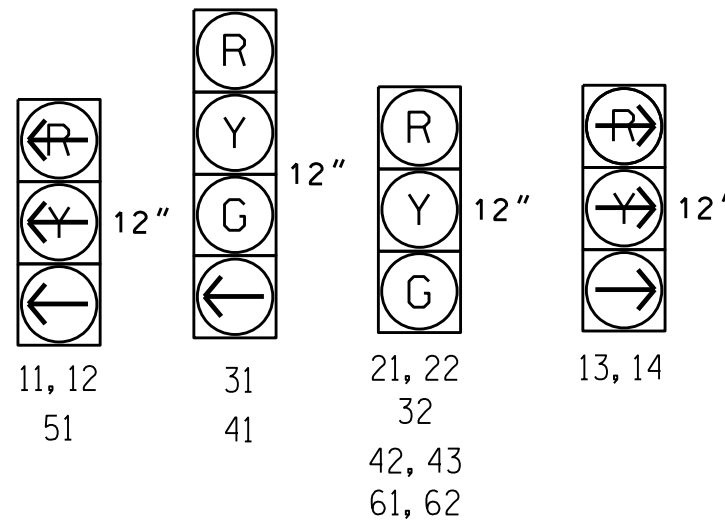
Install new 2070LX controller into the existing cabinet.

Signal Upgrade

	NC 225 (Greenville Highway) at Chadwick Avenue/Chadwick Square	
	Division 14 Henderson County Hendersonville PLAN DATE: February 2020 REVIEWED BY: TJ Williams PREPARED BY: EM Minshew REVIEWED BY:	
750 N. Greenfield Pkwy, Garner, NC 27529	SCALE 0 20 1"=20'	REVISIONS INIT. DATE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		DATE 3/5/2020 DATE 14-1176

SIGNAL FACE	PHASE						
	0 1 + 5	0 1 + 6	0 2 + 5	0 2 + 6	0 3	0 4	F L A S H
11, 12	←	→	←	←	←	←	←
13, 14	→	→	←	←	←	→	←
21, 22	R	R	G	G	R	R	Y
31	R	R	R	R	<u>G</u>	R	R
32	R	R	R	R	G	R	R
41	R	R	R	R	R	<u>G</u>	R
42, 43	R	R	R	R	G	R	
51	←	←	←	←	←	←	←
61, 62	R	G	R	G	R	R	Y
P21, P22	DW	DW	W	W	DW	DW	DRK
P31, P32	DW	DW	DW	DW	W	DW	DRK
P41, P42	DW	DW	DW	DW	DW	W	DRK
P61, P62	DW	W	DW	W	DW	DW	DRK

P21, P22
P31, P32
P41, P42
P61, P62



INDUCTIVE LOOPS					DETECTOR PROGRAMMING									
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	SYSTEM	LOOP	TYPE	LOOP	NEW
1A	6X40	0	2-4-2	-	1	Yes	-	3	-	N	-	-	-	-
1B	6X40	0	2-4-2	-	1	Yes	-	-	-	N	-	-	-	-
1C	6X40	0	2-4-2	-	1	Yes	-	-	-	N	-	-	-	-
1D	6X40	0	2-4-2	-	1	Yes	-	-	-	N	-	-	-	-
2A, 2B	6X6	82	4	-	2	Yes	-	-	-	N	-	-	-	-
3A	6X40	+5	2-4-2	-	3	Yes	-	-	-	N	-	-	-	-
3B	6X40	+5	2-4-2	-	3	Yes	-	10	-	N	-	-	-	-
4A	6X40	+5	2-4-2	-	4	Yes	-	-	-	N	-	-	-	-
4B	6X40	0	2-4-2	-	4	Yes	-	-	-	N	-	-	-	-
5A	6X40	+5	2-4-2	-	5	Yes	-	3	-	N	-	-	-	-
6A	6X6	70	4	-	6	Yes	-	-	-	N	-	-	-	-

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
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. Phase 1 or Phase 5 may be lagged.
5. Set all detector units to presence mode.
6. Pavement markings existing
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "DON'T WALK" time only.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.

Metal signal poles installed at this intersection have been designed without backplates on signal heads. Do not add backplates or additional loads to mast arms without having a structural analysis performed.

	DETECTED MOVEMENT
	UNDETECTED MOVEMENT (OVERLAP)
	UNSIGNALIZED MOVEMENT
	PEDESTRIAN MOVEMENT

TIMING CHART						
FEATURE	PHASE					
	1	2	3	4	5	6
Min Green *	7	10	7	7	7	10
Walk *	-	7	7	7	-	7
Ped Clear	-	25	7	18	-	18
Veh. Extension *	1.5	3.5	2.0	2.0	1.5	3.0
Max I *	30	45	25	25	20	45
Yellow	3.0	3.9	3.2	3.8	3.0	3.9
Red Clear	3.2	2.4	3.5	2.3	2.9	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-	-	-
Seconds /Actuation *	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Locking Detector	-	X	-	-	-	X
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X

* 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.

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head	
	With Push Button & Sign	
	Pedestrian Signal Pedestal	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Metal Pole with Mastarm	
	Inductive Loop Detector	
	Controller & Cabinet	
	Master Controller & Cabinet	
	Junction Box	
	Directional Drill	NA
	2-in Underground Conduit	
N/A	Right of Way with Marker	
	Directional Arrow	
	Pavement Marking Arrow	
	"NO TURN ON RED" Sign (R10-11)	
	CCTV Camera	
	MOUNTED ON TOP OF ARM FOR GALLOPING MAST ARM	

Prepared In the Offices of

750 N. Greenfield Pkwy, Garner, NC

SCALE

0

1" = 40'

US 225 (Greenville Highway)
US 25 (S. Main Street) at
US 176 (Spartanburg Highway)
Shopping Center Entrance

Division 14 Henderson County Hendersonville

PLAN DATE: January 2020	REVIEWED BY: T. Williams
-------------------------	--------------------------

9	PREPARED BY: C. Pierce	REVIEWED BY:			
---	------------------------	--------------	--	--	--

REVISIONS	INIT.	DATE

[illegible]

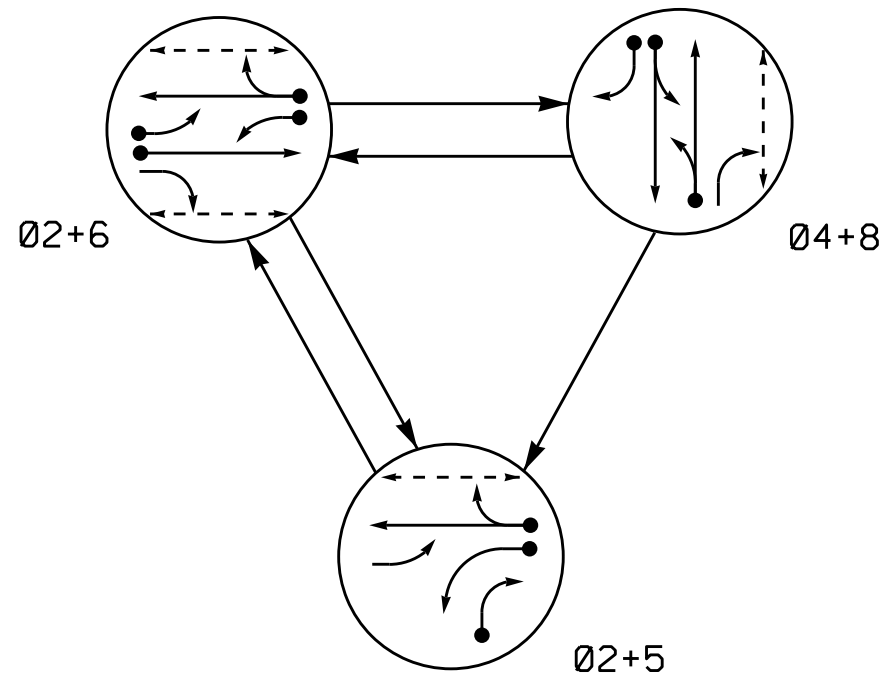
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



North Carolina Professional Engineer Seal
 Timothy J. Williams
 License No. 024393

PHASING DIAGRAM



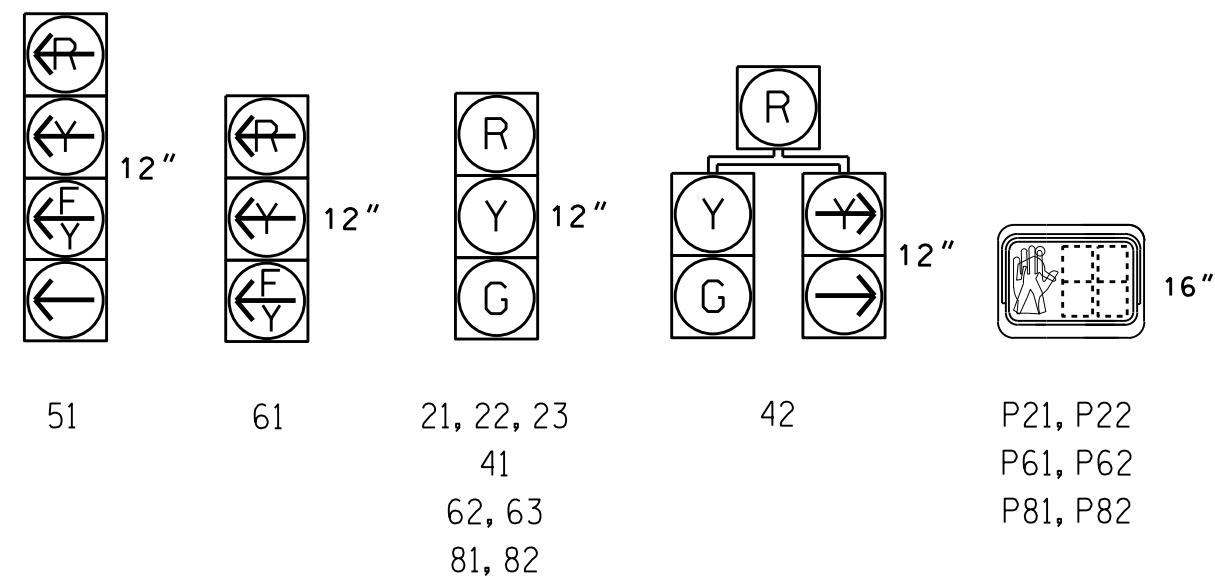
PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE	PHASE			
	02+5	02+6	04+8	FLASH
21, 22, 23	G	G	R	Y
41	R	R	G	R
42	R	R	G	R
51	F	F	R	Y
61	F	F	R	Y
62, 63	R	G	R	Y
81, 82	R	R	G	R
P21, P22	W	W	DW	DRK
P61, P62	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



DETECTOR INSTALLATION CHART											
DETECTOR					PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP
2A	6X6	70	4	-	2	Yes	-	-	-	N	-
4A	6X40	0	2-4-2	-	4	Yes	-	3	-	N	-
5A	6X40	+5	2-4-2	-	5	Yes	-	15	-	N	-
5B	6X40	0	2-4-2	-	5	Yes	-	15	-	N	-
6A	6X6	70	4	-	6	Yes	-	-	-	N	-
6B	6X40	0	2-4-2	-	6	Yes	-	-	-	N	-
8A	6X40	+5	2-4-2	-	8	Yes	-	3	-	N	-
8B	6X40	0	2-4-2	-	8	Yes	-	15	-	N	-

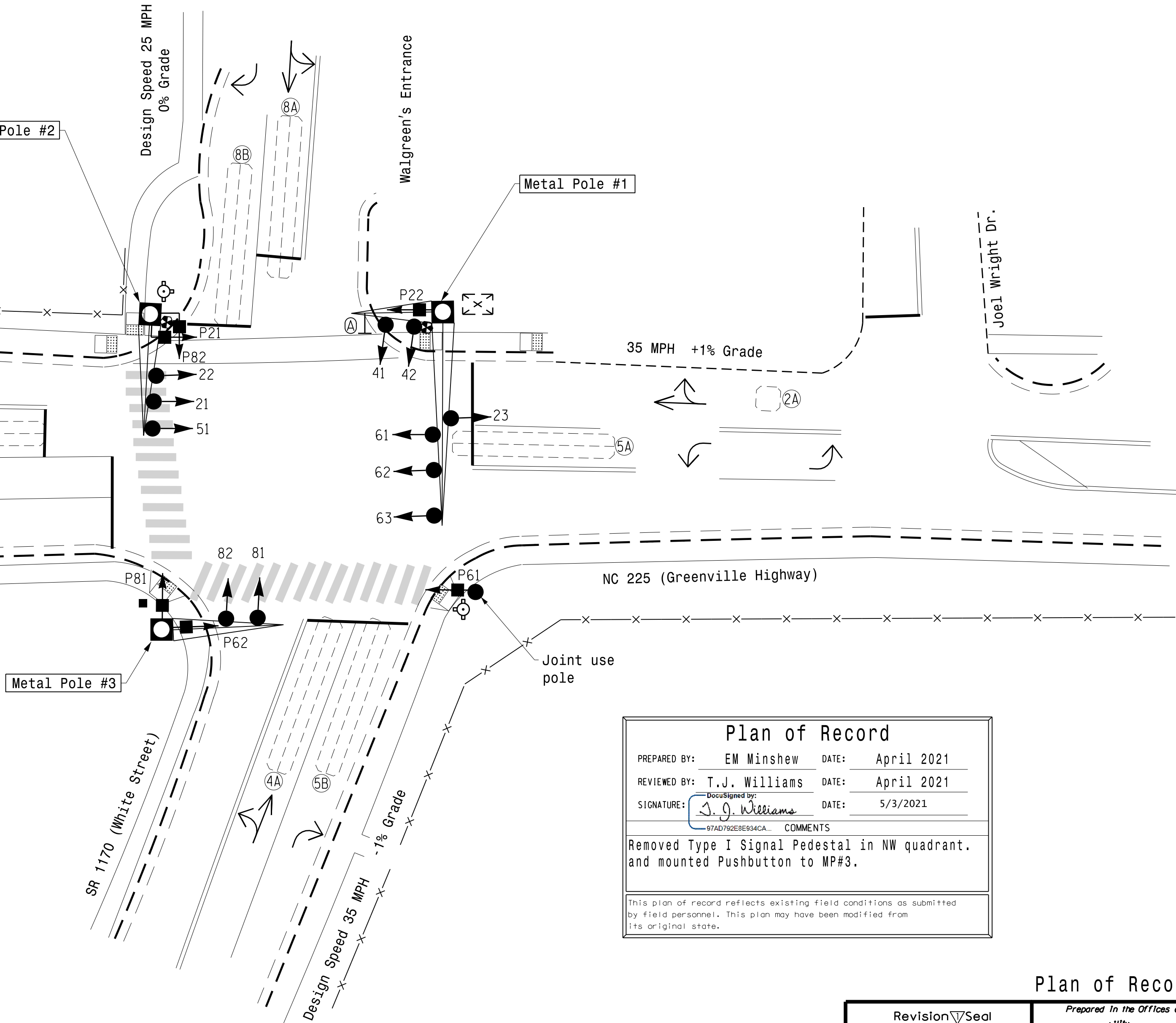
3 Phase
Fully Actuated
Signal System #11407

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pavement markings are existing.
- Program controller to operate using FYA COMPACT mode.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

FEATURE	PHASE				
	2	4	5	6	8
Min Green *	10	7	7	10	7
Walk *	7	-	-	7	7
Ped Clear	14	-	-	14	14
Veh. Extension *	3.0	1.0	1.0	3.0	1.0
Max 1 *	45	25	20	45	25
Yellow	3.8	3.9	3.0	3.8	3.9
Red Clear	1.8	2.4	1.9	1.8	2.4
Red Revert	2.0	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-	-
Seconds / Actuation *	-	-	-	-	-
Max Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Locking Detector	X	-	-	X	-
Recall Position	VEH. RECALL	-	-	VEH. RECALL	-
Dual Entry	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X

* 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.



Plan of Record

PREPARED BY: EM Minshew DATE: April 2021

REVIEWED BY: T.J. Williams DATE: April 2021

SIGNATURE: [Signature] DATE: 5/3/2021

Comments: Removed Type I Signal Pedestal in NW quadrant, and mounted Pushbutton to MP#3.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

LEGEND	
PROPOSED	EXISTING
Traffic Signal Head	N/A
Modified Signal Head	N/A
Sign	N/A
Pedestrian Signal Head With Push Button & Sign	N/A
Type I Signal Pedestal	N/A
Signal Pole with Guy	N/A
Signal Pole with Sidewalk Guy	N/A
Metal Pole with Mastarm	N/A
Inductive Loop Detector	N/A
Controller & Cabinet	N/A
Junction Box	N/A
2-in Underground Conduit	N/A
Right of Way	N/A
Directional Arrow	N/A
Curb Ramp	N/A
Fence	N/A
Fire Hydrant	N/A
"LEFT TURN YIELD TO PEDESTRIANS" Sign (R10-15)	N/A

Plan of Record

Revision Seal	Prepared in the Offices of:	NC 225 (Greenville Highway) at SR 1170 (White Street) / Walgreen's Entrance	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
Professional Engineer Seal	750 N. Greenville Hwy, Garner, NC 27529	Division 14 Henderson County Hendersonville	Not a certified document. This document originally issued and sealed by Timothy J. Williams, PE no. 24393 on 3/5/2020. This document shall not be considered a certified document.
DocuSign by: [Signature] 5/3/2021	SCALE: 0 20 1"=20'	PLAN DATE: February 2020 REVIEWED BY: TJ Williams	
		PREPARED BY: EM Minshew REVIEWED BY:	
		REVISIONS: Added 15s delay on loop 8B.	
		INIT. DATE: [Signature] 5/3/2021	
		SIG. INVENTORY NO. 14-0954	

APPENDIX D

FUTURE ROADWAY IMPROVEMENTS

PROJECT REFERENCE NO.		SHEET NO.
U-5886 /U-6049		5
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

GREENVILLE HWY NC 225			
2020 ADT	2040 ADT	(in 100's)	
20	20	20	75
22	22	24	107
49	49	45	63
103	103	61	
WHITE ST SR 1170			
WHITE ST EXTENSION			
145 185 NC 225 GREENVILLE HWY			

FOR RETAINING WALL ENVELOPE
SEE SHEET ??

FOR STRUCTURE PLANS
SEE SHEET S1 THRU S-?

MATCHLINE SHEET 7

U-6049
25

CAPITAL FUNDS, INC.
DB 417 PG 185

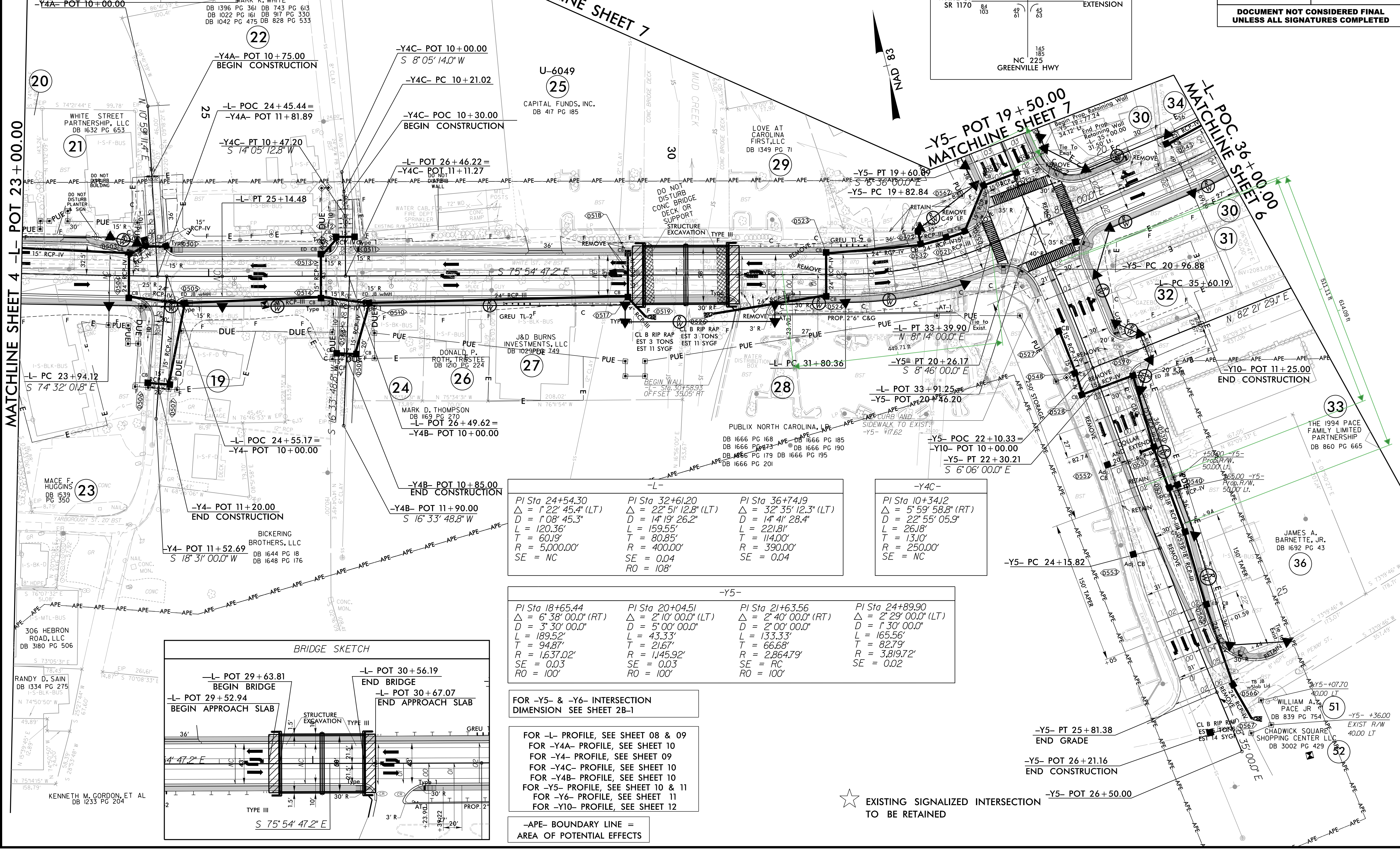
NAD 83

MATCHLINE SHEET 7
-Y5- POT 19+50.00
-Y5- PC 19+82.84
-Y5- PT 19+60.89
-Y5- PT 20+26.17
-Y5- POT 20+46.20
-Y5- POC 22+10.33
-Y10- POT 10+00.00
-Y5- PT 22+30.21
-Y5- PC 24+15.82
-Y5- PT 25+81.38
-Y5- POT 26+21.16
-Y5- POT 26+50.00

MATCHLINE SHEET 6
-L- POC 36+00.00
-Y10- POT 11+25.00
END CONSTRUCTION

MATCHLINE SHEET 4 -L- POT 23+00.00

PROPERTY OWNER/ ROW NUMBER		
19	WILLIAM M. GILLIAM	DB 986 PG 247
20	HENRI R. BOYER	DB 3285 PG 412
24	AKITA PROPERTIES, LLC	DB 1561 PG 101
30	VILLA SANGRIA HENDERSONVILLE, LLC	DB 1461 PG 523
31	EDITH P. WALTER, ET AL	DB 1571 PG 215
32	DONAL S. CHEARHAM	DB 778 PG 859
34	STEVEN BROCK	DB 775 PG 5391



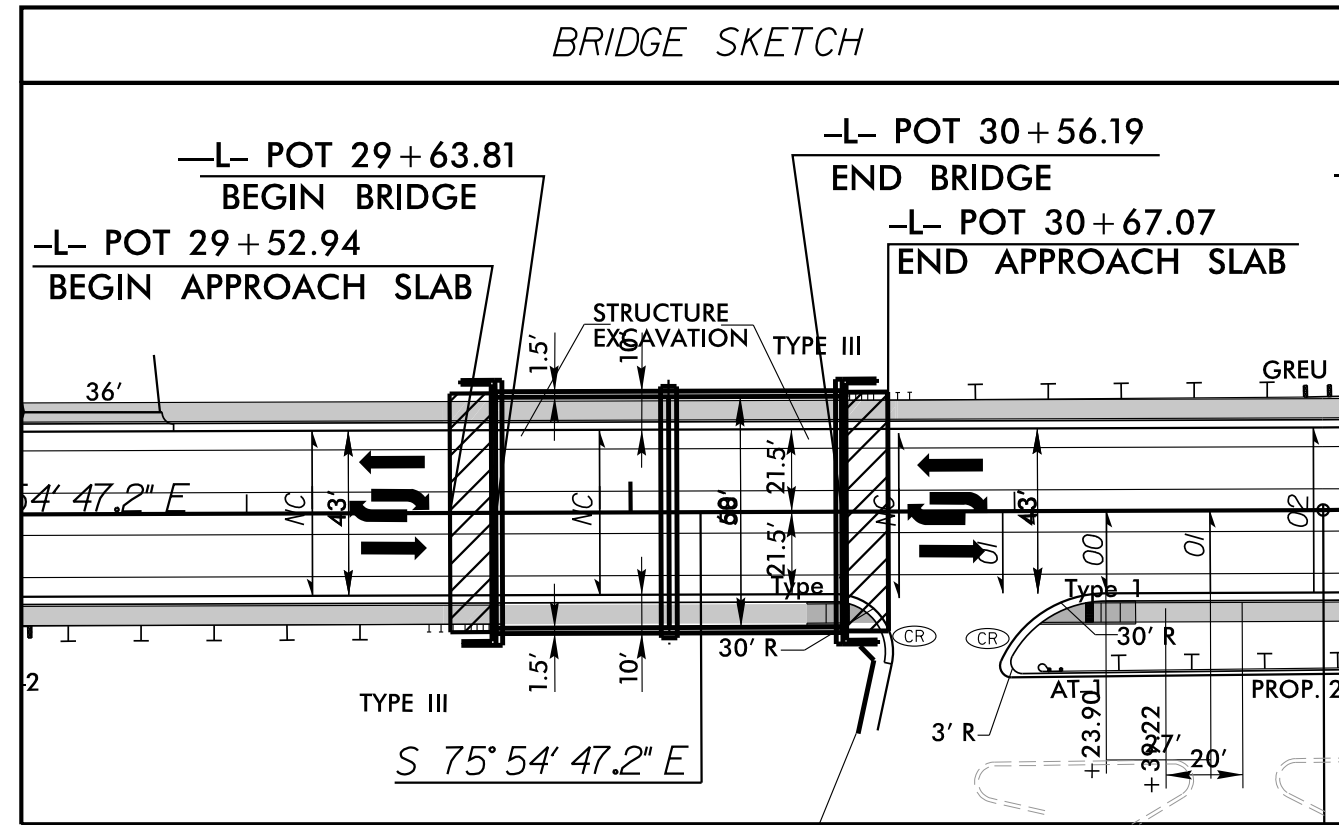
PI Sta 24+54.30 Δ = 1° 22' 45.4" (LT) D = 1° 08' 45.3" L = 120.36' T = 60.19' R = 5,000.00' SE = NC	PI Sta 32+61.20 Δ = 2° 51' 12.8" (LT) D = 14° 19' 26.2" L = 159.55' T = 80.85' R = 400.00' SE = 0.04 RO = 108'	PI Sta 36+74.19 Δ = 32° 35' 12.3" (LT) D = 14° 41' 28.4" L = 221.81' T = 114.00' R = 390.00' SE = 0.04
---	---	--

PI Sta 18+65.44 Δ = 6° 38' 00.0" (RT) D = 3° 30' 00.0" L = 189.52' T = 94.87' R = 1,637.02' SE = 0.03 RO = 100'	PI Sta 20+04.51 Δ = 2° 10' 00.0" (LT) D = 5° 00' 00.0" L = 43.33' T = 21.67' R = 1,145.92' SE = 0.03 RO = 100'	PI Sta 21+63.56 Δ = 2° 40' 00.0" (RT) D = 2° 00' 00.0" L = 133.33' T = 66.68' R = 2,864.79' SE = RC RO = 100'	PI Sta 24+89.90 Δ = 2° 29' 00.0" (LT) D = 1° 30' 00.0" L = 165.56' T = 82.79' R = 3,819.72' SE = 0.02
--	---	--	---

FOR -Y5- & -Y6- INTERSECTION
DIMENSION SEE SHEET 2B-1

FOR -L- PROFILE, SEE SHEET 08 & 09
FOR -Y4A- PROFILE, SEE SHEET 10
FOR -Y4C- PROFILE, SEE SHEET 10
FOR -Y4B- PROFILE, SEE SHEET 10
FOR -Y5- PROFILE, SEE SHEET 10 & 11
FOR -Y6- PROFILE, SEE SHEET 11
FOR -Y10- PROFILE, SEE SHEET 12

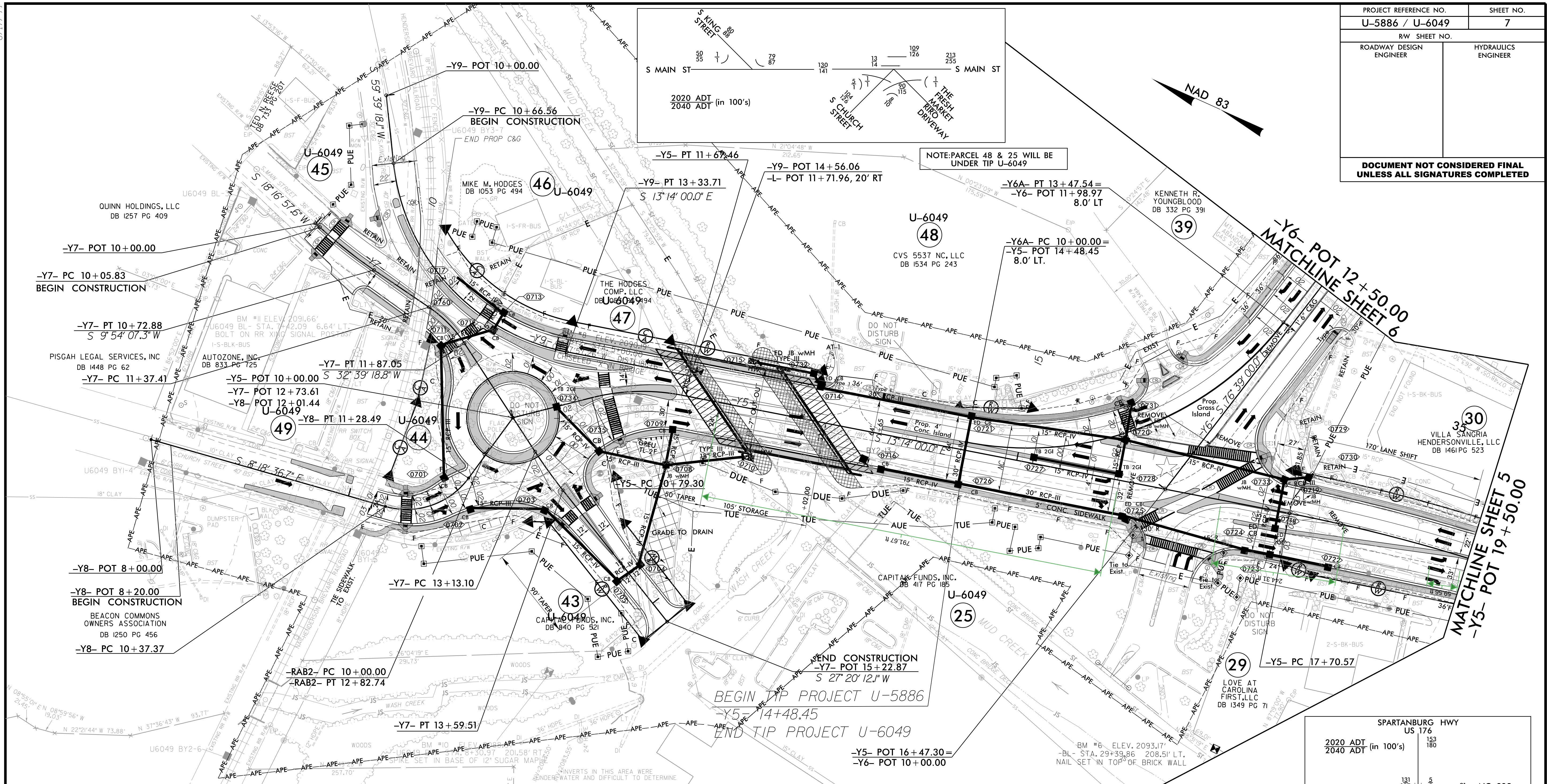
-APE- BOUNDARY LINE =
AREA OF POTENTIAL EFFECTS



★ EXISTING SIGNALIZED INTERSECTION
TO BE RETAINED

REVISIONS

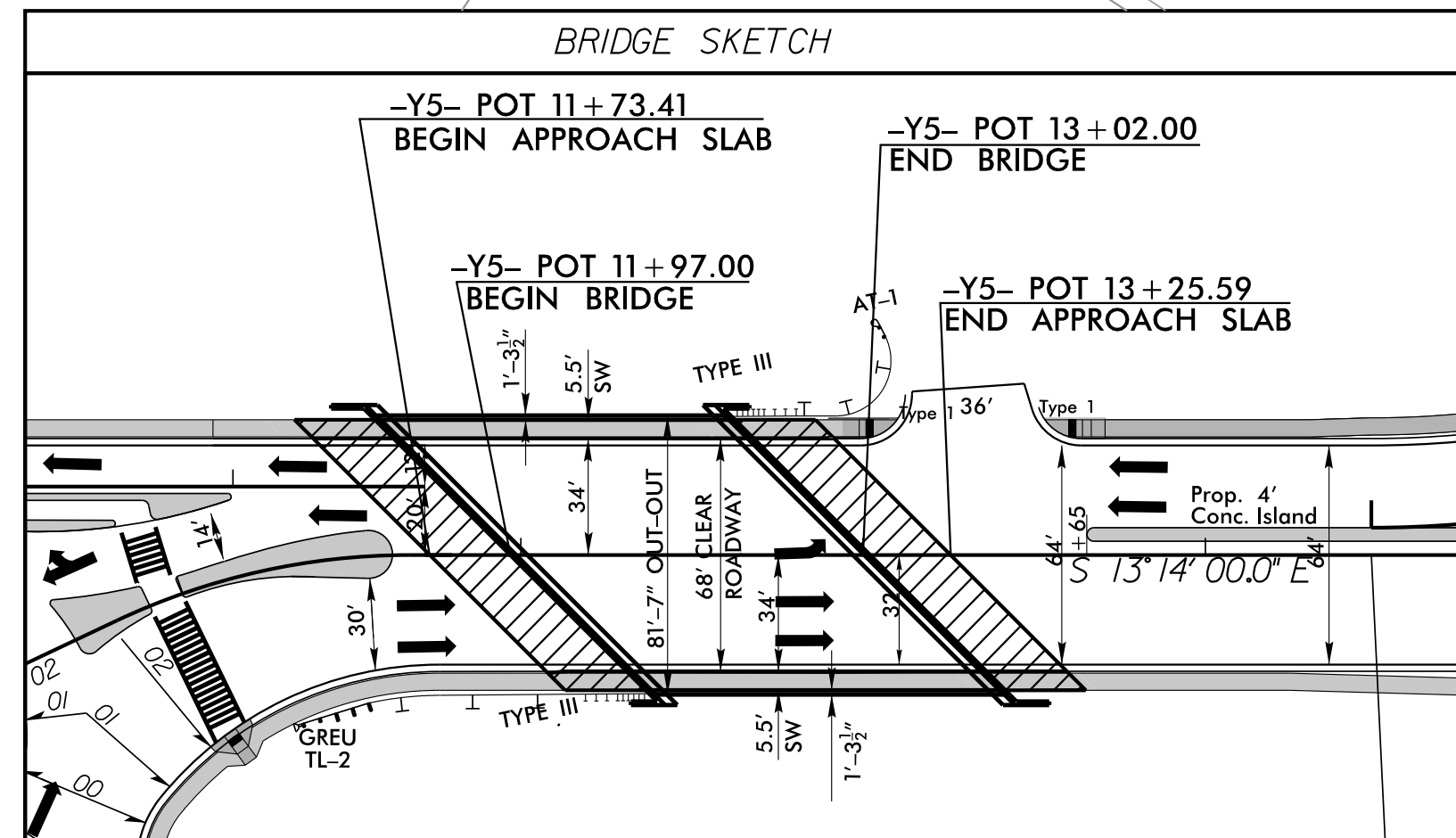
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-Y5-	-Y7-			
PI Sta 11+24.11	PI Sta 10+39.30	PI Sta 11+62.56	PI Sta 13+36.32	
$\Delta = 25^{\circ}15'15.3"$ (RT)	$\Delta = 8^{\circ}22'50.3"$ (LT)	$\Delta = 22^{\circ}45'11.4"$ (RT)	$\Delta = 5^{\circ}19'06.6"$ (LT)	
D = 28'38" 52.4"	D = 12'27" 20.2"	D = 45'50" 11.8"	D = 12'27" 33.0"	
L = 88.15'	L = 67.28'	L = 49.64'	L = 46.41'	
T = 44.80'	T = 33.70'	T = 25.15'	T = 23.22'	
R = 200.00'	R = 460.00'	R = 125.00'	R = 500.00'	
SE = NC	SE = NC	SE = NC	SE = NC	

-Y8-	-Y9-	-RAB2-
PI Sta 10+89.50	PI Sta 12+21.64	PI Sta 10+00.00
$\Delta = 69^{\circ} 36' 27.9" (LT)$	$\Delta = 72^{\circ} 53' 18.1" (LT)$	$\Delta = 359^{\circ} 59' 55.4" (LT)$
$D = 76' 23'' 39.7''$	$D = 27' 17'' 01.3''$	$D = 127' 19'' 26.2''$
$L = 91.12'$	$L = 267.15'$	$L = 282.74'$
$T = 52.13'$	$T = 155.08'$	$T = 0.00'$
$R = 75.00'$	$R = 210.00'$	$R = 45.00'$
$SE = NC$	$SE = NC$	$SE = NC$

-APE- BOUNDARY LINE =
AREA OF POTENTIAL EFFECTS



FOR STRUCTURE PLANS
SEE SHEET S1 THRU S?

FOR RETAINING WALL ENVELOPE
SEE SHEET ?

★ EXISTING SIGNALIZED INTERSECTION
TO BE RETAINED

Diagram illustrating the intersection of S Main St, Spartanburg Hwy, and The Fresh Market Driveway. The diagram shows traffic flow and ADT values for the years 2020 and 2040.

Intersection Details:

- Spartanburg Hwy:**
 - Left Turn Lane: 2020 ADT 153, 2040 ADT 180
 - Through Lane: 2020 ADT 91, 2040 ADT 107
- The Fresh Market Driveway:**
 - Left Turn Lane: 2020 ADT 23, 2040 ADT 25
- S Main St:**
 - Left Turn Lane: 2020 ADT 131, 2040 ADT 157
 - Through Lane: 2020 ADT 213, 2040 ADT 255
 - Right Turn Lane: 2020 ADT 1/2, 2040 ADT 1/2

PROPERTY OWNER/ ROW NUMBER	
44 CITY OF HENDERSONVILLE	DB 1357 PG 559
45 TIMOTHY TAYLOR	DB 1088 PG 238

FOR ROUND-A-BOUT AND -Y9-
SLIP RAMP DIMENSION SEE
SHEET 2B-2

FOR -Y5- PROFILE, SEE SHEET 9
FOR -Y7- PROFILE, SEE SHEET 10
FOR -Y8- PROFILE, SEE SHEET 11
FOR -Y9- PROFILE, SEE SHEET 11

FINAL

Traffic Forecast Report

STIP U-5886 & U-6049

SR 1170 (White Street) from SR 1171 (Willow Road) to US 176

Realign and Extend Roadway &

NC 225 from South King Street to US 176

Widen Bridge 143 to 5 Lanes

WBS # 44710.1.1

Henderson County

OCTOBER 2017

PREPARED FOR:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PREPARED BY:

**STV ENGINEERS, INC.
900 WEST TRADE STREET, SUITE 715
CHARLOTTE, NC 28202**





Traffic Forecast Cover Letter

October 2017

TO: Stephen Williams
NCDOT Division 14

FROM: Trent Moody, PE
STV Engineers, Inc.

SUBJECT: TIP Project No. U-5886/U-6049, Division 14, Henderson County

Please find attached the 2017/2040 Traffic Forecast for Project Numbers U-5886 and U-6049 in Henderson County. The project is located within the French Broad River Metropolitan Planning Organization (MPO). The proposed project is located in Henderson County in the City of Hendersonville, NC. STIP project U-5886 proposes roadway improvements along SR 1170 (White Street) from SR 1171 (Willow Road) to US 176. In addition to U-5886, STIP project U-6049 also proposes improvements to widen Bridge 143 to five (5) lanes along NC 225 from South King Street to US 176. The purpose of the U-5886/U-6049 project is to provide connectivity and to alleviate traffic congestion within the study area. Included in the traffic forecast is the analysis for six scenarios, the 2017 Base Year No-Build scenario, the 2017 Base Year Build Alternative 1 scenario, the 2017 Base Year Build Alternative 2 scenario, the 2040 Future Year No-Build scenario, the 2040 Future Year Build Alternative 1 scenario, and the 2040 Future Year Build Alternative 2 scenario. The Transportation Planning Division approved this forecast for U-5886/U-6049 for delivery as of October 16, 2017.

The following individuals were consulted during the development of this forecast:

- E.A. (Ed) Green, PE - Division Engineer, NCDOT Division 14
- Brian C. Burch, PE - Division Project Development Engineer, NCDOT Division 14
- Wanda H. Austin, PE - Project Team Lead, NCDOT Division 14
- Steve Buchanan - Division Traffic Engineer, NCDOT Division 14
- Steve Cannon, PE - District Engineer, NCDOT Division 14 District 1
- Roger Ayers - County Maintenance Engineer, NCDOT Division 14 District 1
- Keith Dixon - NCDOT Transportation Planning Division
- Daniel C. Sellers, PE - NCDOT Transportation Planning Division
- Wongoo Lee - NCDOT Transportation Planning Division
- Lyuba Zuyeva, AICP - Transportation Coordinator, French Broad River MPO
- Susan Frady - Development Assistance Director, City of Hendersonville
- David T. Hazzard, PLA - Senior City Planner, City of Hendersonville
- Matthew Champion - Transportation Planner, Henderson County
- Andrew Tate - President, Henderson County Partnership for Economic Development

Certain assumptions were made in the development of the forecast:

Fiscal Constraint: The project is located within the boundaries of the French Broad River Metropolitan Planning Organization (MPO). The travel demand model and traffic forecasts are fiscally constrained to



reflect the assumptions of the corresponding Metropolitan Transportation Plan (MTP). The French Broad River Metropolitan Planning Organization Metropolitan Transportation Plan 2015-2040 includes the projects that may affect the proposed project. The following projects were taken into consideration during travel demand modeling and when projecting future Annual Average Daily Traffic (AADT):

- R-5748 - Kanuga Rd (SR 1127) from US 25 Business (Church St) to Little River Rd (SR 1123) – Add turn lanes, widen and improve geometrics as appropriate
- U-5783 - US 64 from Blythe Street to Daniel Drive – Widening and improvements
- R-2588A / R-2588B - NC 191 from US 25 to NC 280 – Widen to a four-lane, median-divided facility
- R-5744 - Balfour Parkway from NC 191 to US 64 north of Nix Road – Construct a new four-lane expressway

Development Activity: There are current developments under construction within the forecast area:

- Ingles – a 38,000 square foot grocery store located on the south side of US 176 (Spartanburg Highway) at the Harris Teeter Driveway intersection.
- South Market Village (Publix) – a 49,000 square foot grocery store located on the southwest corner of the NC 225 (Greenville Highway) and White Street intersection.

Travel Demand Model: The French Broad River Travel Demand Model, Version 2 was utilized as a tool in the development of the forecast. The model was adopted in January 2016 and was developed in TransCAD software 5.0.

Forecast Methodology: The 2017 base year no-build traffic volumes and design factors were developed based upon current counts and historic AADT trend projections. The 2040 future year no-build traffic volumes generally included the development of compound annual growth rates between two model years, while the 2017 and 2040 build volumes were developed based upon travel demand predictions of the French Broad River Travel Demand Model. Engineering judgment adjustments were applied as needed in finalizing the volumes in order to develop a balanced forecast.

Interpolation/Extrapolation: To estimate AADT volumes between 2017 and 2040, straight line interpolation between the 2017 Base Year No-Build and the 2040 scenarios is acceptable. AADT volumes may be extrapolated for up to two years immediately following 2040. If it is determined that any of these assumptions have become inconsistent with the project and surrounding area activity, please request updated projections at this location.

cc (with Attachments):

Brenda Moore, PE, CPM, Highway Design Branch

Keith Dixon, Transportation Planning Division

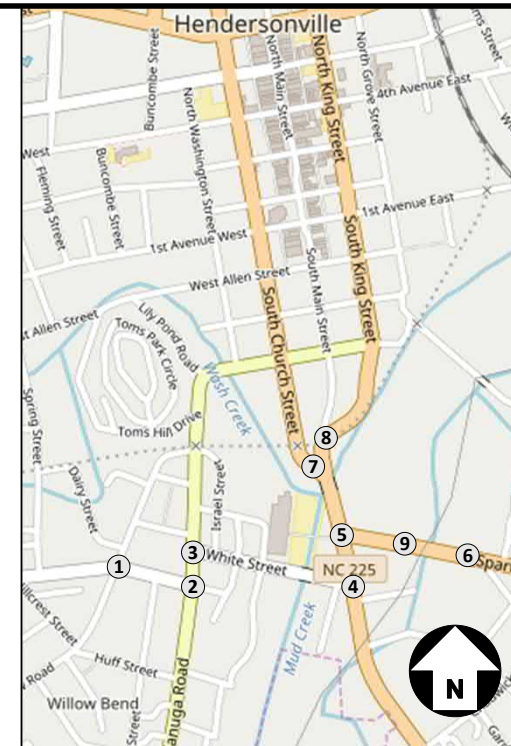
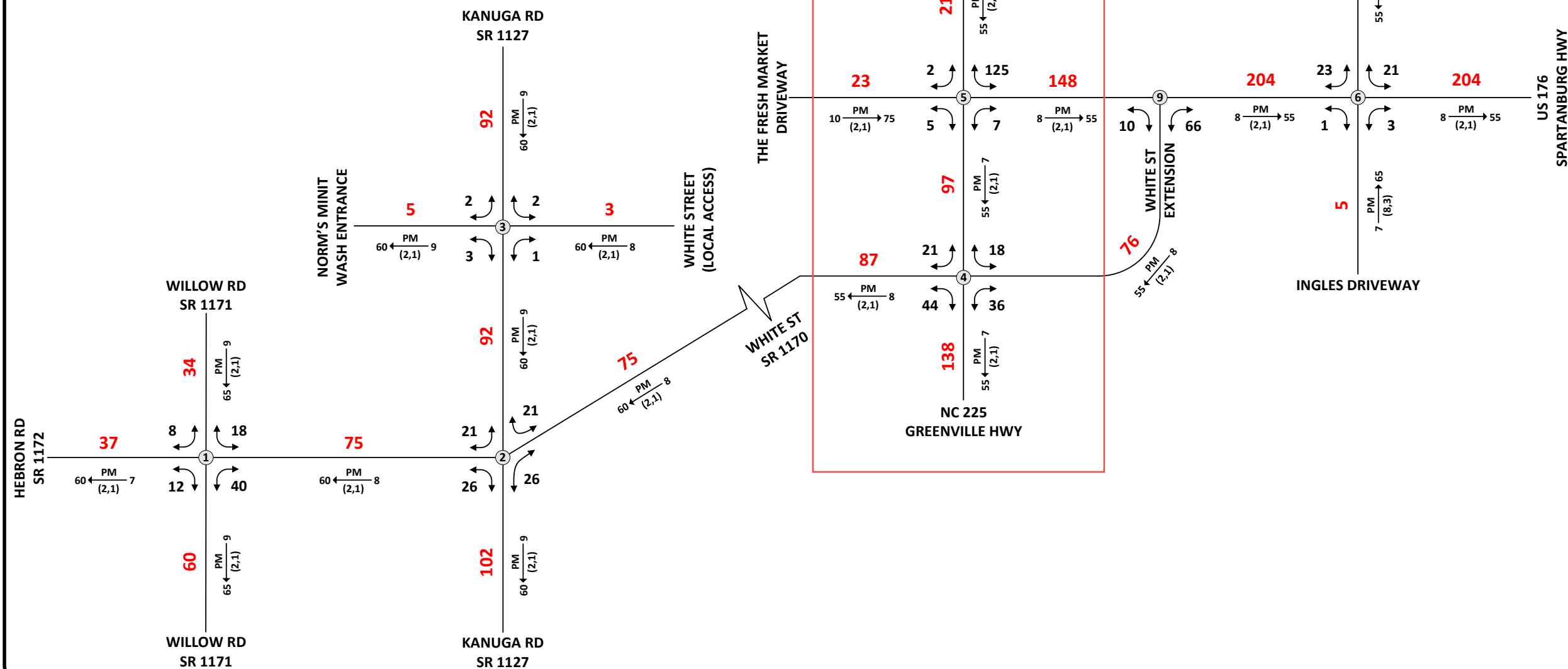
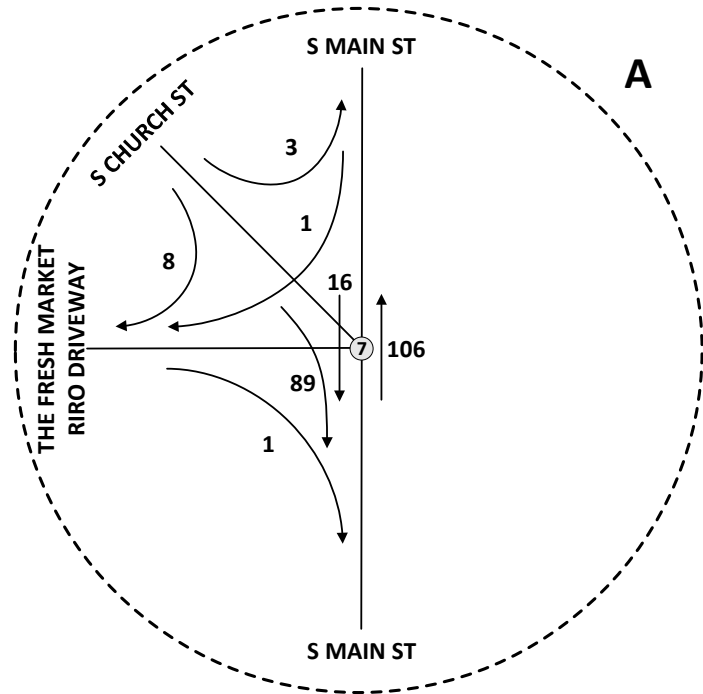
James Dunlop, PE, Congestion Management Section

Clark Morrison, PhD, PE, Pavement Management

Stephen Williams, Design Construction Engineer, NCDOT Division 14

Lyuba Zuyeva, Transportation Coordinator, French Broad River MPO

File Copy: U-5886/U-6049 Henderson County



2017

AVERAGE ANNUAL
DAILY TRAFFIC

**BASE YEAR BUILD
ALTERNATIVE 2**

SHEET 1 OF 1

LEGEND

K $\xrightarrow{\text{PM}}$ D
(d, t)

- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited
- Roadway
- K Design Hour Factor (%)
- PM PM Peak Period
- D Peak Hour Directional Split
- $\rightarrow$ Indicates Direction of D
- (d,t) Duals, TT-STs (%)

TIP: U-5886/U-6049 WBS: 44710.1.1

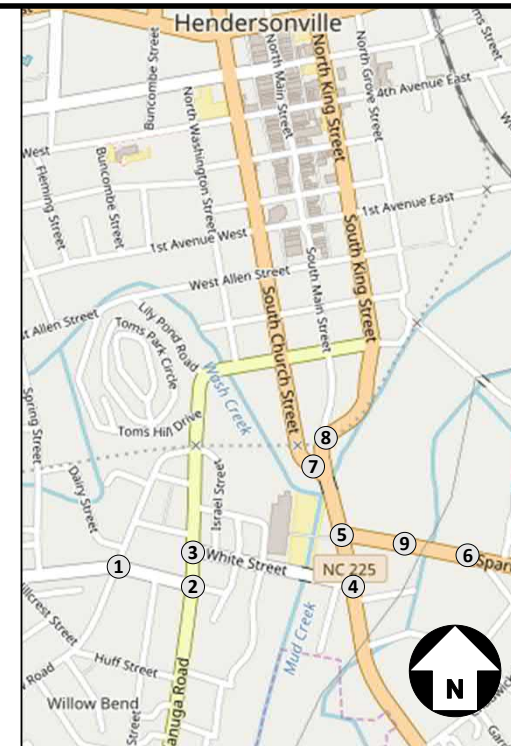
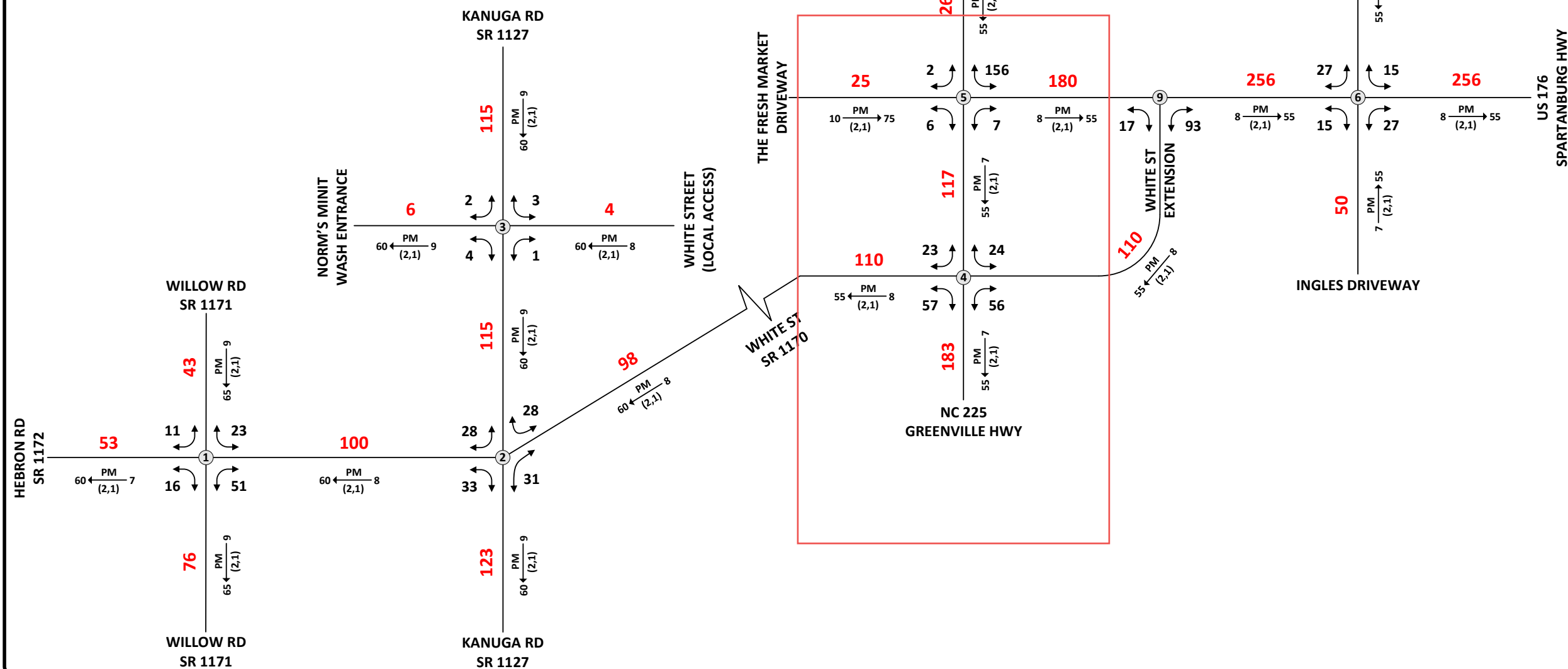
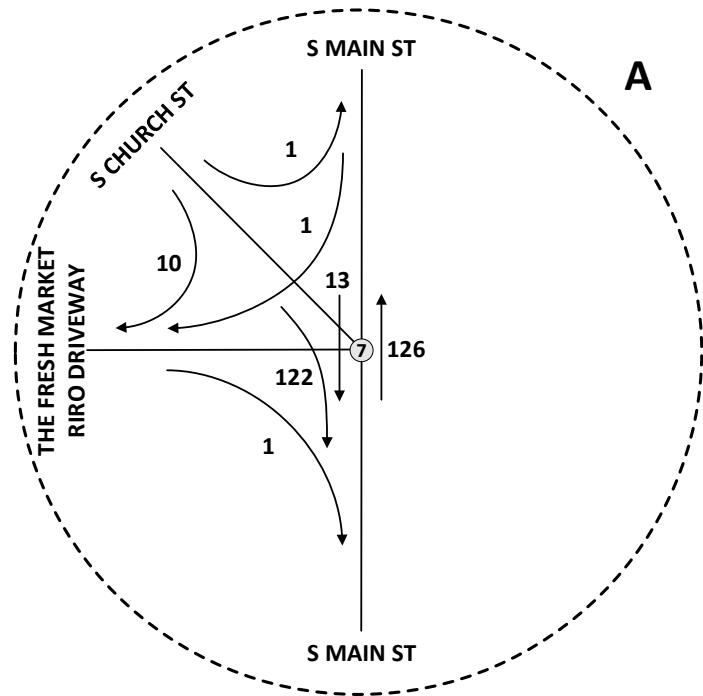
COUNTY: Henderson DIVISION: 14

DATE: October 2017

PREPARED BY: STV Engineers, Inc.

LOCATION: White Street between
Willow Road and US 176 & NC 225
between S. King Street and US 176

PROJECT: Roadway Improvements
& Bridge Widening



2040

AVERAGE ANNUAL
DAILY TRAFFIC

**FUTURE YEAR BUILD
ALTERNATIVE 2
SHEET 1 OF 1**

LEGEND

K $\xrightarrow{\text{PM}}$ D
(d, t)

- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited
- Roadway
- K Design Hour Factor (%)
- PM PM Peak Period
- D Peak Hour Directional Split
- $\rightarrow$ Indicates Direction of D
- (d,t) Duals, TT-STs (%)

TIP: U-5886/U-6049 WBS: 44710.1.1

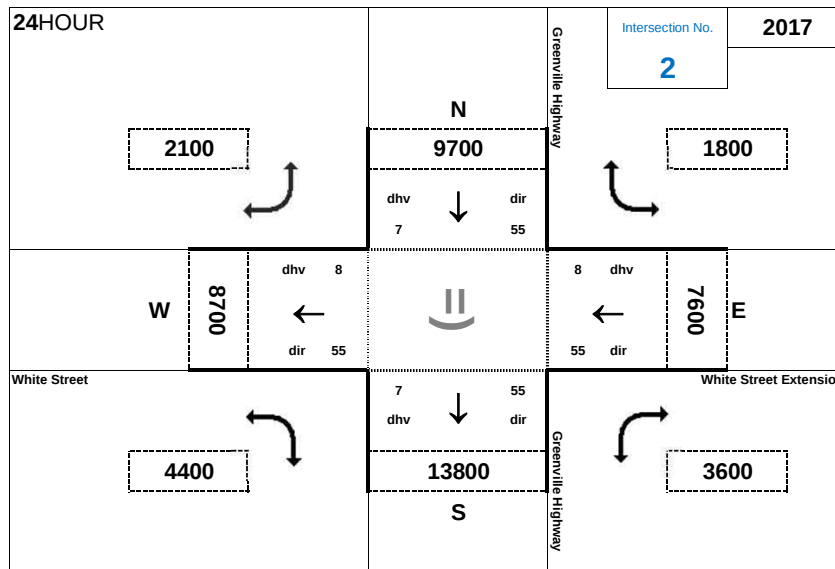
COUNTY: Henderson DIVISION: 14

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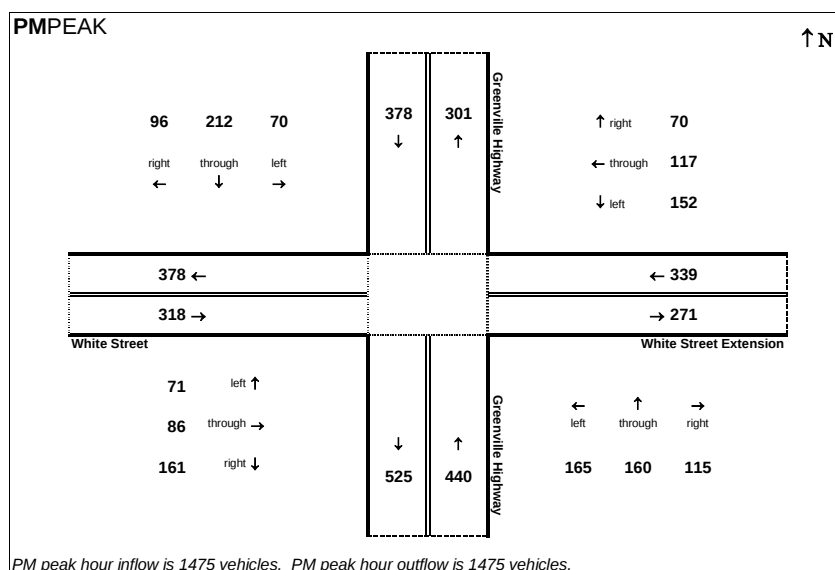
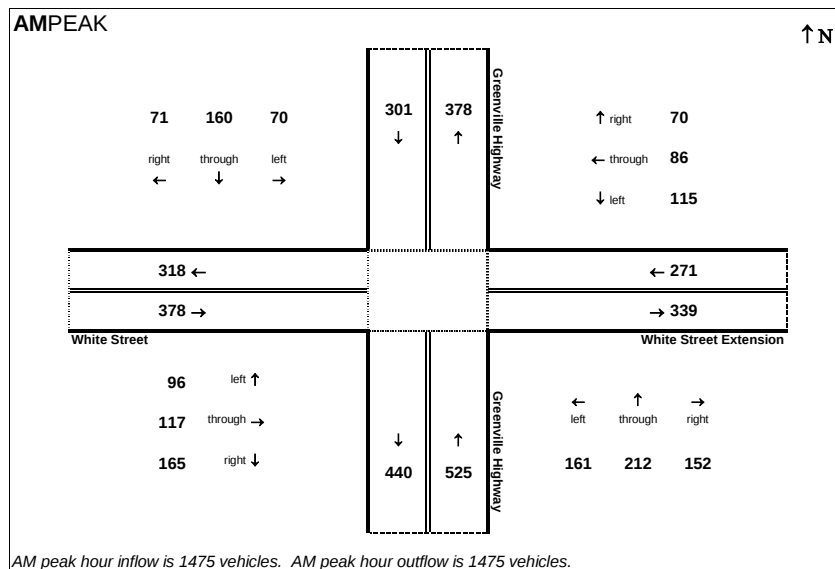


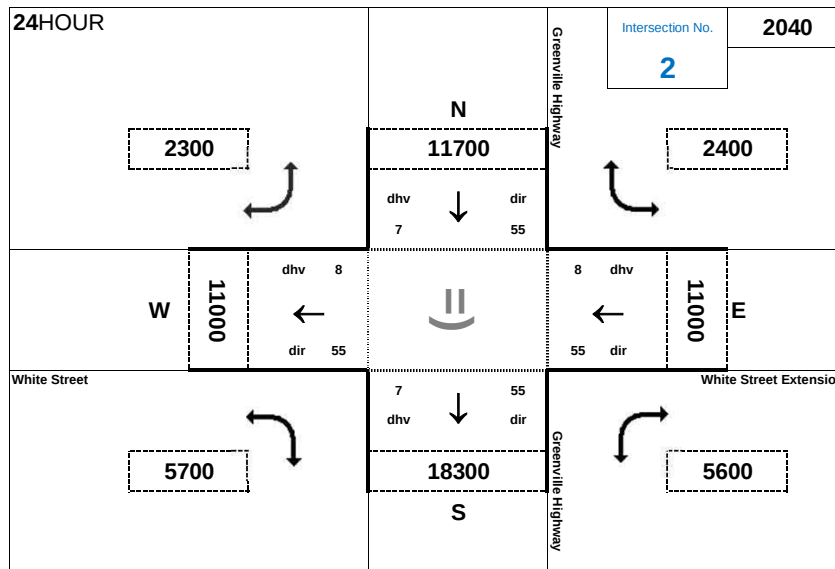
Peak Hour Volume Breakouts Report:
Greenville Hwy and White Street

Traffic Forecast Release Date:
October 2017

Traffic Data Year:
2017

Project:
U-5886 2017 Build Alternative 2



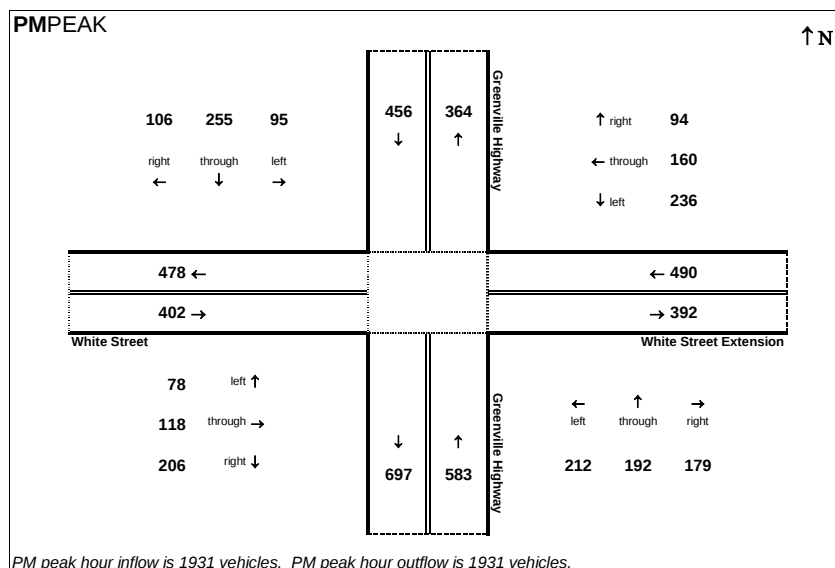
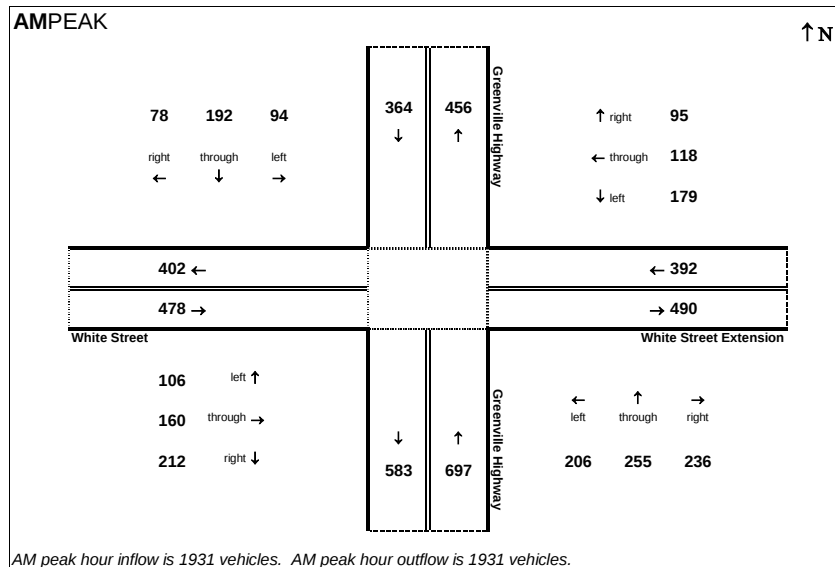


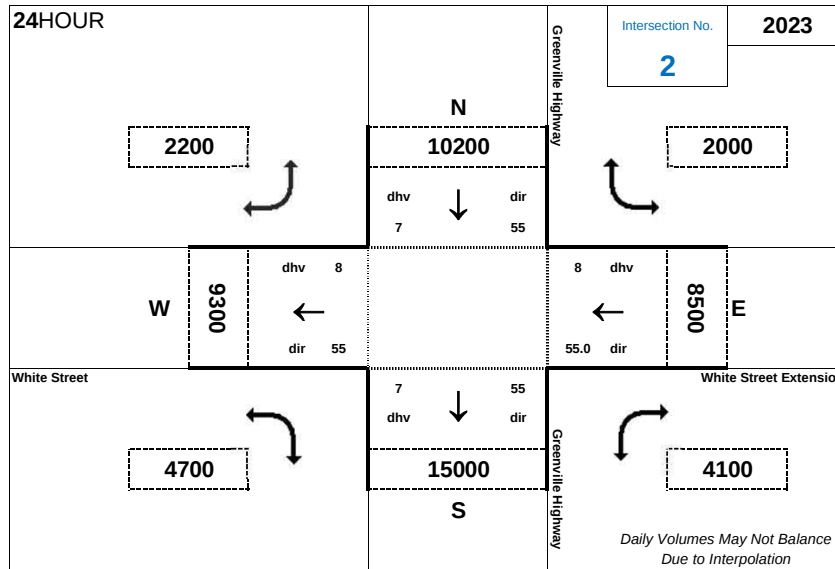
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Greenville Hwy and White Street

Traffic Forecast Release Date:
October 2017

Traffic Data Year:
2040

Project:
U-5886 2017 Build Alternative 2



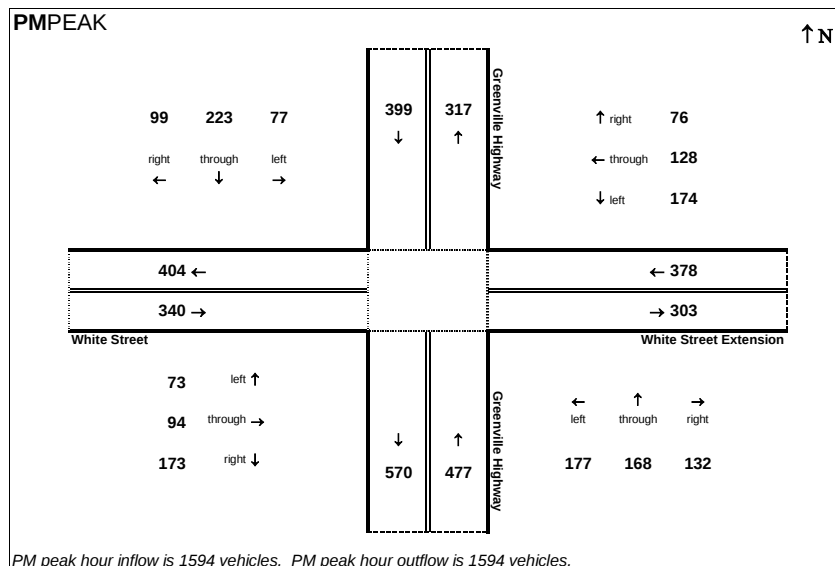
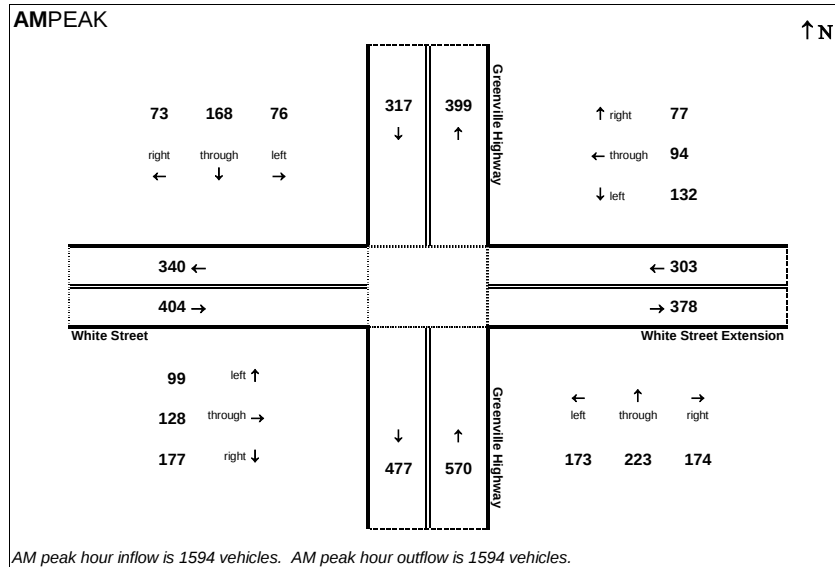


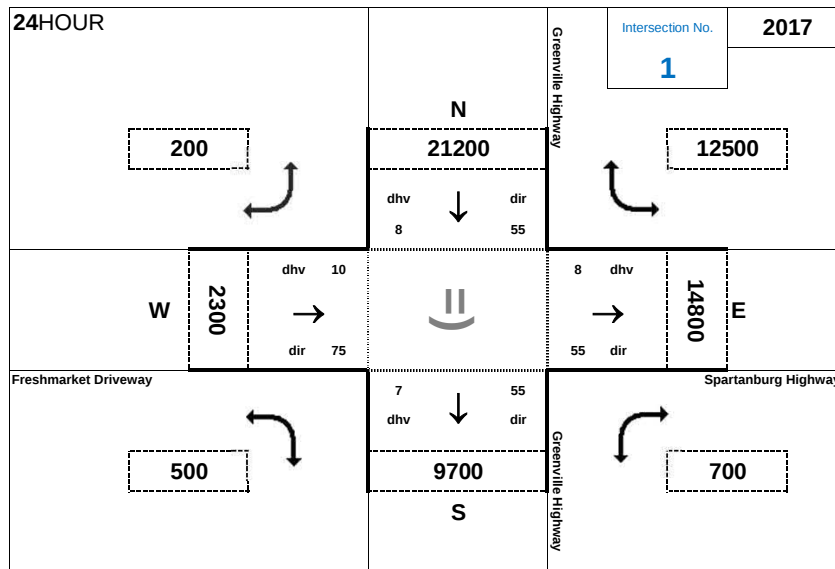
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Greenville Hwy and White Street

Traffic Forecast Release Date:
October 2017

Traffic Data Year:

Project:
U-5886 2017 Build Alternative 2



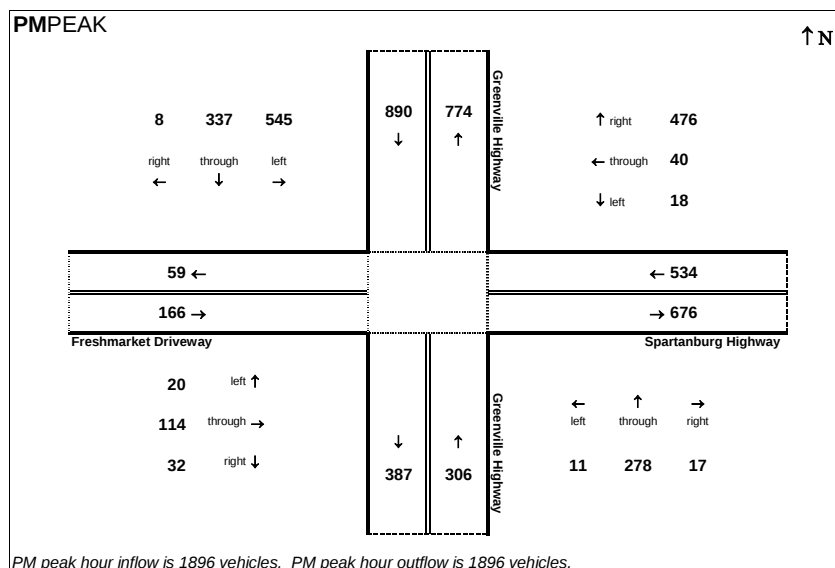
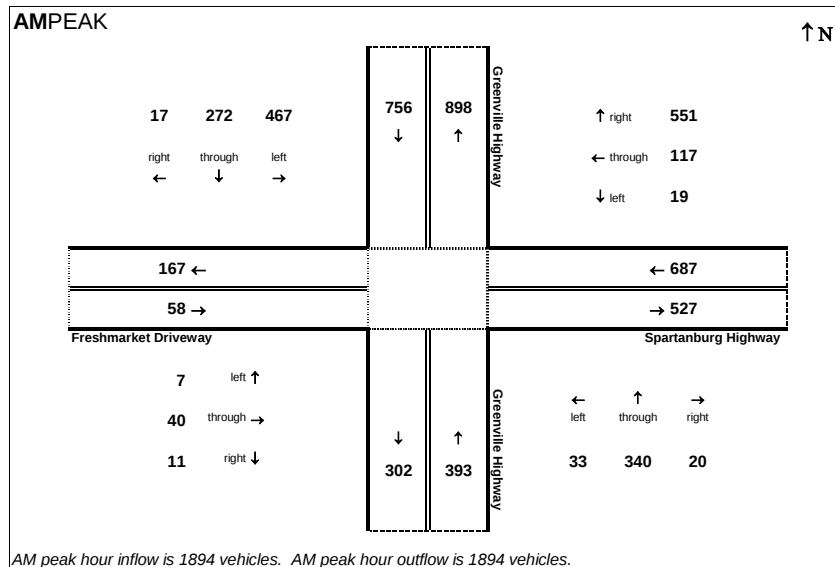


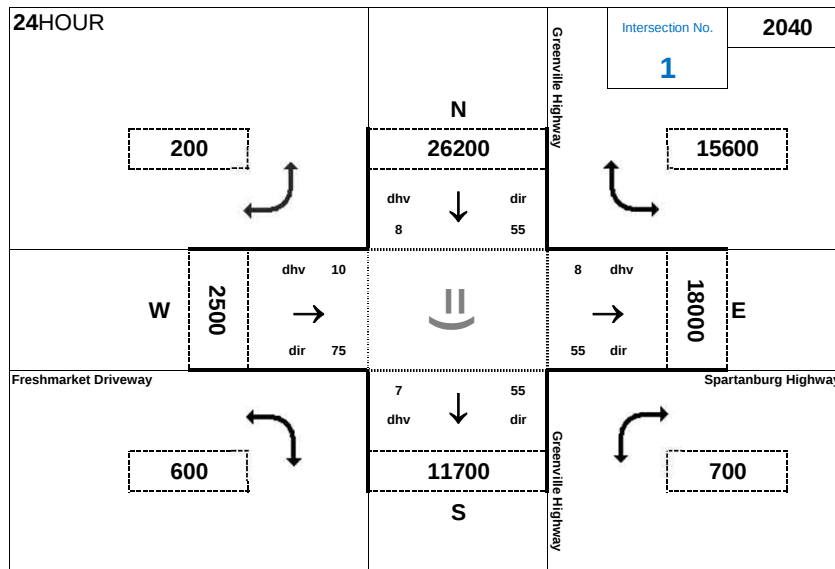
Peak Hour Volume Breakouts Report:
Greenville Hwy and Spartanburg Hwy

Traffic Forecast Release Date:
October 2017

Traffic Data Year:
2017

Project:
U-5886 2017 Build Alternative 2



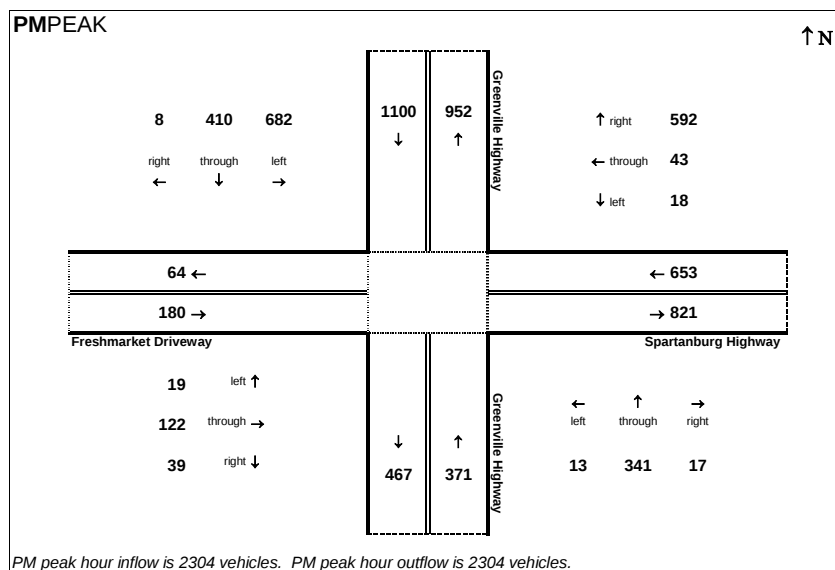
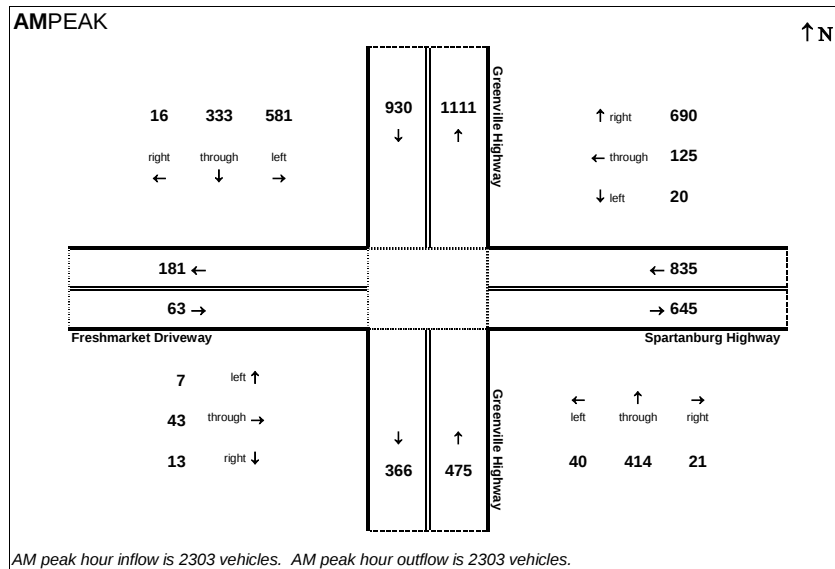


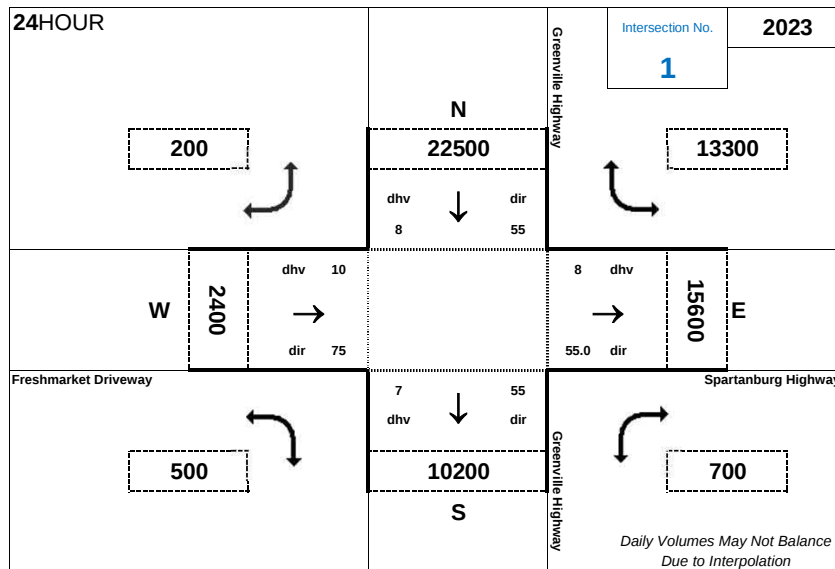
Peak Hour Volume Breakouts Report:
Greenville Hwy and Spartanburg Hwy

Traffic Forecast Release Date:
October 2017

Traffic Data Year:
2040

Project:
U-5886 2017 Build Alternative 2



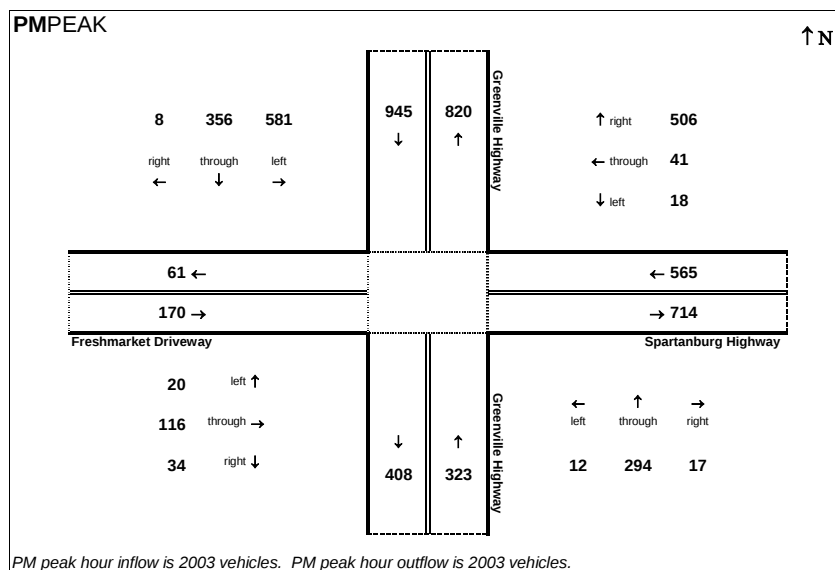
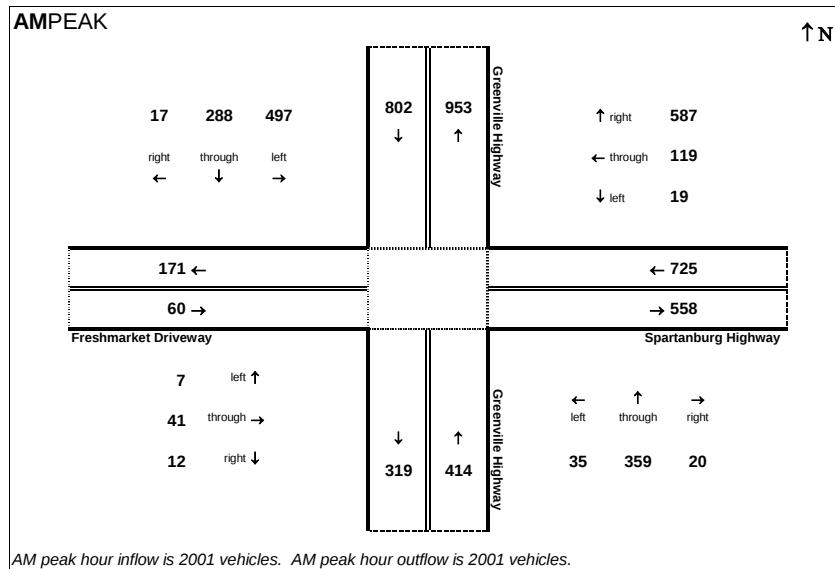


Peak Hour Volume Breakouts Report:
Greenville Hwy and Spartanburg Hwy

Traffic Forecast Release Date:
October 2017

Traffic Data Year:

Project:
U-5886 2017 Build Alternative 2



APPENDIX E

CAPACITY ANALYSIS CALCULATIONS GREENVILLE HIGHWAY & SPARTANBURG HIGHWAY

1: Greenville Highway & Shopping Center Entrance /Spartanburg Highway Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	6	4	163	10	356	4	261	185	401	218	4
Future Volume (vph)	4	6	4	163	10	356	4	261	185	401	218	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	0		75	200		75	125		0	125		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.88	1.00	0.95	0.95	0.97	1.00	1.00
Frt		0.960				0.850		0.938			0.998	
Flt Protected		0.987		0.950	0.958		0.950			0.950		
Satd. Flow (prot)	0	3353	0	1681	1695	2787	1770	3320	0	3450	1868	0
Flt Permitted		0.987		0.950	0.958		0.950			0.950		
Satd. Flow (perm)	0	3353	0	1681	1695	2787	1770	3320	0	3450	1868	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		393			1228			393			635	
Travel Time (s)		10.7			23.9			7.7			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	7	4	181	11	396	4	290	206	446	242	4
Shared Lane Traffic (%)				47%								
Lane Group Flow (vph)	0	15	0	96	96	396	4	496	0	446	246	0
Turn Type	Split	NA		Split	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4						
Detector Phase	3	3		4	4	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	13.7	13.7		13.1	13.1	13.2	12.9	16.3		13.2	15.9	
Total Split (s)	15.0	15.0		24.0	24.0	37.0	15.0	44.0		37.0	66.0	
Total Split (%)	12.5%	12.5%		20.0%	20.0%	30.8%	12.5%	36.7%		30.8%	55.0%	
Maximum Green (s)	8.3	8.3		17.9	17.9	30.8	9.1	37.7		30.8	60.1	
Yellow Time (s)	3.2	3.2		3.8	3.8	3.0	3.0	3.9		3.0	3.9	
All-Red Time (s)	3.5	3.5		2.3	2.3	3.2	2.9	2.4		3.2	2.0	
Lost Time Adjust (s)		-1.7		-1.1	-1.1	-1.2	-0.9	-1.3		-1.2	-0.9	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	1.5	1.5	3.5		1.5	3.0	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effect Green (s)		8.7		12.4	12.4	36.2	7.9	66.3		20.8	89.5	
Actuated g/C Ratio		0.07		0.10	0.10	0.30	0.07	0.55		0.17	0.75	
v/c Ratio		0.06		0.55	0.55	0.47	0.03	0.27		0.75	0.18	
Control Delay		52.6		62.4	62.2	29.6	67.8	9.4		54.9	7.2	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		52.6		62.4	62.2	29.6	67.8	9.4		54.9	7.2	
LOS		D		E	E	C	E	A		D	A	
Approach Delay		52.6			40.3			9.9			37.9	

1: Greenville Highway & Shopping Center Entrance /Spartanburg Highway Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			A			D		
Queue Length 50th (ft)	5			75	75	138	3	43		171	32	
Queue Length 95th (ft)	17			130	130	129	m12	141		214	142	
Internal Link Dist (ft)	313			1148			313			555		
Turn Bay Length (ft)				200		75	125			125		
Base Capacity (vph)	279			266	268	1101	147	1833		920	1393	
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	0.05			0.36	0.36	0.36	0.03	0.27		0.48	0.18	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 83 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 31.0

Intersection LOS: C

Intersection Capacity Utilization 48.5%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 1: Greenville Highway & Shopping Center Entrance /Spartanburg Highway



1: Greenville Highway & Shopping Center Entrance /Spartanburg Highway Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	52	10	288	34	402	4	309	204	614	390	10
Future Volume (vph)	36	52	10	288	34	402	4	309	204	614	390	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	0		75	200		75	125		0	125		0
Storage Lanes	0		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.88	1.00	0.95	0.95	0.97	1.00	1.00
Frt		0.985				0.850		0.940			0.996	
Flt Protected		0.982		0.950	0.962		0.950			0.950		
Satd. Flow (prot)	0	3423	0	1681	1702	2787	1770	3327	0	3450	1865	0
Flt Permitted		0.982		0.950	0.962		0.950			0.950		
Satd. Flow (perm)	0	3423	0	1681	1702	2787	1770	3327	0	3450	1865	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		393			1228			393			635	
Travel Time (s)		10.7			23.9			7.7			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	58	11	320	38	447	4	343	227	682	433	11
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	109	0	179	179	447	4	570	0	682	444	0
Turn Type	Split	NA		Split	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4						
Detector Phase	3	3		4	4	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	13.7	13.7		13.1	13.1	13.2	12.9	16.3		13.2	15.9	
Total Split (s)	14.0	14.0		28.0	28.0	40.0	13.0	38.0		40.0	65.0	
Total Split (%)	11.7%	11.7%		23.3%	23.3%	33.3%	10.8%	31.7%		33.3%	54.2%	
Maximum Green (s)	7.3	7.3		21.9	21.9	33.8	7.1	31.7		33.8	59.1	
Yellow Time (s)	3.2	3.2		3.8	3.8	3.0	3.0	3.9		3.0	3.9	
All-Red Time (s)	3.5	3.5		2.3	2.3	3.2	2.9	2.4		3.2	2.0	
Lost Time Adjust (s)		-1.7		-1.1	-1.1	-1.2	-0.9	-1.3		-1.2	-0.9	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	1.5	1.5	3.5		1.5	3.0	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effect Green (s)		9.5		17.8	17.8	47.1	10.7	43.4		29.3	72.3	
Actuated g/C Ratio		0.08		0.15	0.15	0.39	0.09	0.36		0.24	0.60	
v/c Ratio		0.40		0.72	0.71	0.41	0.03	0.47		0.81	0.40	
Control Delay		57.1		64.4	63.5	16.5	51.5	29.4		50.7	17.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.4		0.0	0.0	
Total Delay		57.1		64.4	63.5	16.5	51.5	29.9		50.7	17.0	
LOS		E		E	E	B	D	C		D	B	
Approach Delay		57.1			37.6			30.0			37.4	

1: Greenville Highway & Shopping Center Entrance /Spartanburg Highway Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			D			C			D		
Queue Length 50th (ft)	42			140	140	97	3	213		256	151	
Queue Length 95th (ft)	74			213	213	104	m8	214		305	387	
Internal Link Dist (ft)	313				1148			313			555	
Turn Bay Length (ft)				200		75	125			125		
Base Capacity (vph)	273			322	326	1228	158	1204		1008	1166	
Starvation Cap Reductn	0			0	0	0	0	252		0	0	
Spillback Cap Reductn	0			0	0	0	0	0		0	30	
Storage Cap Reductn	0			0	0	0	0	0		0	0	
Reduced v/c Ratio	0.40			0.56	0.55	0.36	0.03	0.60		0.68	0.39	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 36.7

Intersection LOS: D

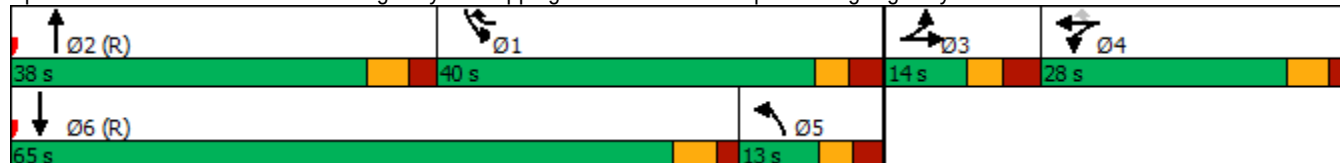
Intersection Capacity Utilization 60.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 1: Greenville Highway & Shopping Center Entrance /Spartanburg Highway



1: Shopping Center Entrance & Greenville Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	60	0	35	0	0	0	0	0	288	17
Future Volume (vph)	0	0	60	0	35	0	0	0	0	0	288	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frnt			0.850								0.992	
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	1863	0	0	0	0	0	1848	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	1863	0	0	0	0	0	1848	0
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		1018			136			264			139	
Travel Time (s)		27.8			3.7			7.2			2.7	
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)	0	0	67	0	39	0	0	0	0	0	320	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	67	0	39	0	0	0	0	0	339	0
Turn Type			Prot		NA						NA	
Protected Phases			3		3						6	
Permitted Phases												
Detector Phase			3		3						6	
Switch Phase												
Minimum Initial (s)			7.0		7.0						10.0	
Minimum Split (s)			14.0		14.0						20.0	
Total Split (s)			19.0		19.0						41.0	
Total Split (%)			31.7%		31.7%						68.3%	
Maximum Green (s)			12.0		12.0						34.0	
Yellow Time (s)			5.0		5.0						5.0	
All-Red Time (s)			2.0		2.0						2.0	
Lost Time Adjust (s)			-2.0		-2.0						-2.0	
Total Lost Time (s)			5.0		5.0						5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0		3.0						3.0	
Recall Mode			None		None						C-Min	
Act Effect Green (s)			9.4		9.4						44.4	
Actuated g/C Ratio			0.16		0.16						0.74	
v/c Ratio			0.15		0.13						0.25	
Control Delay			22.5		29.8						4.2	
Queue Delay			0.0		0.0						0.0	
Total Delay			22.5		29.8						4.2	
LOS			C		C						A	
Approach Delay		22.5			29.8						4.2	
Approach LOS		C			C						A	
Queue Length 50th (ft)			12		8						38	
Queue Length 95th (ft)			27		m42						73	
Internal Link Dist (ft)		938			56			184			59	

1: Shopping Center Entrance & Greenville Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)			650		434						1366	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.10		0.09						0.25	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 24 (40%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 9.2

Intersection LOS: A

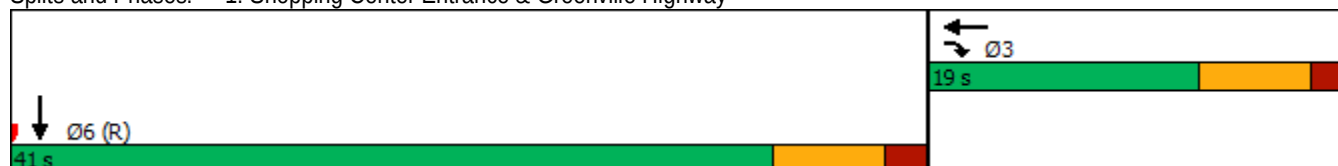
Intersection Capacity Utilization 38.0%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 1: Shopping Center Entrance & Greenville Highway



10: Greenville Highway & Spartanburg Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑				↑↑		↑↑				
Traffic Volume (vph)	0	497	0	0	0	725	0	359	20	0	0	0
Future Volume (vph)	0	497	0	0	0	725	0	359	20	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	0.95	0.95	1.00	1.00	1.00
Frnt						0.850		0.992				
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	2787	0	3511	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	2787	0	3511	0	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		125			600			155			1056	
Travel Time (s)		3.4			11.7			3.0			20.6	
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)	0	552	0	0	0	806	0	399	22	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	552	0	0	0	806	0	421	0	0	0	0
Turn Type		NA				Prot		NA				
Protected Phases		7				7		2				
Permitted Phases												
Detector Phase		7				7		2				
Switch Phase												
Minimum Initial (s)		7.0				7.0		10.0				
Minimum Split (s)		14.0				14.0		17.0				
Total Split (s)		38.0				38.0		22.0				
Total Split (%)		63.3%				63.3%		36.7%				
Maximum Green (s)		31.0				31.0		15.0				
Yellow Time (s)		5.0				5.0		5.0				
All-Red Time (s)		2.0				2.0		2.0				
Lost Time Adjust (s)		-2.0				-2.0		-2.0				
Total Lost Time (s)		5.0				5.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0				3.0		3.0				
Recall Mode		None				None		C-Min				
Act Effct Green (s)		29.8				29.8		20.2				
Actuated g/C Ratio		0.50				0.50		0.34				
v/c Ratio		0.31				0.58		0.36				
Control Delay		9.0				12.1		10.0				
Queue Delay		0.0				0.0		0.0				
Total Delay		9.0				12.1		10.0				
LOS		A				B		B				
Approach Delay		9.0			12.1			10.0				
Approach LOS		A			B			B				
Queue Length 50th (ft)		52				98		46				
Queue Length 95th (ft)		75				139		74				
Internal Link Dist (ft)		45			520			75			976	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	1961			1544			1198					
Starvation Cap Reductn	0			0			0					
Spillback Cap Reductn	0			0			0					
Storage Cap Reductn	0			0			0					
Reduced v/c Ratio	0.28			0.52			0.35					
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 60												
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green												
Natural Cycle: 40												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.58												
Intersection Signal Delay: 10.6				Intersection LOS: B								
Intersection Capacity Utilization 58.0%				ICU Level of Service B								
Analysis Period (min) 15												

Splits and Phases: 10: Greenville Highway & Spartanburg Highway



1: Shopping Center Entrance & Greenville Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			TT		T						T	
Traffic Volume (vph)	0	0	179	0	12	0	0	0	0	0	356	8
Future Volume (vph)	0	0	179	0	12	0	0	0	0	0	356	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frnt			0.850								0.997	
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	1863	0	0	0	0	0	1857	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	1863	0	0	0	0	0	1857	0
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		1018			136			264			139	
Travel Time (s)		27.8			3.7			7.2			2.7	
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)	0	0	199	0	13	0	0	0	0	0	396	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	199	0	13	0	0	0	0	0	405	0
Turn Type			Prot		NA						NA	
Protected Phases			3		3						6	
Permitted Phases												
Detector Phase			3		3						6	
Switch Phase												
Minimum Initial (s)			7.0		7.0						10.0	
Minimum Split (s)			14.0		14.0						20.0	
Total Split (s)			20.0		20.0						40.0	
Total Split (%)			33.3%		33.3%						66.7%	
Maximum Green (s)			13.0		13.0						33.0	
Yellow Time (s)			5.0		5.0						5.0	
All-Red Time (s)			2.0		2.0						2.0	
Lost Time Adjust (s)			-2.0		-2.0						-2.0	
Total Lost Time (s)			5.0		5.0						5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0		3.0						3.0	
Recall Mode			None		None						C-Min	
Act Effect Green (s)			11.6		11.6						38.4	
Actuated g/C Ratio			0.19		0.19						0.64	
v/c Ratio			0.37		0.04						0.34	
Control Delay			22.6		16.3						6.4	
Queue Delay			0.0		0.0						0.0	
Total Delay			22.6		16.3						6.4	
LOS			C		B						A	
Approach Delay		22.6			16.3						6.4	
Approach LOS		C			B						A	
Queue Length 50th (ft)			35		5						56	
Queue Length 95th (ft)			60		m12						112	
Internal Link Dist (ft)		938			56			184			59	

1: Shopping Center Entrance & Greenville Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)			696		465						1188	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.29		0.03						0.34	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 54 (90%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 11.8

Intersection LOS: B

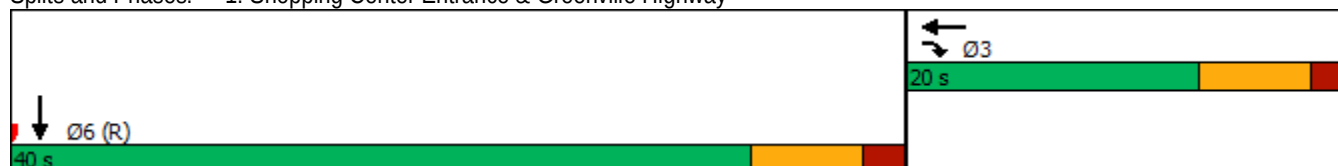
Intersection Capacity Utilization 33.8%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 1: Shopping Center Entrance & Greenville Highway



10: Greenville Highway & Spartanburg Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑				↑↑		↑↑				
Traffic Volume (vph)	0	581	0	0	0	565	0	294	17	0	0	0
Future Volume (vph)	0	581	0	0	0	565	0	294	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	0.95	0.95	1.00	1.00	1.00
Frnt						0.850		0.992				
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	2787	0	3511	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	2787	0	3511	0	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		125			600			155			1056	
Travel Time (s)		3.4			11.7			3.0			20.6	
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)	0	646	0	0	0	628	0	327	19	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	646	0	0	0	628	0	346	0	0	0	0
Turn Type		NA				Prot		NA				
Protected Phases		7				7		2				
Permitted Phases												
Detector Phase		7				7		2				
Switch Phase												
Minimum Initial (s)		7.0				7.0		10.0				
Minimum Split (s)		14.0				14.0		17.0				
Total Split (s)		36.0				36.0		24.0				
Total Split (%)		60.0%				60.0%		40.0%				
Maximum Green (s)		29.0				29.0		17.0				
Yellow Time (s)		5.0				5.0		5.0				
All-Red Time (s)		2.0				2.0		2.0				
Lost Time Adjust (s)		-2.0				-2.0		-2.0				
Total Lost Time (s)		5.0				5.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0				3.0		3.0				
Recall Mode		None				None		C-Min				
Act Effct Green (s)		27.1				27.1		22.9				
Actuated g/C Ratio		0.45				0.45		0.38				
v/c Ratio		0.40				0.50		0.26				
Control Delay		11.1				12.4		7.0				
Queue Delay		0.0				0.0		0.0				
Total Delay		11.1				12.4		7.0				
LOS		B				B		A				
Approach Delay		11.1			12.4			7.0				
Approach LOS		B			B			A				
Queue Length 50th (ft)		74				82		43				
Queue Length 95th (ft)		88				101		56				
Internal Link Dist (ft)		45			520			75			976	

10: Greenville Highway & Spartanburg Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	1869			1472			1381					
Starvation Cap Reductn	0			0			0					
Spillback Cap Reductn	0			0			0					
Storage Cap Reductn	0			0			0					
Reduced v/c Ratio	0.35			0.43			0.25					

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 10.7

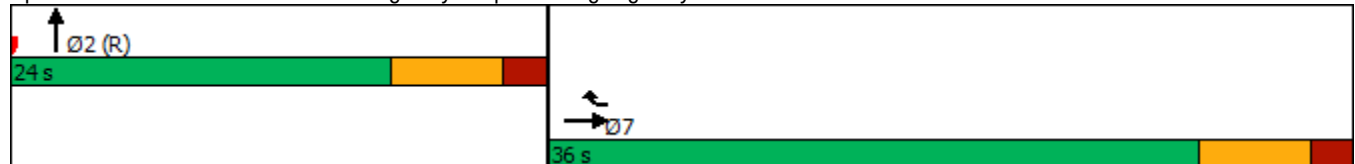
Intersection LOS: B

Intersection Capacity Utilization 53.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Greenville Highway & Spartanburg Highway

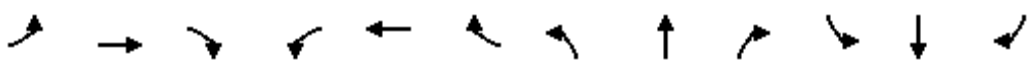


Greenville Highway Apartments - Hendersonville, NC

2023 Build

1: Shopping Center Entrance & Greenville Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			77		↑						↑	
Traffic Volume (vph)	0	0	60	0	35	0	0	0	0	0	290	17
Future Volume (vph)	0	0	60	0	35	0	0	0	0	0	290	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.992	
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	1863	0	0	0	0	0	1848	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	1863	0	0	0	0	0	1848	0
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		1018			136			264			139	
Travel Time (s)		27.8			3.7			7.2			2.7	
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)	0	0	67	0	39	0	0	0	0	0	322	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	67	0	39	0	0	0	0	0	341	0
Turn Type			Prot		NA						NA	
Protected Phases			3		3						6	
Permitted Phases												
Detector Phase			3		3						6	
Switch Phase												
Minimum Initial (s)			7.0		7.0						10.0	
Minimum Split (s)			14.0		14.0						20.0	
Total Split (s)			19.0		19.0						41.0	
Total Split (%)			31.7%		31.7%						68.3%	
Maximum Green (s)			12.0		12.0						34.0	
Yellow Time (s)			5.0		5.0						5.0	
All-Red Time (s)			2.0		2.0						2.0	
Lost Time Adjust (s)			-2.0		-2.0						-2.0	
Total Lost Time (s)			5.0		5.0						5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0		3.0						3.0	
Recall Mode			None		None						C-Min	
Act Effect Green (s)			9.4		9.4						44.4	
Actuated g/C Ratio			0.16		0.16						0.74	
v/c Ratio			0.15		0.13						0.25	
Control Delay			22.5		29.8						4.2	
Queue Delay			0.0		0.0						0.0	
Total Delay			22.5		29.8						4.2	
LOS			C		C						A	
Approach Delay		22.5			29.8						4.2	
Approach LOS		C			C						A	
Queue Length 50th (ft)			12		0						38	
Queue Length 95th (ft)			27		m43						73	
Internal Link Dist (ft)		938			56			184			59	

1: Shopping Center Entrance & Greenville Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)			650		434						1366	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.10		0.09						0.25	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 24 (40%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 9.2

Intersection LOS: A

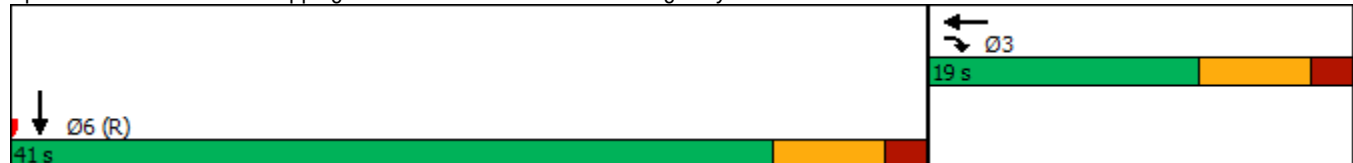
Intersection Capacity Utilization 38.3%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 1: Shopping Center Entrance & Greenville Highway



Greenville Highway Apartments - Hendersonville, NC

2023 Build

10: Greenville Highway & Spartanburg Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑				↑↑		↑↑				
Traffic Volume (vph)	0	497	0	0	0	725	0	365	20	0	0	0
Future Volume (vph)	0	497	0	0	0	725	0	365	20	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	0.95	0.95	1.00	1.00	1.00
Frts						0.850		0.992				
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	2787	0	3511	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	2787	0	3511	0	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		125			600			155			1056	
Travel Time (s)		3.4			11.7			3.0			20.6	
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)	0	552	0	0	0	806	0	406	22	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	552	0	0	0	806	0	428	0	0	0	0
Turn Type		NA				Prot		NA				
Protected Phases		7				7		2				
Permitted Phases												
Detector Phase		7				7		2				
Switch Phase												
Minimum Initial (s)		7.0				7.0		10.0				
Minimum Split (s)		14.0				14.0		17.0				
Total Split (s)		38.0				38.0		22.0				
Total Split (%)		63.3%				63.3%		36.7%				
Maximum Green (s)		31.0				31.0		15.0				
Yellow Time (s)		5.0				5.0		5.0				
All-Red Time (s)		2.0				2.0		2.0				
Lost Time Adjust (s)		-2.0				-2.0		-2.0				
Total Lost Time (s)		5.0				5.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0				3.0		3.0				
Recall Mode		None				None		C-Min				
Act Effct Green (s)		29.6				29.6		20.4				
Actuated g/C Ratio		0.49				0.49		0.34				
v/c Ratio		0.32				0.59		0.36				
Control Delay		9.1				12.3		9.9				
Queue Delay		0.0				0.0		0.0				
Total Delay		9.1				12.3		9.9				
LOS		A				B		A				
Approach Delay		9.1			12.3			9.9				
Approach LOS		A			B			A				
Queue Length 50th (ft)		52				98		47				
Queue Length 95th (ft)		75				139		76				
Internal Link Dist (ft)		45			520			75			976	

10: Greenville Highway & Spartanburg Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	1951			1536			1198					
Starvation Cap Reductn	0			0			0					
Spillback Cap Reductn	0			0			0					
Storage Cap Reductn	0			0			0					
Reduced v/c Ratio	0.28			0.52			0.36					

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 10.7

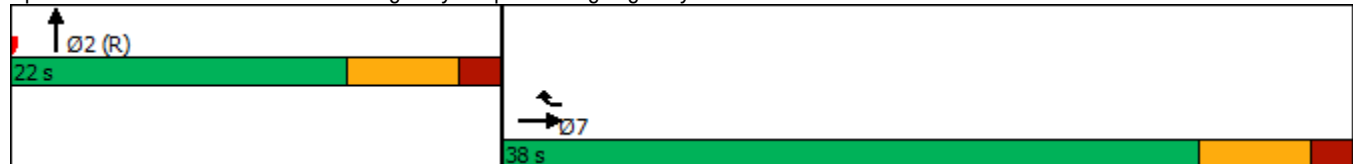
Intersection LOS: B

Intersection Capacity Utilization 58.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 10: Greenville Highway & Spartanburg Highway

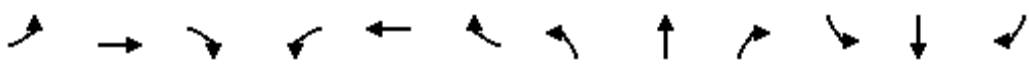


Greenville Highway Apartments - Hendersonville, NC

2023 Build

1: Shopping Center Entrance & Greenville Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			RT		LT						RT	
Traffic Volume (vph)	0	0	179	0	12	0	0	0	0	0	363	8
Future Volume (vph)	0	0	179	0	12	0	0	0	0	0	363	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frnt			0.850								0.997	
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	1863	0	0	0	0	0	1857	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	1863	0	0	0	0	0	1857	0
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		1018			136			264			139	
Travel Time (s)		27.8			3.7			7.2			2.7	
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)	0	0	199	0	13	0	0	0	0	0	403	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	199	0	13	0	0	0	0	0	412	0
Turn Type			Prot		NA						NA	
Protected Phases			3		3						6	
Permitted Phases												
Detector Phase			3		3						6	
Switch Phase												
Minimum Initial (s)			7.0		7.0						10.0	
Minimum Split (s)			14.0		14.0						20.0	
Total Split (s)			20.0		20.0						40.0	
Total Split (%)			33.3%		33.3%						66.7%	
Maximum Green (s)			13.0		13.0						33.0	
Yellow Time (s)			5.0		5.0						5.0	
All-Red Time (s)			2.0		2.0						2.0	
Lost Time Adjust (s)			-2.0		-2.0						-2.0	
Total Lost Time (s)			5.0		5.0						5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0		3.0						3.0	
Recall Mode			None		None						C-Min	
Act Effect Green (s)			11.6		11.6						38.4	
Actuated g/C Ratio			0.19		0.19						0.64	
v/c Ratio			0.37		0.04						0.35	
Control Delay			22.6		16.4						6.4	
Queue Delay			0.0		0.0						0.0	
Total Delay			22.6		16.4						6.4	
LOS			C		B						A	
Approach Delay		22.6			16.4						6.4	
Approach LOS		C			B						A	
Queue Length 50th (ft)			35		5						57	
Queue Length 95th (ft)			60		m13						115	
Internal Link Dist (ft)		938			56			184			59	

1: Shopping Center Entrance & Greenville Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)			696		465						1188	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.29		0.03						0.35	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 54 (90%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 11.8

Intersection LOS: B

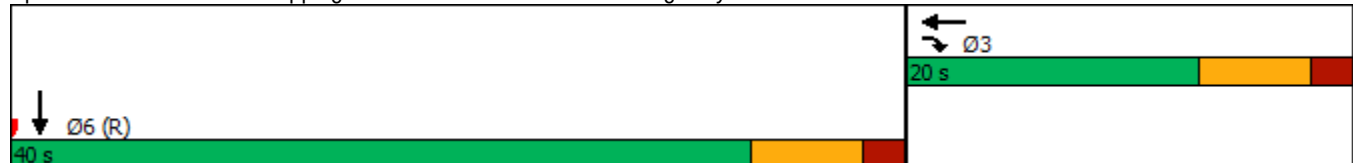
Intersection Capacity Utilization 34.2%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 1: Shopping Center Entrance & Greenville Highway

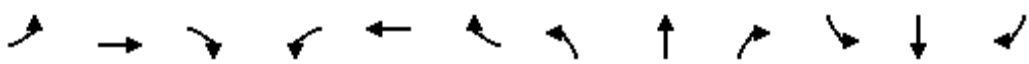


Greenville Highway Apartments - Hendersonville, NC

2023 Build

10: Greenville Highway & Spartanburg Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑				↑↑		↑↑				
Traffic Volume (vph)	0	581	0	0	0	565	0	298	17	0	0	0
Future Volume (vph)	0	581	0	0	0	565	0	298	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	0.95	0.95	1.00	1.00	1.00
Frts						0.850		0.992				
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	2787	0	3511	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	2787	0	3511	0	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		125			600			155			1056	
Travel Time (s)		3.4			11.7			3.0			20.6	
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)	0	646	0	0	0	628	0	331	19	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	646	0	0	0	628	0	350	0	0	0	0
Turn Type		NA				Prot		NA				
Protected Phases		7				7		2				
Permitted Phases												
Detector Phase		7				7		2				
Switch Phase												
Minimum Initial (s)		7.0				7.0		10.0				
Minimum Split (s)		14.0				14.0		17.0				
Total Split (s)		36.0				36.0		24.0				
Total Split (%)		60.0%				60.0%		40.0%				
Maximum Green (s)		29.0				29.0		17.0				
Yellow Time (s)		5.0				5.0		5.0				
All-Red Time (s)		2.0				2.0		2.0				
Lost Time Adjust (s)		-2.0				-2.0		-2.0				
Total Lost Time (s)		5.0				5.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0				3.0		3.0				
Recall Mode		None				None		C-Min				
Act Effct Green (s)		27.1				27.1		22.9				
Actuated g/C Ratio		0.45				0.45		0.38				
v/c Ratio		0.40				0.50		0.26				
Control Delay		11.1				12.4		6.9				
Queue Delay		0.0				0.0		0.0				
Total Delay		11.1				12.4		6.9				
LOS		B				B		A				
Approach Delay		11.1			12.4			6.9				
Approach LOS		B			B			A				
Queue Length 50th (ft)		74				82		42				
Queue Length 95th (ft)		89				102		57				
Internal Link Dist (ft)		45			520			75			976	

10: Greenville Highway & Spartanburg Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	1868			1471			1381					
Starvation Cap Reductn	0			0			0					
Spillback Cap Reductn	0			0			0					
Storage Cap Reductn	0			0			0					
Reduced v/c Ratio	0.35			0.43			0.25					

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 10.7

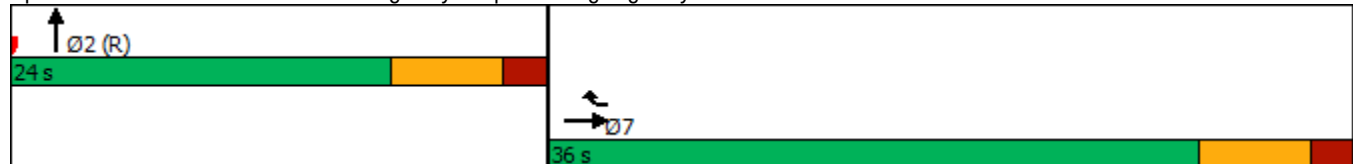
Intersection LOS: B

Intersection Capacity Utilization 54.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Greenville Highway & Spartanburg Highway



Greenville Highway Apartments - Hendersonville, NC

2040 No-Build

1: Shopping Center Entrance & Greenville Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			TT		T						T	
Traffic Volume (vph)	0	0	63	0	40	0	0	0	0	0	333	16
Future Volume (vph)	0	0	63	0	40	0	0	0	0	0	333	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.994	
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	1863	0	0	0	0	0	1852	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	1863	0	0	0	0	0	1852	0
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		1018			136			264			139	
Travel Time (s)		27.8			3.7			7.2			2.7	
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)	0	0	70	0	44	0	0	0	0	0	370	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	70	0	44	0	0	0	0	0	388	0
Turn Type			Prot		NA						NA	
Protected Phases			3		3						6	
Permitted Phases												
Detector Phase			3		3						6	
Switch Phase												
Minimum Initial (s)			7.0		7.0						10.0	
Minimum Split (s)			14.0		14.0						20.0	
Total Split (s)			19.0		19.0						41.0	
Total Split (%)			31.7%		31.7%						68.3%	
Maximum Green (s)			12.0		12.0						34.0	
Yellow Time (s)			5.0		5.0						5.0	
All-Red Time (s)			2.0		2.0						2.0	
Lost Time Adjust (s)			-2.0		-2.0						-2.0	
Total Lost Time (s)			5.0		5.0						5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0		3.0						3.0	
Recall Mode			None		None						C-Min	
Act Effect Green (s)			9.5		9.5						44.3	
Actuated g/C Ratio			0.16		0.16						0.74	
v/c Ratio			0.16		0.15						0.28	
Control Delay			22.5		30.6						4.5	
Queue Delay			0.0		0.0						0.0	
Total Delay			22.5		30.6						4.5	
LOS			C		C						A	
Approach Delay		22.5			30.6						4.5	
Approach LOS		C			C						A	
Queue Length 50th (ft)			12		21						44	
Queue Length 95th (ft)			28		m41						86	
Internal Link Dist (ft)		938			56			184			59	

1: Shopping Center Entrance & Greenville Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)			650		434						1368	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.11		0.10						0.28	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 24 (40%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.28

Intersection Signal Delay: 9.3

Intersection LOS: A

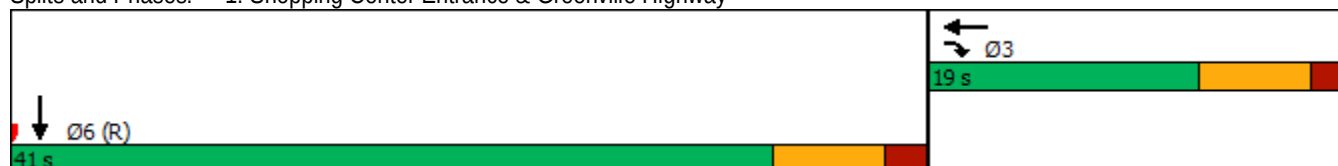
Intersection Capacity Utilization 41.9%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 1: Shopping Center Entrance & Greenville Highway



10: Greenville Highway & Spartanburg Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑				↑↑		↑↑				
Traffic Volume (vph)	0	581	0	0	0	835	0	414	21	0	0	0
Future Volume (vph)	0	581	0	0	0	835	0	414	21	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	0.95	0.95	1.00	1.00	1.00
Frts						0.850		0.993				
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	2787	0	3514	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	2787	0	3514	0	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		125			796			155			1056	
Travel Time (s)		3.4			15.5			3.0			20.6	
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)	0	646	0	0	0	928	0	460	23	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	646	0	0	0	928	0	483	0	0	0	0
Turn Type		NA				Prot		NA				
Protected Phases		7				7		2				
Permitted Phases												
Detector Phase		7				7		2				
Switch Phase												
Minimum Initial (s)		7.0				7.0		10.0				
Minimum Split (s)		14.0				14.0		17.0				
Total Split (s)		38.0				38.0		22.0				
Total Split (%)		63.3%				63.3%		36.7%				
Maximum Green (s)		31.0				31.0		15.0				
Yellow Time (s)		5.0				5.0		5.0				
All-Red Time (s)		2.0				2.0		2.0				
Lost Time Adjust (s)		-2.0				-2.0		-2.0				
Total Lost Time (s)		5.0				5.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0				3.0		3.0				
Recall Mode		None				None		C-Min				
Act Effct Green (s)		31.7				31.7		18.3				
Actuated g/C Ratio		0.53				0.53		0.30				
v/c Ratio		0.35				0.63		0.45				
Control Delay		8.5				12.1		11.9				
Queue Delay		0.0				0.0		0.0				
Total Delay		8.5				12.1		11.9				
LOS		A				B		B				
Approach Delay		8.5			12.1			11.9				
Approach LOS		A			B			B				
Queue Length 50th (ft)		55				106		72				
Queue Length 95th (ft)		88				171		108				
Internal Link Dist (ft)		45			716			75			976	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	1966			1548			1094					
Starvation Cap Reductn	0			0			0					
Spillback Cap Reductn	0			0			0					
Storage Cap Reductn	0			0			0					
Reduced v/c Ratio	0.33			0.60			0.44					

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 10.9

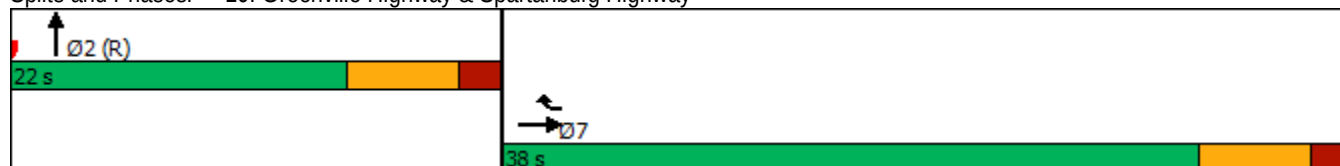
Intersection LOS: B

Intersection Capacity Utilization 65.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 10: Greenville Highway & Spartanburg Highway

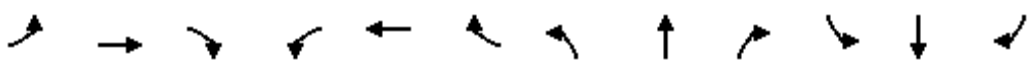


Greenville Highway Apartments - Hendersonville, NC

2040 No-Build

1: Shopping Center Entrance & Greenville Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			TT		↑						↑	
Traffic Volume (vph)	0	0	180	0	13	0	0	0	0	0	410	8
Future Volume (vph)	0	0	180	0	13	0	0	0	0	0	410	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frnt			0.850								0.997	
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	1863	0	0	0	0	0	1857	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	1863	0	0	0	0	0	1857	0
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		1018			136			264			139	
Travel Time (s)		27.8			3.7			7.2			2.7	
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)	0	0	200	0	14	0	0	0	0	0	456	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	200	0	14	0	0	0	0	0	465	0
Turn Type			Prot		NA						NA	
Protected Phases			3		3						6	
Permitted Phases												
Detector Phase			3		3						6	
Switch Phase												
Minimum Initial (s)			7.0		7.0						10.0	
Minimum Split (s)			14.0		14.0						20.0	
Total Split (s)			20.0		20.0						40.0	
Total Split (%)			33.3%		33.3%						66.7%	
Maximum Green (s)			13.0		13.0						33.0	
Yellow Time (s)			5.0		5.0						5.0	
All-Red Time (s)			2.0		2.0						2.0	
Lost Time Adjust (s)			-2.0		-2.0						-2.0	
Total Lost Time (s)			5.0		5.0						5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0		3.0						3.0	
Recall Mode			None		None						C-Min	
Act Effect Green (s)			11.6		11.6						38.4	
Actuated g/C Ratio			0.19		0.19						0.64	
v/c Ratio			0.37		0.04						0.39	
Control Delay			22.5		17.0						6.8	
Queue Delay			0.0		0.0						0.0	
Total Delay			22.5		17.0						6.8	
LOS			C		B						A	
Approach Delay		22.5			17.0						6.8	
Approach LOS		C			B						A	
Queue Length 50th (ft)			35		4						67	
Queue Length 95th (ft)			60		m11						133	
Internal Link Dist (ft)		938			56			184			59	

1: Shopping Center Entrance & Greenville Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)			696		465						1187	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						4	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.29		0.03						0.39	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 54 (90%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 11.7

Intersection LOS: B

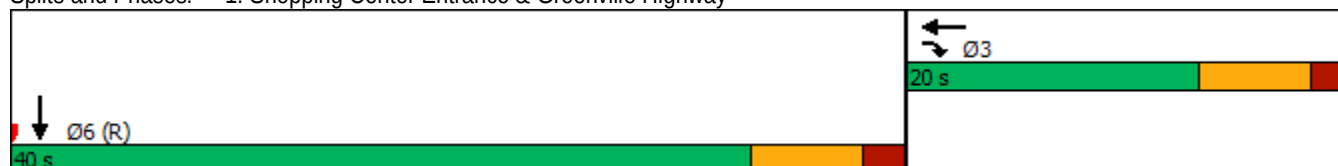
Intersection Capacity Utilization 36.7%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 1: Shopping Center Entrance & Greenville Highway



10: Greenville Highway & Spartanburg Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑				↑↑		↑↑				
Traffic Volume (vph)	0	682	0	0	0	653	0	341	17	0	0	0
Future Volume (vph)	0	682	0	0	0	653	0	341	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	0.95	0.95	1.00	1.00	1.00
Frt						0.850		0.993				
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	2787	0	3514	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	2787	0	3514	0	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		125			796			155			1056	
Travel Time (s)		3.4			15.5			3.0			20.6	
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)	0	758	0	0	0	726	0	379	19	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	758	0	0	0	726	0	398	0	0	0	0
Turn Type		NA				Prot		NA				
Protected Phases		7				7		2				
Permitted Phases												
Detector Phase		7				7		2				
Switch Phase												
Minimum Initial (s)		7.0				7.0		10.0				
Minimum Split (s)		14.0				14.0		17.0				
Total Split (s)		36.0				36.0		24.0				
Total Split (%)		60.0%				60.0%		40.0%				
Maximum Green (s)		29.0				29.0		17.0				
Yellow Time (s)		5.0				5.0		5.0				
All-Red Time (s)		2.0				2.0		2.0				
Lost Time Adjust (s)		-2.0				-2.0		-2.0				
Total Lost Time (s)		5.0				5.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0				3.0		3.0				
Recall Mode		None				None		C-Min				
Act Effct Green (s)		29.6				29.6		20.4				
Actuated g/C Ratio		0.49				0.49		0.34				
v/c Ratio		0.43				0.53		0.33				
Control Delay		10.2				11.5		6.7				
Queue Delay		0.0				0.0		0.0				
Total Delay		10.2				11.5		6.7				
LOS		B				B		A				
Approach Delay		10.2			11.5			6.7				
Approach LOS		B			B			A				
Queue Length 50th (ft)		76				83		51				
Queue Length 95th (ft)		111				127		m66				
Internal Link Dist (ft)		45			716			75			976	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	1900			1496			1267					
Starvation Cap Reductn	0			0			0					
Spillback Cap Reductn	0			0			0					
Storage Cap Reductn	0			0			0					
Reduced v/c Ratio	0.40			0.49			0.31					

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 10.0

Intersection LOS: A

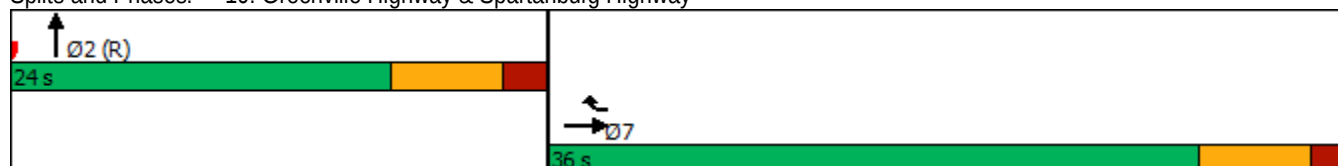
Intersection Capacity Utilization 60.8%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 10: Greenville Highway & Spartanburg Highway



Greenville Highway Apartments - Hendersonville, NC

2040 Build

1: Shopping Center Entrance & Greenville Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			TT		↑						↑	
Traffic Volume (vph)	0	0	63	0	40	0	0	0	0	0	335	16
Future Volume (vph)	0	0	63	0	40	0	0	0	0	0	335	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.994	
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	1863	0	0	0	0	0	1852	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	1863	0	0	0	0	0	1852	0
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		1018			136			264			139	
Travel Time (s)		27.8			3.7			7.2			2.7	
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)	0	0	70	0	44	0	0	0	0	0	372	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	70	0	44	0	0	0	0	0	390	0
Turn Type			Prot		NA						NA	
Protected Phases			3		3						6	
Permitted Phases												
Detector Phase			3		3						6	
Switch Phase												
Minimum Initial (s)			7.0		7.0						10.0	
Minimum Split (s)			14.0		14.0						20.0	
Total Split (s)			19.0		19.0						41.0	
Total Split (%)			31.7%		31.7%						68.3%	
Maximum Green (s)			12.0		12.0						34.0	
Yellow Time (s)			5.0		5.0						5.0	
All-Red Time (s)			2.0		2.0						2.0	
Lost Time Adjust (s)			-2.0		-2.0						-2.0	
Total Lost Time (s)			5.0		5.0						5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0		3.0						3.0	
Recall Mode			None		None						C-Min	
Act Effect Green (s)			9.5		9.5						44.3	
Actuated g/C Ratio			0.16		0.16						0.74	
v/c Ratio			0.16		0.15						0.29	
Control Delay			22.5		30.7						4.5	
Queue Delay			0.0		0.0						0.0	
Total Delay			22.5		30.7						4.5	
LOS			C		C						A	
Approach Delay		22.5			30.7						4.5	
Approach LOS		C			C						A	
Queue Length 50th (ft)			12		21						45	
Queue Length 95th (ft)			28		m41						87	
Internal Link Dist (ft)		938			56			184			59	

1: Shopping Center Entrance & Greenville Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)			650		434						1368	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.11		0.10						0.29	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 24 (40%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.29

Intersection Signal Delay: 9.3

Intersection LOS: A

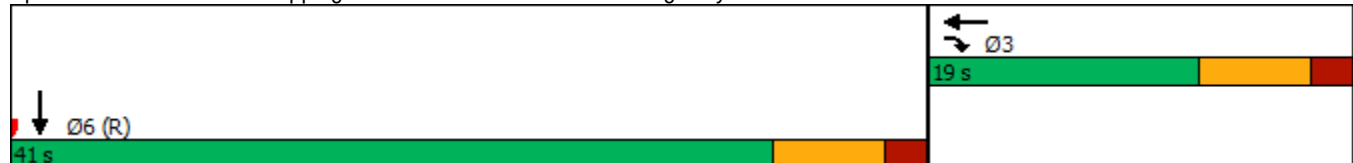
Intersection Capacity Utilization 42.1%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 1: Shopping Center Entrance & Greenville Highway



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑				↑↑		↑↑				
Traffic Volume (vph)	0	581	0	0	0	835	0	420	21	0	0	0
Future Volume (vph)	0	581	0	0	0	835	0	420	21	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	0.95	0.95	1.00	1.00	1.00
Frts						0.850		0.993				
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	2787	0	3514	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	2787	0	3514	0	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		125			796			155			1056	
Travel Time (s)		3.4			15.5			3.0			20.6	
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)	0	646	0	0	0	928	0	467	23	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	646	0	0	0	928	0	490	0	0	0	0
Turn Type		NA				Prot		NA				
Protected Phases		7				7		2				
Permitted Phases												
Detector Phase		7				7		2				
Switch Phase												
Minimum Initial (s)		7.0				7.0		10.0				
Minimum Split (s)		14.0				14.0		17.0				
Total Split (s)		38.0				38.0		22.0				
Total Split (%)		63.3%				63.3%		36.7%				
Maximum Green (s)		31.0				31.0		15.0				
Yellow Time (s)		5.0				5.0		5.0				
All-Red Time (s)		2.0				2.0		2.0				
Lost Time Adjust (s)		-2.0				-2.0		-2.0				
Total Lost Time (s)		5.0				5.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0				3.0		3.0				
Recall Mode		None				None		C-Min				
Act Effct Green (s)		31.6				31.6		18.4				
Actuated g/C Ratio		0.53				0.53		0.31				
v/c Ratio		0.35				0.63		0.46				
Control Delay		8.5				12.1		12.0				
Queue Delay		0.0				0.0		0.0				
Total Delay		8.5				12.1		12.0				
LOS		A				B		B				
Approach Delay		8.5			12.1			12.0				
Approach LOS		A			B			B				
Queue Length 50th (ft)		56				107		73				
Queue Length 95th (ft)		88				171		110				
Internal Link Dist (ft)		45			716			75			976	

10: Greenville Highway & Spartanburg Highway

Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	1964			1546			1094					
Starvation Cap Reductn	0			0			0					
Spillback Cap Reductn	0			0			0					
Storage Cap Reductn	0			0			0					
Reduced v/c Ratio	0.33			0.60			0.45					

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 11.0

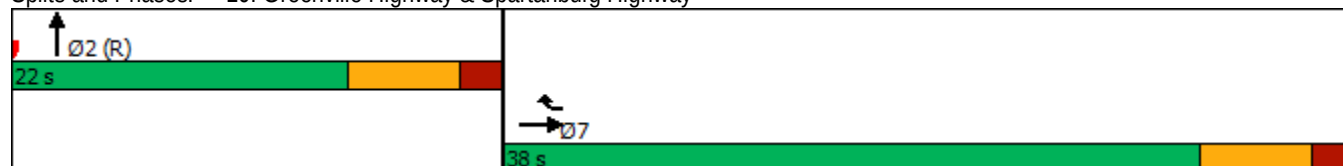
Intersection LOS: B

Intersection Capacity Utilization 66.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 10: Greenville Highway & Spartanburg Highway

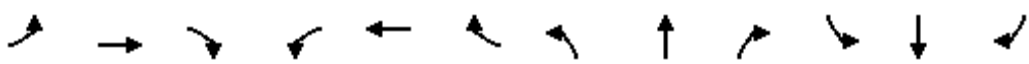


Greenville Highway Apartments - Hendersonville, NC

2040 Build

1: Shopping Center Entrance & Greenville Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			TT		↑						↑	
Traffic Volume (vph)	0	0	180	0	13	0	0	0	0	0	417	8
Future Volume (vph)	0	0	180	0	13	0	0	0	0	0	417	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.997	
Flt Protected												
Satd. Flow (prot)	0	0	2787	0	1863	0	0	0	0	0	1857	0
Flt Permitted												
Satd. Flow (perm)	0	0	2787	0	1863	0	0	0	0	0	1857	0
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			35	
Link Distance (ft)		1018			136			264			139	
Travel Time (s)		27.8			3.7			7.2			2.7	
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)	0	0	200	0	14	0	0	0	0	0	463	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	200	0	14	0	0	0	0	0	472	0
Turn Type			Prot		NA						NA	
Protected Phases			3		3						6	
Permitted Phases												
Detector Phase			3		3						6	
Switch Phase												
Minimum Initial (s)			7.0		7.0						10.0	
Minimum Split (s)			14.0		14.0						20.0	
Total Split (s)			20.0		20.0						40.0	
Total Split (%)			33.3%		33.3%						66.7%	
Maximum Green (s)			13.0		13.0						33.0	
Yellow Time (s)			5.0		5.0						5.0	
All-Red Time (s)			2.0		2.0						2.0	
Lost Time Adjust (s)			-2.0		-2.0						-2.0	
Total Lost Time (s)			5.0		5.0						5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0		3.0						3.0	
Recall Mode			None		None						C-Min	
Act Effect Green (s)			11.6		11.6						38.4	
Actuated g/C Ratio			0.19		0.19						0.64	
v/c Ratio			0.37		0.04						0.40	
Control Delay			22.5		17.5						6.9	
Queue Delay			0.0		0.0						0.0	
Total Delay			22.6		17.5						6.9	
LOS			C		B						A	
Approach Delay		22.6			17.5						6.9	
Approach LOS		C			B						A	
Queue Length 50th (ft)			35		4						69	
Queue Length 95th (ft)			60		m11						136	
Internal Link Dist (ft)		938			56			184			59	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)			696		465						1187	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			22		0						4	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.30		0.03						0.40	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 54 (90%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 11.7

Intersection LOS: B

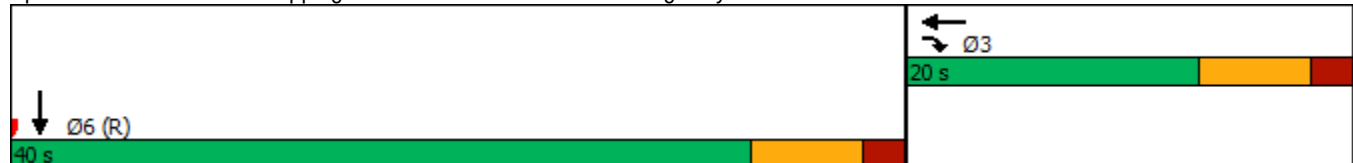
Intersection Capacity Utilization 37.1%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 1: Shopping Center Entrance & Greenville Highway

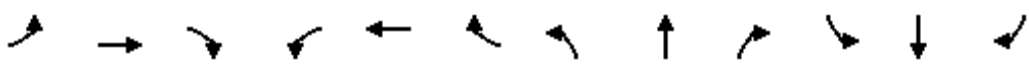


Greenville Highway Apartments - Hendersonville, NC

2040 Build

10: Greenville Highway & Spartanburg Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑				↑↑		↑↑				
Traffic Volume (vph)	0	682	0	0	0	653	0	345	17	0	0	0
Future Volume (vph)	0	682	0	0	0	653	0	345	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	0.95	0.95	1.00	1.00	1.00
Frnt						0.850		0.993				
Flt Protected												
Satd. Flow (prot)	0	3539	0	0	0	2787	0	3514	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	0	2787	0	3514	0	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		125			796			155			1056	
Travel Time (s)		3.4			15.5			3.0			20.6	
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)	0	758	0	0	0	726	0	383	19	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	758	0	0	0	726	0	402	0	0	0	0
Turn Type		NA				Prot		NA				
Protected Phases		7				7		2				
Permitted Phases												
Detector Phase		7				7		2				
Switch Phase												
Minimum Initial (s)		7.0				7.0		10.0				
Minimum Split (s)		14.0				14.0		17.0				
Total Split (s)		36.0				36.0		24.0				
Total Split (%)		60.0%				60.0%		40.0%				
Maximum Green (s)		29.0				29.0		17.0				
Yellow Time (s)		5.0				5.0		5.0				
All-Red Time (s)		2.0				2.0		2.0				
Lost Time Adjust (s)		-2.0				-2.0		-2.0				
Total Lost Time (s)		5.0				5.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0				3.0		3.0				
Recall Mode		None				None		C-Min				
Act Effct Green (s)		29.5				29.5		20.5				
Actuated g/C Ratio		0.49				0.49		0.34				
v/c Ratio		0.44				0.53		0.34				
Control Delay		10.2				11.5		6.7				
Queue Delay		0.0				0.0		0.0				
Total Delay		10.2				11.5		6.7				
LOS		B				B		A				
Approach Delay		10.2			11.5			6.7				
Approach LOS		B			B			A				
Queue Length 50th (ft)		76				83		51				
Queue Length 95th (ft)		112				127		m66				
Internal Link Dist (ft)		45			716			75			976	

10: Greenville Highway & Spartanburg Highway

Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	1898			1494			1267					
Starvation Cap Reductn	0			0			0					
Spillback Cap Reductn	0			0			0					
Storage Cap Reductn	0			0			0					
Reduced v/c Ratio	0.40			0.49			0.32					

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 10.0

Intersection LOS: A

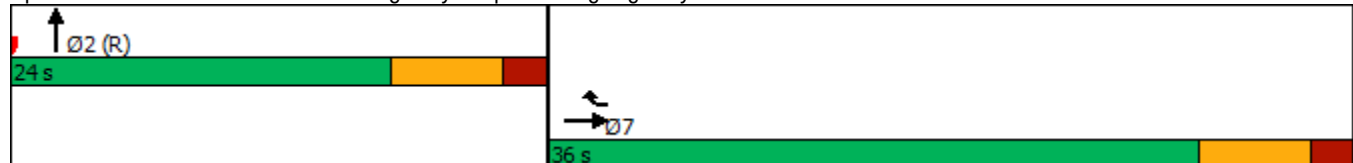
Intersection Capacity Utilization 61.3%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 10: Greenville Highway & Spartanburg Highway



APPENDIX F

CAPACITY ANALYSIS CALCULATIONS GREENVILLE HIGHWAY & CHADWICK AVENUE

Greenville Highway Apartments - Hendersonville, NC
2: Greenville Highway & Chadwick Square/Chadwick Avenue

2022 Existing
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	5	4	11	8	24	14	243	24	15	209	28
Future Volume (vph)	12	5	4	11	8	24	14	243	24	15	209	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-2%			3%	
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		0.977			0.924			0.988			0.985	
Flt Protected		0.973			0.988			0.997			0.997	
Satd. Flow (prot)	0	1771	0	0	1692	0	0	1853	0	0	1802	0
Flt Permitted								0.981			0.975	
Satd. Flow (perm)	0	1820	0	0	1713	0	0	1823	0	0	1762	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		754			1305			648			1496	
Travel Time (s)		20.6			25.4			12.6			29.1	
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)	13	6	4	12	9	27	16	270	27	17	232	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	48	0	0	313	0	0	280	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	25.0	25.0		21.7	21.7		17.0	17.0		26.0	26.0	
Total Split (s)	26.0	26.0		26.0	26.0		34.0	34.0		34.0	34.0	
Total Split (%)	43.3%	43.3%		43.3%	43.3%		56.7%	56.7%		56.7%	56.7%	
Maximum Green (s)	20.3	20.3		20.3	20.3		28.8	28.8		28.8	28.8	
Yellow Time (s)	3.8	3.8		3.8	3.8		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)		-0.7			-0.7			-0.2			-0.2	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5		1.5	1.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		9.0	9.0		4.0	4.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.7			7.7			25.6			25.6	
Actuated g/C Ratio		0.26			0.26			0.88			0.88	
v/c Ratio		0.05			0.11			0.20			0.18	
Control Delay		7.9			8.4			2.8			2.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.9			8.4			2.8			2.8	
LOS		A			A			A			A	
Approach Delay		7.9			8.4			2.8			2.8	

Greenville Highway Apartments - Hendersonville, NC
 2: Greenville Highway & Chadwick Square/Chadwick Avenue

2022 Existing
 Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			A			A			A		
Queue Length 50th (ft)	3			6			0			0		
Queue Length 95th (ft)	10			17			61			55		
Internal Link Dist (ft)	674			1225			568			1416		
Turn Bay Length (ft)												
Base Capacity (vph)	1321			1244			1773			1713		
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	0.02			0.04			0.18			0.16		

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 29.1

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.20

Intersection Signal Delay: 3.4

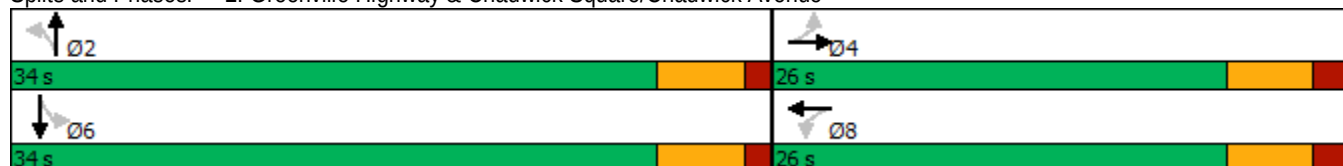
Intersection LOS: A

Intersection Capacity Utilization 32.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Greenville Highway & Chadwick Square/Chadwick Avenue



Greenville Highway Apartments - Hendersonville, NC
2: Greenville Highway & Chadwick Square/Chadwick Avenue

2022 Existing
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	6	7	43	5	42	4	319	32	27	428	18
Future Volume (vph)	26	6	7	43	5	42	4	319	32	27	428	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.937			0.988			0.995	
Flt Protected		0.968			0.977			0.999			0.997	
Satd. Flow (prot)	0	1758	0	0	1697	0	0	1857	0	0	1820	0
Flt Permitted		0.741			0.827			0.995			0.967	
Satd. Flow (perm)	0	1346	0	0	1436	0	0	1850	0	0	1765	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		754			1305			648			1496	
Travel Time (s)		20.6			25.4			12.6			29.1	
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)	29	7	8	48	6	47	4	354	36	30	476	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	101	0	0	394	0	0	526	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	25.0	25.0		21.7	21.7		17.0	17.0		26.0	26.0	
Total Split (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Total Split (%)	41.7%	41.7%		41.7%	41.7%		58.3%	58.3%		58.3%	58.3%	
Maximum Green (s)	19.3	19.3		19.3	19.3		29.8	29.8		29.8	29.8	
Yellow Time (s)	3.8	3.8		3.8	3.8		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)		-0.7			-0.7			-0.2			-0.2	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5		1.5	1.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		9.0	9.0		4.0	4.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		8.5			8.5			23.3			23.3	
Actuated g/C Ratio		0.25			0.25			0.68			0.68	
v/c Ratio		0.13			0.28			0.31			0.44	
Control Delay		12.2			13.8			6.1			7.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.2			13.8			6.1			7.3	
LOS		B			B			A			A	
Approach Delay		12.3			13.8			6.1			7.3	

Greenville Highway Apartments - Hendersonville, NC
 2: Greenville Highway & Chadwick Square/Chadwick Avenue

2022 Existing
 Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		6			13			41			61	
Queue Length 95th (ft)		26			49			99			149	
Internal Link Dist (ft)		674			1225			568			1416	
Turn Bay Length (ft)												
Base Capacity (vph)		804			858			1658			1582	
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		0.05			0.12			0.24			0.33	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 34.1

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 7.7

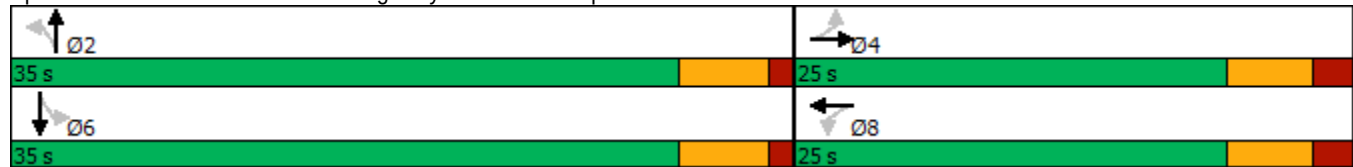
Intersection LOS: A

Intersection Capacity Utilization 54.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Greenville Highway & Chadwick Square/Chadwick Avenue



Greenville Highway Apartments - Hendersonville, NC
2: Greenville Highway & Chadwick Square/Chadwick Avenue

2023 No-Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	5	4	11	8	24	14	245	24	15	211	28
Future Volume (vph)	12	5	4	11	8	24	14	245	24	15	211	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-2%			3%	
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		0.977			0.924			0.988			0.985	
Flt Protected		0.973			0.988			0.997			0.997	
Satd. Flow (prot)	0	1771	0	0	1692	0	0	1853	0	0	1802	0
Flt Permitted								0.981			0.975	
Satd. Flow (perm)	0	1820	0	0	1713	0	0	1823	0	0	1762	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1055			1305			1012			1496	
Travel Time (s)		28.8			25.4			19.7			29.1	
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)	13	6	4	12	9	27	16	272	27	17	234	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	48	0	0	315	0	0	282	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.7	24.7		21.7	21.7		16.2	16.2		25.2	25.2	
Total Split (s)	25.4	25.4		25.4	25.4		34.6	34.6		34.6	34.6	
Total Split (%)	42.3%	42.3%		42.3%	42.3%		57.7%	57.7%		57.7%	57.7%	
Maximum Green (s)	19.7	19.7		19.7	19.7		29.4	29.4		29.4	29.4	
Yellow Time (s)	3.8	3.8		3.8	3.8		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)		-0.7			-0.7			-0.2			-0.2	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5		1.5	1.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		9.0	9.0		4.0	4.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.7			7.7			25.6			25.6	
Actuated g/C Ratio		0.26			0.26			0.88			0.88	
v/c Ratio		0.05			0.11			0.20			0.18	
Control Delay		8.0			8.5			2.8			2.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.0			8.5			2.8			2.8	
LOS		A			A			A			A	
Approach Delay		8.0			8.5			2.8			2.8	

Greenville Highway Apartments - Hendersonville, NC
 2: Greenville Highway & Chadwick Square/Chadwick Avenue

2023 No-Build
 Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			A			A			A		
Queue Length 50th (ft)	3			6			0			0		
Queue Length 95th (ft)	10			17			61			55		
Internal Link Dist (ft)	975			1225			932			1416		
Turn Bay Length (ft)												
Base Capacity (vph)	1283			1207			1801			1740		
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	0.02			0.04			0.17			0.16		

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 29.1

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.20

Intersection Signal Delay: 3.4

Intersection LOS: A

Intersection Capacity Utilization 32.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Greenville Highway & Chadwick Square/Chadwick Avenue

 Ø2	 Ø4
34.6 s	25.4 s
 Ø6	 Ø8
34.6 s	25.4 s

Greenville Highway Apartments - Hendersonville, NC
2: Greenville Highway & Chadwick Square/Chadwick Avenue

2023 No-Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	6	7	43	5	42	4	322	32	27	432	18
Future Volume (vph)	26	6	7	43	5	42	4	322	32	27	432	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.937			0.988			0.995	
Flt Protected		0.968			0.977			0.999			0.997	
Satd. Flow (prot)	0	1758	0	0	1697	0	0	1857	0	0	1820	0
Flt Permitted		0.741			0.827			0.995			0.966	
Satd. Flow (perm)	0	1346	0	0	1436	0	0	1850	0	0	1764	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1055			1305			1012			1496	
Travel Time (s)		28.8			25.4			19.7			29.1	
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)	29	7	8	48	6	47	4	358	36	30	480	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	101	0	0	398	0	0	530	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	25.0	25.0		22.0	22.0		17.0	17.0		26.0	26.0	
Total Split (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Total Split (%)	41.7%	41.7%		41.7%	41.7%		58.3%	58.3%		58.3%	58.3%	
Maximum Green (s)	19.3	19.3		19.3	19.3		29.8	29.8		29.8	29.8	
Yellow Time (s)	3.8	3.8		3.8	3.8		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)		-0.7			-0.7			-0.2			-0.2	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5		1.5	1.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		9.0	9.0		4.0	4.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		8.6			8.6			22.1			22.1	
Actuated g/C Ratio		0.23			0.23			0.60			0.60	
v/c Ratio		0.14			0.30			0.36			0.50	
Control Delay		12.7			14.8			7.0			8.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.7			14.8			7.0			8.6	
LOS		B			B			A			A	
Approach Delay		12.7			14.8			7.0			8.6	

Greenville Highway Apartments - Hendersonville, NC
 2: Greenville Highway & Chadwick Square/Chadwick Avenue

2023 No-Build
 Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		6			13			41			62	
Queue Length 95th (ft)		26			49			101			151	
Internal Link Dist (ft)		975			1225			932			1416	
Turn Bay Length (ft)												
Base Capacity (vph)		751			801			1548			1477	
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		0.06			0.13			0.26			0.36	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 36.7

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 8.7

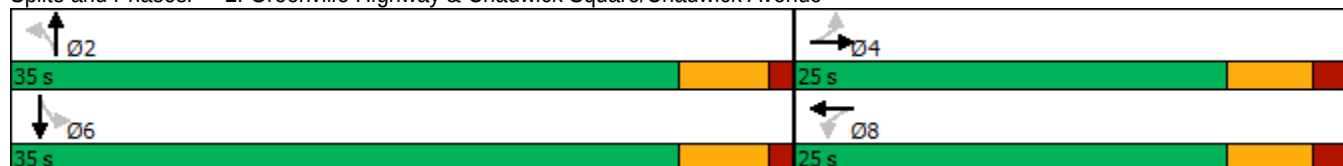
Intersection LOS: A

Intersection Capacity Utilization 54.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Greenville Highway & Chadwick Square/Chadwick Avenue



Greenville Highway Apartments - Hendersonville, NC
2: Greenville Highway & Chadwick Square/Chadwick Avenue

2023 Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	5	4	17	8	32	14	245	26	18	211	28
Future Volume (vph)	12	5	4	17	8	32	14	245	26	18	211	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-2%			3%	
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		0.977			0.924			0.988			0.985	
Flt Protected		0.973			0.985			0.997			0.997	
Satd. Flow (prot)	0	1771	0	0	1687	0	0	1853	0	0	1802	0
Flt Permitted		0.894			0.892			0.980			0.969	
Satd. Flow (perm)	0	1627	0	0	1528	0	0	1822	0	0	1751	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1055			209			1012			1496	
Travel Time (s)		28.8			4.1			19.7			29.1	
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)	13	6	4	19	9	36	16	272	29	20	234	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	64	0	0	317	0	0	285	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.7	24.7		21.7	21.7		16.2	16.2		25.2	25.2	
Total Split (s)	25.4	25.4		25.4	25.4		34.6	34.6		34.6	34.6	
Total Split (%)	42.3%	42.3%		42.3%	42.3%		57.7%	57.7%		57.7%	57.7%	
Maximum Green (s)	19.7	19.7		19.7	19.7		29.4	29.4		29.4	29.4	
Yellow Time (s)	3.8	3.8		3.8	3.8		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)		-0.7			-0.7			-0.2			-0.2	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5		1.5	1.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		9.0	9.0		4.0	4.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.7			7.7			22.7			22.7	
Actuated g/C Ratio		0.26			0.26			0.76			0.76	
v/c Ratio		0.06			0.16			0.23			0.21	
Control Delay		8.7			9.8			4.6			4.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.7			9.8			4.6			4.6	
LOS		A			A			A			A	
Approach Delay		8.7			9.8			4.6			4.6	

Greenville Highway Apartments - Hendersonville, NC
 2: Greenville Highway & Chadwick Square/Chadwick Avenue

2023 Build
 Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			A			A			A		
Queue Length 50th (ft)	3			8			0			0		
Queue Length 95th (ft)	11			22			62			56		
Internal Link Dist (ft)	975			129			932			1416		
Turn Bay Length (ft)												
Base Capacity (vph)	1109			1041			1795			1725		
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	0.02			0.06			0.18			0.17		

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 29.9

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.23

Intersection Signal Delay: 5.2

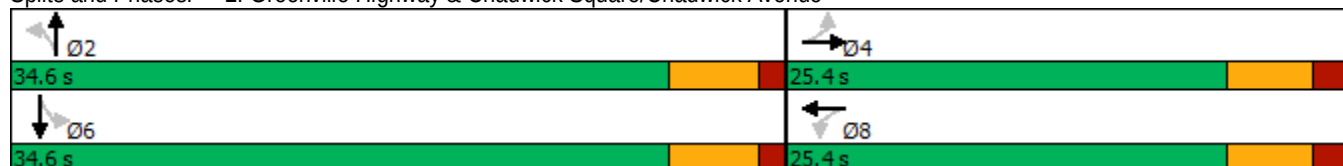
Intersection LOS: A

Intersection Capacity Utilization 33.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Greenville Highway & Chadwick Square/Chadwick Avenue



Greenville Highway Apartments - Hendersonville, NC
2: Greenville Highway & Chadwick Square/Chadwick Avenue

2023 Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	6	7	47	5	48	4	322	39	36	432	18
Future Volume (vph)	26	6	7	47	5	48	4	322	39	36	432	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.936			0.986			0.995	
Flt Protected		0.968			0.977						0.996	
Satd. Flow (prot)	0	1758	0	0	1695	0	0	1855	0	0	1818	0
Flt Permitted		0.735			0.829			0.995			0.952	
Satd. Flow (perm)	0	1335	0	0	1438	0	0	1846	0	0	1738	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1055			209			1012			1496	
Travel Time (s)		28.8			4.1			19.7			29.1	
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)	29	7	8	52	6	53	4	358	43	40	480	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	111	0	0	405	0	0	540	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	25.0	25.0		22.0	22.0		17.0	17.0		26.0	26.0	
Total Split (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Total Split (%)	41.7%	41.7%		41.7%	41.7%		58.3%	58.3%		58.3%	58.3%	
Maximum Green (s)	19.3	19.3		19.3	19.3		29.8	29.8		29.8	29.8	
Yellow Time (s)	3.8	3.8		3.8	3.8		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)		-0.7			-0.7			-0.2			-0.2	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5		1.5	1.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		9.0	9.0		4.0	4.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		8.9			8.9			22.3			22.3	
Actuated g/C Ratio		0.24			0.24			0.60			0.60	
v/c Ratio		0.14			0.32			0.36			0.52	
Control Delay		13.0			15.3			7.1			8.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.0			15.3			7.1			8.9	
LOS		B			B			A			A	
Approach Delay		13.0			15.3			7.1			8.9	

Greenville Highway Apartments - Hendersonville, NC
 2: Greenville Highway & Chadwick Square/Chadwick Avenue

2023 Build
 Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		6			15			42			64	
Queue Length 95th (ft)		27			56			106			162	
Internal Link Dist (ft)		975			129			932			1416	
Turn Bay Length (ft)												
Base Capacity (vph)		738			795			1532			1442	
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		0.06			0.14			0.26			0.37	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 37.1

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 9.1

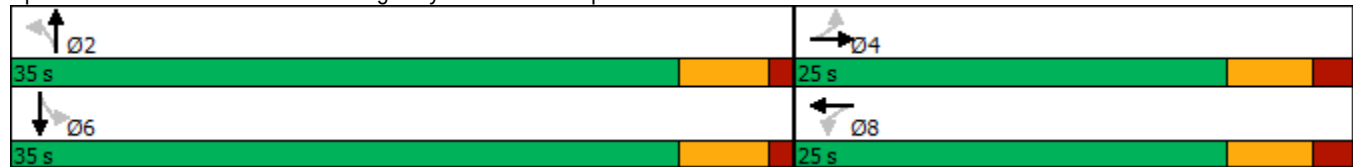
Intersection LOS: A

Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Greenville Highway & Chadwick Square/Chadwick Avenue



APPENDIX G

CAPACITY ANALYSIS CALCULATIONS SPARTANBURG HIGHWAY & CHADWICK AVENUE

Greenville Highway Apartments - Hendersonville, NC
3: Spartanburg Highway

2022 Existing
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	541	19	38	586	19	8	7	28	19	6	18
Future Vol, veh/h	15	541	19	38	586	19	8	7	28	19	6	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	100	-	-	-	-	-	-	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	601	21	42	651	21	9	8	31	21	7	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	672	0	0	622	0	0	1059	1402	311	1085	1402	336
Stage 1	-	-	-	-	-	-	646	646	-	746	746	-
Stage 2	-	-	-	-	-	-	413	756	-	339	656	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	915	-	-	955	-	-	179	139	685	171	139	660
Stage 1	-	-	-	-	-	-	427	465	-	372	419	-
Stage 2	-	-	-	-	-	-	587	414	-	649	460	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	915	-	-	955	-	-	159	130	685	148	130	660
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	130	-	148	130	-
Stage 1	-	-	-	-	-	-	419	456	-	365	401	-
Stage 2	-	-	-	-	-	-	535	396	-	598	451	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.5			19.5			25.4		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	296	915	-	-	955	-	-	143	660
HCM Lane V/C Ratio	0.161	0.018	-	-	0.044	-	-	0.194	0.03
HCM Control Delay (s)	19.5	9	-	-	8.9	-	-	36.1	10.6
HCM Lane LOS	C	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	0.7	0.1

Greenville Highway Apartments - Hendersonville, NC
3: Spartanburg Highway

2022 Existing
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱			↰↱			↰	↰
Traffic Vol, veh/h	23	820	18	52	665	42	18	13	56	23	11	56
Future Vol, veh/h	23	820	18	52	665	42	18	13	56	23	11	56
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	100	-	-	-	-	-	-	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	911	20	58	739	47	20	14	62	26	12	62
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	786	0	0	931	0	0	1465	1875	466	1394	1862	393
Stage 1	-	-	-	-	-	-	973	973	-	879	879	-
Stage 2	-	-	-	-	-	-	492	902	-	515	983	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	829	-	-	731	-	-	89	71	543	101	72	606
Stage 1	-	-	-	-	-	-	271	329	-	309	363	-
Stage 2	-	-	-	-	-	-	527	355	-	511	325	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	829	-	-	731	-	-	63	63	543	68	64	606
Mov Cap-2 Maneuver	-	-	-	-	-	-	63	63	-	68	64	-
Stage 1	-	-	-	-	-	-	263	319	-	299	334	-
Stage 2	-	-	-	-	-	-	419	327	-	418	315	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.7			68.2			49.9		
HCM LOS							F			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	146	829	-	-	731	-	-	67	606			
HCM Lane V/C Ratio	0.662	0.031	-	-	0.079	-	-	0.564	0.103			
HCM Control Delay (s)	68.2	9.5	-	-	10.3	-	-	113.1	11.6			
HCM Lane LOS	F	A	-	-	B	-	-	F	B			
HCM 95th %tile Q(veh)	3.7	0.1	-	-	0.3	-	-	2.4	0.3			

Greenville Highway Apartments - Hendersonville, NC
3: Chadwick Avenue & Spartanburg Highway

2023 No-Build
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	546	19	38	592	19	8	7	28	19	6	18
Future Vol, veh/h	15	546	19	38	592	19	8	7	28	19	6	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	100	-	-	-	-	-	-	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	607	21	42	658	21	9	8	31	21	7	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	679	0	0	628	0	0	1069	1415	314	1095	1415	340
Stage 1	-	-	-	-	-	-	652	652	-	753	753	-
Stage 2	-	-	-	-	-	-	417	763	-	342	662	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	909	-	-	950	-	-	176	136	682	168	136	656
Stage 1	-	-	-	-	-	-	423	462	-	368	416	-
Stage 2	-	-	-	-	-	-	584	411	-	646	457	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	909	-	-	950	-	-	156	128	682	146	128	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	156	128	-	146	128	-
Stage 1	-	-	-	-	-	-	415	453	-	361	398	-
Stage 2	-	-	-	-	-	-	532	393	-	595	448	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.5			19.7			25.8		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	292	909	-	-	950	-	-	141	656
HCM Lane V/C Ratio	0.164	0.018	-	-	0.044	-	-	0.197	0.03
HCM Control Delay (s)	19.7	9	-	-	9	-	-	36.7	10.7
HCM Lane LOS	C	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	0.7	0.1

Greenville Highway Apartments - Hendersonville, NC
3: Chadwick Avenue & Spartanburg Highway

2023 No-Build
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	6.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	828	18	53	672	42	18	13	57	23	11	57
Future Vol, veh/h	23	828	18	53	672	42	18	13	57	23	11	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	100	-	-	-	-	-	-	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	920	20	59	747	47	20	14	63	26	12	63

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	794	0	0	940	0	0	1480	1894	470	1408	1881	397
Stage 1	-	-	-	-	-	-	982	982	-	889	889	-
Stage 2	-	-	-	-	-	-	498	912	-	519	992	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	823	-	-	725	-	-	87	69	540	99	70	602
Stage 1	-	-	-	-	-	-	267	325	-	304	360	-
Stage 2	-	-	-	-	-	-	523	351	-	508	322	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	823	-	-	725	-	-	61	61	540	66	62	602
Mov Cap-2 Maneuver	-	-	-	-	-	-	61	61	-	66	62	-
Stage 1	-	-	-	-	-	-	258	315	-	294	331	-
Stage 2	-	-	-	-	-	-	414	323	-	414	312	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.7			72.2			51.8		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	143	823	-	-	725	-	-	65	602
HCM Lane V/C Ratio	0.684	0.031	-	-	0.081	-	-	0.581	0.105
HCM Control Delay (s)	72.2	9.5	-	-	10.4	-	-	119	11.7
HCM Lane LOS	F	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	3.9	0.1	-	-	0.3	-	-	2.4	0.4

Greenville Highway Apartments - Hendersonville, NC
3: Chadwick Avenue & Spartanburg Highway

2023 Build
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	546	19	40	592	19	8	7	35	19	6	18
Future Vol, veh/h	15	546	19	40	592	19	8	7	35	19	6	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	100	-	-	-	-	-	-	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	607	21	44	658	21	9	8	39	21	7	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	679	0	0	628	0	0	1073	1419	314	1099	1419	340
Stage 1	-	-	-	-	-	-	652	652	-	757	757	-
Stage 2	-	-	-	-	-	-	421	767	-	342	662	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	909	-	-	950	-	-	175	136	682	167	136	656
Stage 1	-	-	-	-	-	-	423	462	-	366	414	-
Stage 2	-	-	-	-	-	-	581	410	-	646	457	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	909	-	-	950	-	-	155	127	682	143	127	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	127	-	143	127	-
Stage 1	-	-	-	-	-	-	415	453	-	359	395	-
Stage 2	-	-	-	-	-	-	528	391	-	588	448	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.6			18.8			26.2		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	316	909	-	-	950	-	-	139	656
HCM Lane V/C Ratio	0.176	0.018	-	-	0.047	-	-	0.2	0.03
HCM Control Delay (s)	18.8	9	-	-	9	-	-	37.3	10.7
HCM Lane LOS	C	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	0.7	0.1

Greenville Highway Apartments - Hendersonville, NC
3: Chadwick Avenue & Spartanburg Highway

2023 Build
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	828	18	59	672	42	18	13	61	23	11	57
Future Vol, veh/h	23	828	18	59	672	42	18	13	61	23	11	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	100	-	-	-	-	-	-	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	920	20	66	747	47	20	14	68	26	12	63

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	794	0	0	940	0	0	1494	1908	470	1422	1895	397
Stage 1	-	-	-	-	-	-	982	982	-	903	903	-
Stage 2	-	-	-	-	-	-	512	926	-	519	992	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	823	-	-	725	-	-	85	68	540	96	69	602
Stage 1	-	-	-	-	-	-	267	325	-	299	354	-
Stage 2	-	-	-	-	-	-	513	346	-	508	322	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	823	-	-	725	-	-	59	60	540	62	61	602
Mov Cap-2 Maneuver	-	-	-	-	-	-	59	60	-	62	61	-
Stage 1	-	-	-	-	-	-	258	315	-	289	322	-
Stage 2	-	-	-	-	-	-	401	315	-	410	312	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.8			74.3			55.5		
HCM LOS							F			F		

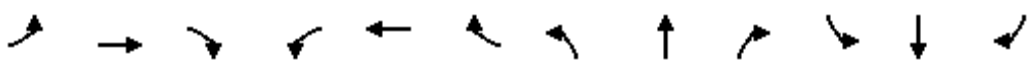
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	145	823	-	-	725	-	-	62	602
HCM Lane V/C Ratio	0.705	0.031	-	-	0.09	-	-	0.609	0.105
HCM Control Delay (s)	74.3	9.5	-	-	10.5	-	-	128.9	11.7
HCM Lane LOS	F	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	4.1	0.1	-	-	0.3	-	-	2.5	0.4

APPENDIX H

CAPACITY ANALYSIS CALCULATIONS GREENVILLE HIGHWAY & WHITE STREET

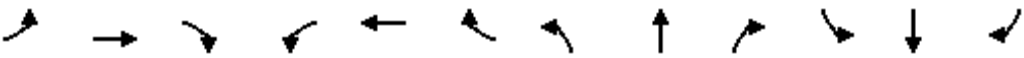
Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2022 Existing
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↰	↱		↰	↱	↱
Traffic Volume (vph)	213	4	59	4	4	4	67	220	4	7	208	130
Future Volume (vph)	213	4	59	4	4	4	67	220	4	7	208	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	0		150	0		50	25		0	75		0
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.998				0.850
Flt Protected		0.953			0.976		0.950			0.950		
Satd. Flow (prot)	0	1784	1591	0	1818	1583	1770	1859	0	1770	1863	1583
Flt Permitted		0.724			0.878		0.950			0.599		
Satd. Flow (perm)	0	1355	1591	0	1635	1583	1770	1859	0	1116	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		979			603			1496			393	
Travel Time (s)		19.1			16.4			29.1			7.7	
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)	237	4	66	4	4	4	74	244	4	8	231	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	66	0	8	4	74	248	0	8	231	144
Turn Type	Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA		D.Pm	NA	Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8		8				2		6
Detector Phase	4	4	5	8	8	8	5	2		2	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	10.0		10.0	10.0	10.0
Minimum Split (s)	13.3	13.3	11.9	27.3	27.3	27.3	11.9	26.6		26.6	26.6	26.6
Total Split (s)	54.0	54.0	22.0	54.0	54.0	54.0	22.0	66.0		66.0	44.0	44.0
Total Split (%)	45.0%	45.0%	18.3%	45.0%	45.0%	45.0%	18.3%	55.0%		55.0%	36.7%	36.7%
Maximum Green (s)	47.7	47.7	17.1	47.7	47.7	47.7	17.1	60.4		60.4	38.4	38.4
Yellow Time (s)	3.9	3.9	3.0	3.9	3.9	3.9	3.0	3.8		3.8	3.8	3.8
All-Red Time (s)	2.4	2.4	1.9	2.4	2.4	2.4	1.9	1.8		1.8	1.8	1.8
Lost Time Adjust (s)		-1.3	0.1		-1.3	-1.3	0.1	-0.6		-0.6	-0.6	-0.6
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag			Lag				Lag				Lead	Lead
Lead-Lag Optimize?			Yes				Yes				Yes	Yes
Vehicle Extension (s)	1.0	1.0	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	None	None	C-Min		C-Min	C-Min	C-Min
Walk Time (s)				7.0	7.0	7.0		7.0		7.0	7.0	7.0
Flash Dont Walk (s)				14.0	14.0	14.0		14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)				0	0	0		0		0	0	0
Act Effct Green (s)		26.9	40.8		26.9	26.9	8.9	83.1		83.1	69.2	69.2
Actuated g/C Ratio		0.22	0.34		0.22	0.22	0.07	0.69		0.69	0.58	0.58
v/c Ratio		0.79	0.12		0.02	0.01	0.56	0.19		0.01	0.22	0.16
Control Delay		61.7	24.7		31.6	31.2	69.9	8.1		9.4	9.6	9.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.3	0.0

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2022 Existing
 Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		61.7	24.7		31.6	31.2	69.9	8.1		9.4	9.9	9.4
LOS		E	C		C	C	E	A		A	A	A
Approach Delay		53.7			31.5			22.3			9.7	
Approach LOS		D			C			C			A	
Queue Length 50th (ft)		177	35		5	2	57	62		1	44	27
Queue Length 95th (ft)		245	56		16	11	105	124		m9	120	81
Internal Link Dist (ft)		899			523			1416			313	
Turn Bay Length (ft)			150			50	25			75		
Base Capacity (vph)		553	540		667	646	250	1286		772	1073	912
Starvation Cap Reductn		0	0		0	0	0	0		0	418	0
Spillback Cap Reductn		0	0		0	0	0	0		0	0	0
Storage Cap Reductn		0	0		0	0	0	0		0	0	0
Reduced v/c Ratio		0.44	0.12		0.01	0.01	0.30	0.19		0.01	0.35	0.16

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 27.1

Intersection LOS: C

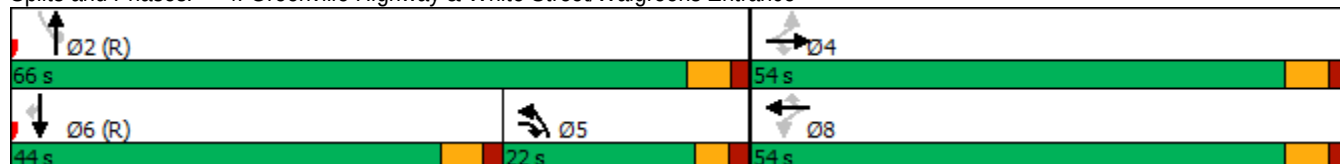
Intersection Capacity Utilization 51.3%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2022 Existing
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	16	111	10	15	13	139	324	10	23	449	249
Future Volume (vph)	214	16	111	10	15	13	139	324	10	23	449	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	0		150	0		50	25		0	75		0
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.996				0.850
Flt Protected		0.956			0.981		0.950			0.950		
Satd. Flow (prot)	0	1790	1591	0	1827	1583	1770	1855	0	1770	1863	1583
Flt Permitted		0.721			0.862		0.950			0.509		
Satd. Flow (perm)	0	1350	1591	0	1606	1583	1770	1855	0	948	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		979			603			1496			393	
Travel Time (s)		19.1			16.4			29.1			7.7	
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)	238	18	123	11	17	14	154	360	11	26	499	277
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	256	123	0	28	14	154	371	0	26	499	277
Turn Type	Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA		D.Pm	NA	Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8		8				2		6
Detector Phase	4	4	5	8	8	8	5	2		2	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	10.0		10.0	10.0	10.0
Minimum Split (s)	13.3	13.3	11.9	27.3	27.3	27.3	11.9	26.6		26.6	26.6	26.6
Total Split (s)	42.0	42.0	24.0	42.0	42.0	42.0	24.0	78.0		78.0	54.0	54.0
Total Split (%)	35.0%	35.0%	20.0%	35.0%	35.0%	35.0%	20.0%	65.0%		65.0%	45.0%	45.0%
Maximum Green (s)	35.7	35.7	19.1	35.7	35.7	35.7	19.1	72.4		72.4	48.4	48.4
Yellow Time (s)	3.9	3.9	3.0	3.9	3.9	3.9	3.0	3.8		3.8	3.8	3.8
All-Red Time (s)	2.4	2.4	1.9	2.4	2.4	2.4	1.9	1.8		1.8	1.8	1.8
Lost Time Adjust (s)		-1.3	0.1		-1.3	-1.3	0.1	-0.6		-0.6	-0.6	-0.6
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag			Lag				Lag				Lead	Lead
Lead-Lag Optimize?			Yes				Yes				Yes	Yes
Vehicle Extension (s)	1.0	1.0	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	None	None	C-Min		C-Min	C-Min	C-Min
Walk Time (s)				7.0	7.0	7.0		7.0		7.0	7.0	7.0
Flash Dont Walk (s)				14.0	14.0	14.0		14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)				0	0	0		0		0	0	0
Act Effect Green (s)		27.6	46.4		27.6	27.6	13.8	82.4		82.4	63.6	63.6
Actuated g/C Ratio		0.23	0.39		0.23	0.23	0.12	0.69		0.69	0.53	0.53
v/c Ratio		0.83	0.20		0.08	0.04	0.76	0.29		0.04	0.51	0.33
Control Delay		64.3	22.8		33.2	32.1	74.0	9.2		4.9	13.4	10.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	1.1	0.6

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2022 Existing
 Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		64.3	22.8		33.2	32.1	74.0	9.2		4.9	14.5	11.1
LOS		E	C		C	C	E	A		A	B	B
Approach Delay		50.8			32.8			28.2			13.0	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)		189	62		17	8	117	102		2	244	45
Queue Length 95th (ft)		262	83		38	24	181	191		m20	379	163
Internal Link Dist (ft)		899			523			1416			313	
Turn Bay Length (ft)			150			50	25			75		
Base Capacity (vph)		416	609		495	488	282	1273		650	989	841
Starvation Cap Reductn		0	0		0	0	0	0		0	272	273
Spillback Cap Reductn		0	0		0	0	0	0		0	0	0
Storage Cap Reductn		0	0		0	0	0	0		0	0	0
Reduced v/c Ratio		0.62	0.20		0.06	0.03	0.55	0.29		0.04	0.70	0.49

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 26.2

Intersection LOS: C

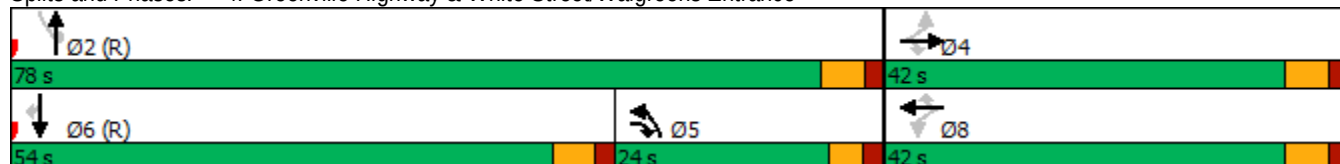
Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2023 No-Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	128	177	132	94	77	173	223	174	76	168	73
Future Volume (vph)	99	128	177	132	94	77	173	223	174	76	168	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	200		150	0		50	500		600	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.913			0.932			0.934				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1709	0	1770	1736	0	1770	3306	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1778	1709	0	1770	1736	0	1770	3306	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1118			1023			1496			127	
Travel Time (s)		21.8			27.9			29.1			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	110	142	197	147	104	86	192	248	193	84	187	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	110	339	0	147	190	0	192	441	0	84	187	81
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	34.0	14.0		14.0	14.0		14.0	17.0		14.0	17.0	34.0
Total Split (s)	40.0	44.0		23.0	27.0		26.0	36.0		17.0	27.0	40.0
Total Split (%)	33.3%	36.7%		19.2%	22.5%		21.7%	30.0%		14.2%	22.5%	33.3%
Maximum Green (s)	13.0	37.0		16.0	20.0		19.0	29.0		10.0	20.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	22.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	22.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	25.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	25.0
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effect Green (s)	12.9	36.1		15.4	18.6		18.3	40.2		11.1	30.2	48.1
Actuated g/C Ratio	0.11	0.30		0.13	0.16		0.15	0.34		0.09	0.25	0.40
v/c Ratio	0.58	0.66		0.65	0.71		0.71	0.40		0.52	0.40	0.13
Control Delay	62.7	43.1		63.0	62.4		62.9	34.6		62.6	45.4	24.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	62.7	43.1		63.0	62.4		62.9	34.6		62.6	45.4	24.6
LOS	E	D		E	E		E	C		E	D	C
Approach Delay		47.9			62.7			43.2			44.7	

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2023 No-Build
 Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	82	226		109	140		142	147		64	126	39
Queue Length 95th (ft)	141	323		176	216		220	207		118	223	74
Internal Link Dist (ft)	1038			943			1416			47		
Turn Bay Length (ft)	200						500					
Base Capacity (vph)	222	555		265	318		310	1108		177	469	464
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.50	0.61		0.55	0.60		0.62	0.40		0.47	0.40	0.17

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 48.4

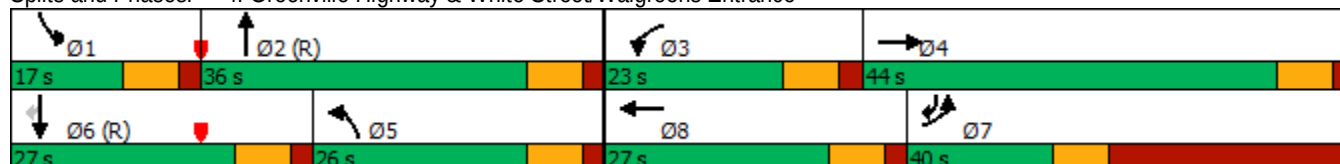
Intersection LOS: D

Intersection Capacity Utilization 62.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2023 No-Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	94	173	174	128	76	177	168	132	77	223	99
Future Volume (vph)	73	94	173	174	128	76	177	168	132	77	223	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	200		150	0		50	500		600	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.903			0.944			0.934				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1690	0	1770	1758	0	1770	3306	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1778	1690	0	1770	1758	0	1770	3306	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1118			1023			1496			127	
Travel Time (s)		21.8			27.9			29.1			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	81	104	192	193	142	84	197	187	147	86	248	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	296	0	193	226	0	197	334	0	86	248	110
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	34.0	14.0		14.0	14.0		14.0	17.0		14.0	17.0	34.0
Total Split (s)	35.0	38.0		25.0	28.0		25.0	40.0		17.0	32.0	35.0
Total Split (%)	29.2%	31.7%		20.8%	23.3%		20.8%	33.3%		14.2%	26.7%	29.2%
Maximum Green (s)	8.0	31.0		18.0	21.0		18.0	33.0		10.0	25.0	8.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	22.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	22.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	25.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	25.0
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effect Green (s)	10.8	33.2		17.8	20.2		18.1	40.7		11.1	30.9	46.6
Actuated g/C Ratio	0.09	0.28		0.15	0.17		0.15	0.34		0.09	0.26	0.39
v/c Ratio	0.51	0.63		0.74	0.77		0.74	0.30		0.52	0.52	0.18
Control Delay	63.9	45.1		65.7	64.5		65.1	32.1		65.0	40.9	27.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.3	0.0
Total Delay	63.9	45.1		65.7	64.5		65.1	32.1		65.0	41.3	27.7
LOS	E	D		E	E		E	C		E	D	C
Approach Delay		49.1			65.1			44.4			42.5	

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2023 No-Build
 Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	60	198		143	166		145	108		66	163	63
Queue Length 95th (ft)	115	301		223	252		227	150		125	240	110
Internal Link Dist (ft)	1038			943			1416			47		
Turn Bay Length (ft)	200						500					
Base Capacity (vph)	162	473		295	336		298	1127		177	484	551
Starvation Cap Reductn	0	0		0	0		0	0		0	37	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.50	0.63		0.65	0.67		0.66	0.30		0.49	0.55	0.20

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 51 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 49.8

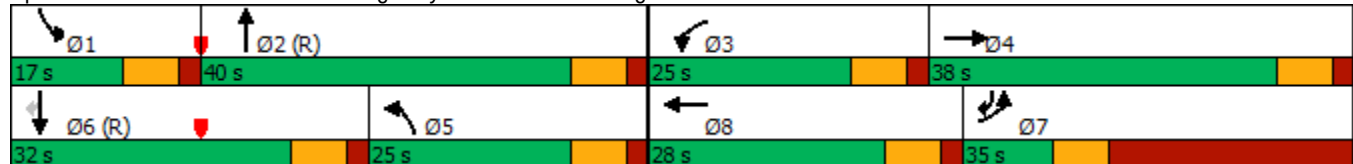
Intersection LOS: D

Intersection Capacity Utilization 65.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2023 Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	128	178	132	94	77	175	229	174	76	170	73
Future Volume (vph)	99	128	178	132	94	77	175	229	174	76	170	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	200		150	0		50	500		600	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.913			0.932			0.935				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1709	0	1770	1736	0	1770	3309	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1778	1709	0	1770	1736	0	1770	3309	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1118			1023			1496			127	
Travel Time (s)		21.8			27.9			29.1			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	110	142	198	147	104	86	194	254	193	84	189	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	110	340	0	147	190	0	194	447	0	84	189	81
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	34.0	14.0		14.0	14.0		14.0	17.0		14.0	17.0	34.0
Total Split (s)	40.0	44.0		23.0	27.0		26.0	36.0		17.0	27.0	40.0
Total Split (%)	33.3%	36.7%		19.2%	22.5%		21.7%	30.0%		14.2%	22.5%	33.3%
Maximum Green (s)	13.0	37.0		16.0	20.0		19.0	29.0		10.0	20.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	22.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	22.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	25.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	25.0
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effect Green (s)	12.9	36.1		15.4	18.6		18.4	40.2		11.1	30.1	48.0
Actuated g/C Ratio	0.11	0.30		0.13	0.16		0.15	0.34		0.09	0.25	0.40
v/c Ratio	0.58	0.66		0.65	0.71		0.72	0.40		0.52	0.40	0.13
Control Delay	62.7	43.1		63.0	62.4		63.2	34.7		62.7	45.6	24.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	62.7	43.1		63.0	62.4		63.2	34.7		62.7	45.6	24.6
LOS	E	D		E	E		E	C		E	D	C
Approach Delay		47.9			62.7			43.3			44.9	

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2023 Build
 Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	82	227		109	140		143	150		64	128	39
Queue Length 95th (ft)	141	323		176	216		221	210		118	226	74
Internal Link Dist (ft)	1038			943			1416			47		
Turn Bay Length (ft)	200						500					
Base Capacity (vph)	222	555		265	318		310	1108		177	468	463
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.50	0.61		0.55	0.60		0.63	0.40		0.47	0.40	0.17

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 48.5

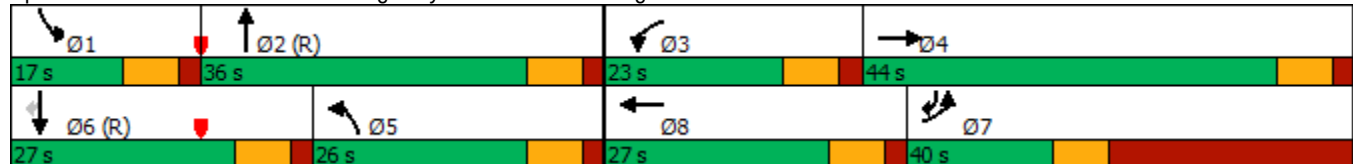
Intersection LOS: D

Intersection Capacity Utilization 62.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



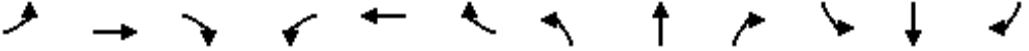
Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2023 Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	94	175	174	128	76	179	172	132	77	230	99
Future Volume (vph)	73	94	175	174	128	76	179	172	132	77	230	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	200		150	0		50	500		600	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.902			0.944			0.935				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1689	0	1770	1758	0	1770	3309	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1778	1689	0	1770	1758	0	1770	3309	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1118			1023			1496			127	
Travel Time (s)		21.8			27.9			29.1			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	81	104	194	193	142	84	199	191	147	86	256	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	298	0	193	226	0	199	338	0	86	256	110
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	34.0	14.0		14.0	14.0		14.0	17.0		14.0	17.0	34.0
Total Split (s)	35.0	38.0		25.0	28.0		25.0	40.0		17.0	32.0	35.0
Total Split (%)	29.2%	31.7%		20.8%	23.3%		20.8%	33.3%		14.2%	26.7%	29.2%
Maximum Green (s)	8.0	31.0		18.0	21.0		18.0	33.0		10.0	25.0	8.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	22.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	22.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	25.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	25.0
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effect Green (s)	10.8	33.2		17.8	20.2		18.1	40.7		11.1	30.9	46.6
Actuated g/C Ratio	0.09	0.28		0.15	0.17		0.15	0.34		0.09	0.26	0.39
v/c Ratio	0.51	0.64		0.74	0.77		0.75	0.30		0.52	0.53	0.18
Control Delay	64.0	45.3		65.7	64.5		65.8	32.2		65.0	41.5	27.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.4	0.0
Total Delay	64.0	45.3		65.7	64.5		65.8	32.2		65.0	41.9	27.8
LOS	E	D		E	E		E	C		E	D	C
Approach Delay		49.3			65.1			44.6			42.8	

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2023 Build
 Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	60	199		143	166		147	110		66	168	64
Queue Length 95th (ft)	115	303		223	252		229	152		125	249	110
Internal Link Dist (ft)	1038			943			1416			47		
Turn Bay Length (ft)	200						500					
Base Capacity (vph)	162	473		295	336		297	1128		177	483	551
Starvation Cap Reductn	0	0		0	0		0	0		0	36	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.50	0.63		0.65	0.67		0.67	0.30		0.49	0.57	0.20

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 51 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 49.9

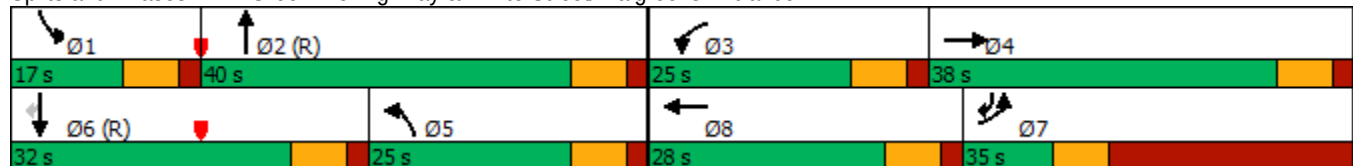
Intersection LOS: D

Intersection Capacity Utilization 65.8%

ICU Level of Service C

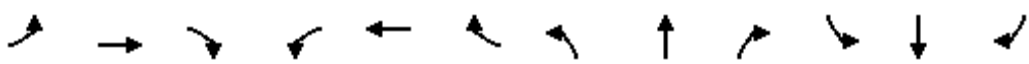
Analysis Period (min) 15

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2040 No-Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	160	212	179	118	95	206	255	236	94	192	78
Future Volume (vph)	106	160	212	179	118	95	206	255	236	94	192	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	200		150	0		50	500		600	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.914			0.933			0.928				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1711	0	1770	1738	0	1770	3284	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1778	1711	0	1770	1738	0	1770	3284	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1118			1023			848			127	
Travel Time (s)		21.8			27.9			16.5			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	118	178	236	199	131	106	229	283	262	104	213	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	414	0	199	237	0	229	545	0	104	213	87
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	34.0	14.0		14.0	14.0		14.0	17.0		14.0	17.0	34.0
Total Split (s)	40.0	44.0		23.0	27.0		26.0	36.0		17.0	27.0	40.0
Total Split (%)	33.3%	36.7%		19.2%	22.5%		21.7%	30.0%		14.2%	22.5%	33.3%
Maximum Green (s)	13.0	37.0		16.0	20.0		19.0	29.0		10.0	20.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	22.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	22.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	25.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	25.0
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effect Green (s)	13.1	36.4		17.1	20.4		20.0	35.0		11.4	26.4	44.6
Actuated g/C Ratio	0.11	0.30		0.14	0.17		0.17	0.29		0.10	0.22	0.37
v/c Ratio	0.61	0.80		0.79	0.80		0.78	0.57		0.62	0.52	0.15
Control Delay	64.2	50.6		71.9	68.3		66.2	40.0		67.5	48.9	25.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	64.2	50.6		71.9	68.3		66.2	40.0		67.5	48.9	25.9
LOS	E	D		E	E		E	D		E	D	C
Approach Delay		53.6			69.9			47.8			48.7	

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2040 No-Build
 Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	88	287		149	175		168	198		80	156	45
Queue Length 95th (ft)	150	408		#258	#288		#281	260		140	249	79
Internal Link Dist (ft)	1038			943			768			47		
Turn Bay Length (ft)	200						500					
Base Capacity (vph)	222	556		266	319		312	959		179	411	414
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.53	0.74		0.75	0.74		0.73	0.57		0.58	0.52	0.21

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 53.9

Intersection LOS: D

Intersection Capacity Utilization 71.6%

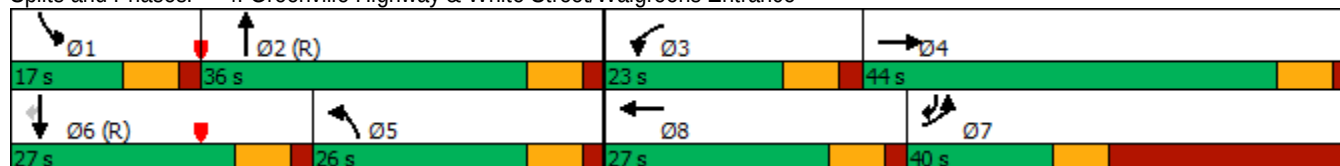
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2040 No-Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	118	206	236	160	94	212	192	179	95	255	106
Future Volume (vph)	78	118	206	236	160	94	212	192	179	95	255	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	200		150	0		50	500		600	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.905			0.945			0.928				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1694	0	1770	1760	0	1770	3284	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1778	1694	0	1770	1760	0	1770	3284	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1118			1023			848			127	
Travel Time (s)		21.8			27.9			16.5			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	131	229	262	178	104	236	213	199	106	283	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	360	0	262	282	0	236	412	0	106	283	118
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	34.0	14.0		14.0	14.0		14.0	17.0		14.0	17.0	34.0
Total Split (s)	35.0	38.0		25.0	28.0		25.0	40.0		17.0	32.0	35.0
Total Split (%)	29.2%	31.7%		20.8%	23.3%		20.8%	33.3%		14.2%	26.7%	29.2%
Maximum Green (s)	8.0	31.0		18.0	21.0		18.0	33.0		10.0	25.0	8.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	22.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	22.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	25.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	25.0
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effect Green (s)	10.2	32.1		20.3	22.2		19.5	36.3		11.3	28.1	43.2
Actuated g/C Ratio	0.08	0.27		0.17	0.18		0.16	0.30		0.09	0.23	0.36
v/c Ratio	0.58	0.79		0.88	0.87		0.82	0.42		0.64	0.65	0.21
Control Delay	68.7	54.8		77.6	72.9		71.2	35.4		69.9	47.6	29.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.5	0.0
Total Delay	68.7	54.8		77.6	72.9		71.2	35.4		69.9	48.1	29.5
LOS	E	D		E	E		E	D		E	D	C
Approach Delay		57.5			75.2			48.5			48.3	

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2040 No-Build
 Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			E			D			D		
Queue Length 50th (ft)	66	257		201	212		175	136		79	189	72
Queue Length 95th (ft)	#129	#395		#354	#357		#305	184		#150	287	109
Internal Link Dist (ft)	1038			943			768			47		
Turn Bay Length (ft)	200						500					
Base Capacity (vph)	152	465		303	338		300	999		177	446	505
Starvation Cap Reductn	0	0		0	0		0	0		0	26	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.57	0.77		0.86	0.83		0.79	0.41		0.60	0.67	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 51 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 57.1

Intersection LOS: E

Intersection Capacity Utilization 74.8%

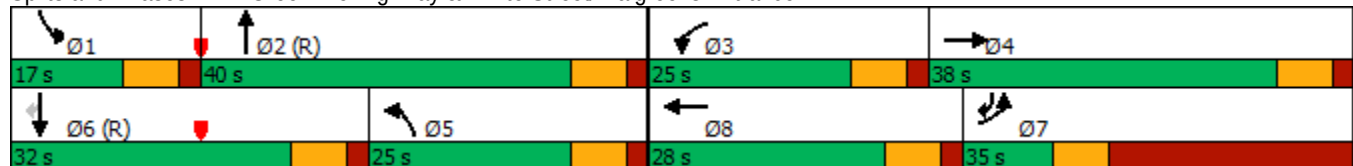
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2040 Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	160	213	179	118	95	208	261	236	94	194	78
Future Volume (vph)	106	160	213	179	118	95	208	261	236	94	194	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	200		150	0		50	500		600	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.914			0.933			0.929				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1711	0	1770	1738	0	1770	3288	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1778	1711	0	1770	1738	0	1770	3288	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1118			1023			848			127	
Travel Time (s)		21.8			27.9			16.5			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	118	178	237	199	131	106	231	290	262	104	216	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	415	0	199	237	0	231	552	0	104	216	87
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	34.0	14.0		14.0	14.0		14.0	17.0		14.0	17.0	34.0
Total Split (s)	40.0	44.0		23.0	27.0		26.0	36.0		17.0	27.0	40.0
Total Split (%)	33.3%	36.7%		19.2%	22.5%		21.7%	30.0%		14.2%	22.5%	33.3%
Maximum Green (s)	13.0	37.0		16.0	20.0		19.0	29.0		10.0	20.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	22.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	22.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	25.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	25.0
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effect Green (s)	13.1	36.4		17.1	20.4		20.1	35.1		11.4	26.4	44.6
Actuated g/C Ratio	0.11	0.30		0.14	0.17		0.17	0.29		0.10	0.22	0.37
v/c Ratio	0.61	0.80		0.79	0.81		0.78	0.57		0.62	0.53	0.15
Control Delay	64.2	50.7		72.2	68.5		66.6	40.2		67.4	49.1	25.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	64.2	50.7		72.2	68.5		66.6	40.2		67.4	49.1	25.9
LOS	E	D		E	E		E	D		E	D	C
Approach Delay		53.7			70.2			48.0			48.8	

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2040 Build
 Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	88	288		149	175		169	201		79	159	45
Queue Length 95th (ft)	150	410		#258	#288		#284	263		140	251	79
Internal Link Dist (ft)		1038			943			768			47	
Turn Bay Length (ft)	200						500					
Base Capacity (vph)	222	556		265	318		312	960		179	411	414
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.53	0.75		0.75	0.75		0.74	0.57		0.58	0.53	0.21

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 54.0

Intersection LOS: D

Intersection Capacity Utilization 71.9%

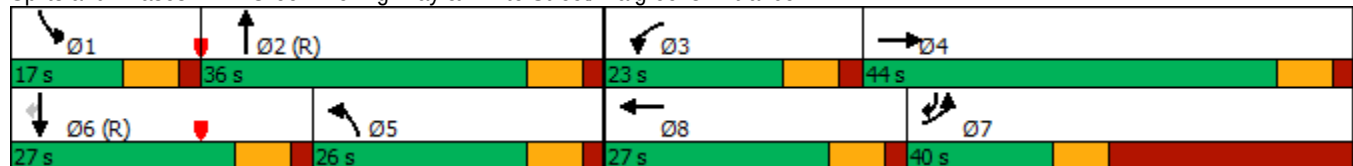
ICU Level of Service C

Analysis Period (min) 15

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

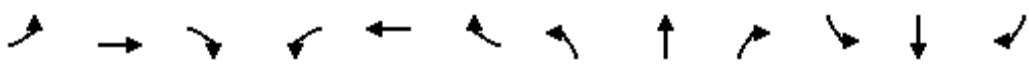
Queue shown is maximum after two cycles.

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



Greenville Highway Apartments - Hendersonville, NC
4: Greenville Highway & White Street/Walgreens Entrance

2040 Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	118	208	236	160	94	214	196	179	95	262	106
Future Volume (vph)	78	118	208	236	160	94	214	196	179	95	262	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			0%			0%			0%	
Storage Length (ft)	200		150	0		50	500		600	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.904			0.945			0.928				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1778	1692	0	1770	1760	0	1770	3284	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1778	1692	0	1770	1760	0	1770	3284	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1118			1023			848			127	
Travel Time (s)		21.8			27.9			16.5			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	131	231	262	178	104	238	218	199	106	291	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	362	0	262	282	0	238	417	0	106	291	118
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		7.0	10.0	7.0
Minimum Split (s)	34.0	14.0		14.0	14.0		14.0	17.0		14.0	17.0	34.0
Total Split (s)	35.0	38.0		25.0	28.0		25.0	40.0		17.0	32.0	35.0
Total Split (%)	29.2%	31.7%		20.8%	23.3%		20.8%	33.3%		14.2%	26.7%	29.2%
Maximum Green (s)	8.0	31.0		18.0	21.0		18.0	33.0		10.0	25.0	8.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	22.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	22.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	25.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	25.0
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	3.0		2.0	3.0	2.0
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effect Green (s)	10.1	32.1		20.3	22.2		19.5	36.3		11.3	28.2	43.3
Actuated g/C Ratio	0.08	0.27		0.17	0.18		0.16	0.30		0.09	0.24	0.36
v/c Ratio	0.58	0.80		0.88	0.87		0.83	0.42		0.64	0.67	0.21
Control Delay	69.1	55.4		77.6	72.9		72.4	35.5		69.9	48.5	29.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.7	0.0
Total Delay	69.1	55.4		77.6	72.9		72.4	35.5		69.9	49.2	29.5
LOS	E	E		E	E		E	D		E	D	C
Approach Delay		58.1			75.2			48.9			48.9	

Greenville Highway Apartments - Hendersonville, NC
 4: Greenville Highway & White Street/Walgreens Entrance

2040 Build
 Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			E			D			D		
Queue Length 50th (ft)	66	259		201	212		177	137		79	196	72
Queue Length 95th (ft)	#129	#399		#354	#357		#309	186		#149	300	107
Internal Link Dist (ft)	1038			943			768			47		
Turn Bay Length (ft)	200						500					
Base Capacity (vph)	151	465		303	338		299	999		177	446	506
Starvation Cap Reductn	0	0		0	0		0	0		0	29	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.58	0.78		0.86	0.83		0.80	0.42		0.60	0.70	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 51 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 57.4

Intersection LOS: E

Intersection Capacity Utilization 75.4%

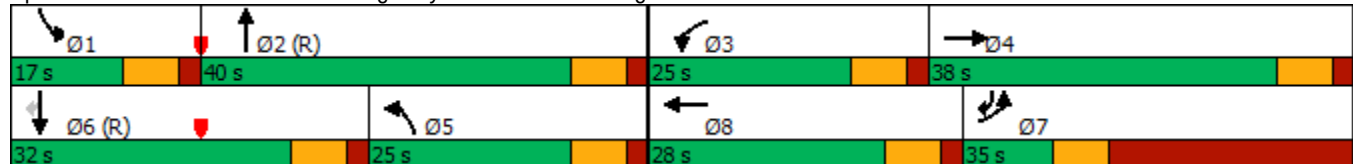
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: Greenville Highway & White Street/Walgreens Entrance



APPENDIX I

CAPACITY ANALYSIS CALCULATIONS CHADWICK AVENUE ROAD & SITE ACCESS

Greenville Highway Apartments - Hendersonville, NC
5: Site Access & Chadwick Avenue

2023 Build
Timing Plan: AM Peak Hour

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	44	5	4	43	14	7
Future Vol, veh/h	44	5	4	43	14	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	6	4	48	16	8
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	55	0	108	52
Stage 1	-	-	-	-	52	-
Stage 2	-	-	-	-	56	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1550	-	889	1016
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	967	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1550	-	886	1016
Mov Cap-2 Maneuver	-	-	-	-	886	-
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	964	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.6		9		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	925	-	-	1550	-	
HCM Lane V/C Ratio	0.025	-	-	0.003	-	
HCM Control Delay (s)	9	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Greenville Highway Apartments - Hendersonville, NC
5: Site Access & Chadwick Avenue

2023 Build
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	16	6	90	10	4
Future Vol, veh/h	65	16	6	90	10	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	18	7	100	11	4
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	90	0	195	81
Stage 1	-	-	-	-	81	-
Stage 2	-	-	-	-	114	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1505	-	794	979
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	911	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1505	-	790	979
Mov Cap-2 Maneuver	-	-	-	-	790	-
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	906	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.5		9.4	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	836	-	-	1505	-	
HCM Lane V/C Ratio	0.019	-	-	0.004	-	
HCM Control Delay (s)	9.4	-	-	7.4	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

APPENDIX J

SIMTRAFFIC QUEUEING REPORTS

Intersection: 1: Greenville Highway & Shopping Center Entrance /Spartanburg Highway

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	LT	R	L	T	TR	L	L	TR
Maximum Queue (ft)	50	29	132	114	24	25	179	249	224	394	126
Average Queue (ft)	11	7	53	39	1	5	55	94	134	201	45
95th Queue (ft)	37	26	109	89	17	18	136	197	245	325	100
Link Distance (ft)	342			1109	1109		280	280		598	598
Upstream Blk Time (%)								0			
Queuing Penalty (veh)								0			
Storage Bay Dist (ft)		75	200			125			125		
Storage Blk Time (%)					0		2		5	27	
Queuing Penalty (veh)					0		0		10	52	

Intersection: 2: Greenville Highway & Chadwick Square/Chadwick Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	48	54	116	124
Average Queue (ft)	17	23	37	33
95th Queue (ft)	44	47	85	89
Link Distance (ft)	725	1254	618	1429
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Spartanburg Highway

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	L	LTR	LT	R
Maximum Queue (ft)	31	3	39	54	47	40
Average Queue (ft)	7	0	11	21	18	14
95th Queue (ft)	25	2	36	47	43	40
Link Distance (ft)		1109		663	614	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	75		100			85
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	TR	L	T	R
Maximum Queue (ft)	281	185	46	36	95	124	22	151	116
Average Queue (ft)	136	32	6	7	49	46	1	46	33
95th Queue (ft)	227	94	27	26	85	104	11	110	84
Link Distance (ft)	920		557			1429		280	280
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		150		50	25		75		
Storage Blk Time (%)	8		1	0	51	9		4	
Queuing Penalty (veh)	5		0	0	110	6		0	

Network Summary

Network wide Queuing Penalty: 183

Intersection: 1: Greenville Highway & Shopping Center Entrance /Spartanburg Highway

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	LT	L	T	TR	L	L	TR
Maximum Queue (ft)	168	99	216	200	21	266	289	225	442	379
Average Queue (ft)	75	12	106	71	2	156	198	172	235	131
95th Queue (ft)	134	55	187	148	12	250	283	248	347	273
Link Distance (ft)	342			1109		280	280		598	598
Upstream Blk Time (%)						0	1		0	
Queuing Penalty (veh)						0	3		0	
Storage Bay Dist (ft)		75	200		125			125		
Storage Blk Time (%)	23	0	1	0		16		6	36	
Queuing Penalty (veh)	8	0	1	0		1		18	105	

Intersection: 2: Greenville Highway & Chadwick Square/Chadwick Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	76	85	122	175
Average Queue (ft)	25	36	52	79
95th Queue (ft)	59	67	104	150
Link Distance (ft)	725	1254	618	1429
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Spartanburg Highway

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	T	TR	LTR	LT	R
Maximum Queue (ft)	57	9	61	24	7	106	56	60
Average Queue (ft)	10	0	21	1	0	41	23	27
95th Queue (ft)	36	4	52	17	5	80	50	53
Link Distance (ft)		1109		1183	1183	663	614	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75		100					85
Storage Blk Time (%)	0		0	0			0	0
Queuing Penalty (veh)	1		0	0			0	0

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	TR	L	T	R
Maximum Queue (ft)	314	221	58	49	124	301	45	215	159
Average Queue (ft)	148	65	18	13	93	112	6	81	59
95th Queue (ft)	258	160	47	39	137	232	29	172	128
Link Distance (ft)	920		557			1429		280	280
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		150		50	25		75		
Storage Blk Time (%)	13	0	5	1	67	17	0	12	
Queuing Penalty (veh)	13	0	1	0	215	23	0	3	

Network Summary

Network wide Queuing Penalty: 393

Intersection: 1: Shopping Center Entrance & Greenville Highway

Movement	EB	EB	WB	SB
Directions Served	R	R	T	TR
Maximum Queue (ft)	68	43	66	116
Average Queue (ft)	25	11	22	50
95th Queue (ft)	57	35	54	103
Link Distance (ft)	975	975	62	57
Upstream Blk Time (%)			0	4
Queuing Penalty (veh)			0	13
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Greenville Highway & Chadwick Square/Chadwick Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	48	60	98	114
Average Queue (ft)	14	24	35	35
95th Queue (ft)	40	50	82	88
Link Distance (ft)	1021	1250	982	1436
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Chadwick Avenue & Spartanburg Highway

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	L	LTR	LT	R
Maximum Queue (ft)	31	3	43	54	41	39
Average Queue (ft)	4	0	13	22	19	13
95th Queue (ft)	20	2	38	46	42	38
Link Distance (ft)		540		663	1013	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	75		100			85
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	R
Maximum Queue (ft)	236	291	172	236	216	189	226	102	116	84
Average Queue (ft)	66	147	101	131	130	95	127	48	85	34
95th Queue (ft)	141	243	160	210	205	162	208	94	129	72
Link Distance (ft)		1057	978	978		1436		47	47	47
Upstream Blk Time (%)								25	46	6
Queuing Penalty (veh)								29	52	7
Storage Bay Dist (ft)	200				500		600			
Storage Blk Time (%)		4								
Queuing Penalty (veh)		3								

Intersection: 10: Greenville Highway & Spartanburg Highway

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	T	R	R	T	TR
Maximum Queue (ft)	66	128	148	173	141	133
Average Queue (ft)	21	94	6	17	65	70
95th Queue (ft)	55	140	55	92	125	119
Link Distance (ft)	30	30	510	510	61	61
Upstream Blk Time (%)	7	33			6	8
Queuing Penalty (veh)	16	79			12	15
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 17: Greenville Highway

Movement	NB	NB
Directions Served	T	T
Maximum Queue (ft)	8	11
Average Queue (ft)	0	0
95th Queue (ft)	6	8
Link Distance (ft)	89	89
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 18: Greenville Highway

Movement	SB
Directions Served	L
Maximum Queue (ft)	110
Average Queue (ft)	15
95th Queue (ft)	62
Link Distance (ft)	901
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Greenville Highway

Movement	NB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	4	78	155
Average Queue (ft)	0	6	37
95th Queue (ft)	3	45	112
Link Distance (ft)	47		208
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		0	9
Queuing Penalty (veh)		0	10

Network Summary

Network wide Queuing Penalty: 237

Intersection: 1: Shopping Center Entrance & Greenville Highway

Movement	EB	EB	WB	SB
Directions Served	R	R	T	TR
Maximum Queue (ft)	133	78	53	134
Average Queue (ft)	67	24	12	66
95th Queue (ft)	118	61	39	119
Link Distance (ft)	975	975	62	57
Upstream Blk Time (%)			0	8
Queuing Penalty (veh)			0	28
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Greenville Highway & Chadwick Square/Chadwick Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	54	68	145	195
Average Queue (ft)	19	36	53	80
95th Queue (ft)	46	62	112	157
Link Distance (ft)	1021	1250	982	1436
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Chadwick Avenue & Spartanburg Highway

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	27	6	60	8	89	56	61
Average Queue (ft)	8	0	22	0	38	23	30
95th Queue (ft)	28	3	51	4	69	53	52
Link Distance (ft)		540		1183	663	1013	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75		100				85
Storage Blk Time (%)						0	0
Queuing Penalty (veh)						0	0

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	R
Maximum Queue (ft)	215	307	238	324	249	131	202	106	122	102
Average Queue (ft)	49	147	120	137	124	68	101	61	103	52
95th Queue (ft)	132	271	201	251	209	118	164	111	122	97
Link Distance (ft)		1057	978	978		1436		47	47	47
Upstream Blk Time (%)								30	51	10
Queuing Penalty (veh)								51	88	17
Storage Bay Dist (ft)	200				500		600			
Storage Blk Time (%)	1	5								
Queuing Penalty (veh)	1	3								

Intersection: 10: Greenville Highway & Spartanburg Highway

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	T	R	R	T	TR
Maximum Queue (ft)	76	124	21	96	101	122
Average Queue (ft)	25	106	1	5	47	63
95th Queue (ft)	62	140	15	44	87	107
Link Distance (ft)	30	30	510	510	61	61
Upstream Blk Time (%)	9	38			3	6
Queuing Penalty (veh)	24	105			5	9
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 17: Greenville Highway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 18: Greenville Highway

Movement	SB	SB
Directions Served	L	T
Maximum Queue (ft)	97	12
Average Queue (ft)	24	0
95th Queue (ft)	76	6
Link Distance (ft)	901	901
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 19: Greenville Highway

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	149	219	40
Average Queue (ft)	13	77	2
95th Queue (ft)	72	168	19
Link Distance (ft)		208	208
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		1	
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	0	15	
Queuing Penalty (veh)	1	26	

Network Summary

Network wide Queuing Penalty: 359

Intersection: 1: Shopping Center Entrance & Greenville Highway

Movement	EB	EB	WB	SB
Directions Served	R	R	T	TR
Maximum Queue (ft)	75	43	57	112
Average Queue (ft)	30	9	22	46
95th Queue (ft)	61	32	52	92
Link Distance (ft)	975	975	62	57
Upstream Blk Time (%)			0	4
Queuing Penalty (veh)			0	11
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Greenville Highway & Chadwick Square/Chadwick Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	45	70	106	122
Average Queue (ft)	15	30	37	38
95th Queue (ft)	39	56	84	92
Link Distance (ft)	1021	143	982	1436
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Chadwick Avenue & Spartanburg Highway

Movement	EB	WB	WB	NB	SB	SB
Directions Served	L	L	TR	LTR	LT	R
Maximum Queue (ft)	34	43	4	62	36	30
Average Queue (ft)	7	12	0	28	15	12
95th Queue (ft)	26	38	3	50	38	36
Link Distance (ft)			1183	664	1013	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	75	100				85
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	R
Maximum Queue (ft)	146	325	205	247	227	168	255	106	122	93
Average Queue (ft)	69	152	110	132	127	94	129	49	90	37
95th Queue (ft)	129	260	189	210	212	155	220	100	128	76
Link Distance (ft)		1057	978	978		1436		47	47	47
Upstream Blk Time (%)								24	49	7
Queuing Penalty (veh)								27	55	8
Storage Bay Dist (ft)	200				500		600			
Storage Blk Time (%)		4								
Queuing Penalty (veh)		4								

Intersection: 5: Site Access & Chadwick Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	12	31
Average Queue (ft)	0	14
95th Queue (ft)	6	39
Link Distance (ft)	1055	557
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Greenville Highway & Spartanburg Highway

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	T	R	R	T	TR
Maximum Queue (ft)	65	132	51	102	120	124
Average Queue (ft)	21	97	2	8	63	71
95th Queue (ft)	54	138	26	58	109	116
Link Distance (ft)	30	30	510	510	61	61
Upstream Blk Time (%)	6	34			6	9
Queuing Penalty (veh)	14	81			11	17
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 17: Greenville Highway

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 18: Greenville Highway

Movement

SB

Directions Served L
Maximum Queue (ft) 83
Average Queue (ft) 11
95th Queue (ft) 50
Link Distance (ft) 901
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 19: Greenville Highway

Movement

NB

SB

SB

SB

Directions Served R T T T
Maximum Queue (ft) 10 86 150 8
Average Queue (ft) 0 5 32 0
95th Queue (ft) 5 35 98 5
Link Distance (ft) 47 208 208
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft) 50
Storage Blk Time (%) 0 8
Queuing Penalty (veh) 0 8

Network Summary

Network wide Queuing Penalty: 237

Intersection: 1: Shopping Center Entrance & Greenville Highway

Movement	EB	EB	WB	SB
Directions Served	R	R	T	TR
Maximum Queue (ft)	142	74	31	146
Average Queue (ft)	64	25	9	68
95th Queue (ft)	111	59	30	124
Link Distance (ft)	975	975	62	57
Upstream Blk Time (%)				9
Queuing Penalty (veh)				30
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Greenville Highway & Chadwick Square/Chadwick Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	78	137	189
Average Queue (ft)	20	37	53	86
95th Queue (ft)	49	64	108	160
Link Distance (ft)	1021	143	982	1436
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Chadwick Avenue & Spartanburg Highway

Movement	EB	WB	WB	NB	SB	SB
Directions Served	L	L	TR	LTR	LT	R
Maximum Queue (ft)	35	48	20	94	63	63
Average Queue (ft)	10	18	1	40	23	27
95th Queue (ft)	31	45	10	80	53	52
Link Distance (ft)			1183	664	1013	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	75	100				85
Storage Blk Time (%)					0	0
Queuing Penalty (veh)					0	0

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	R
Maximum Queue (ft)	196	329	240	264	222	140	197	110	123	100
Average Queue (ft)	48	144	126	138	122	73	104	63	102	48
95th Queue (ft)	118	267	211	231	196	118	169	112	123	93
Link Distance (ft)		1057	978	978		1436		47	47	47
Upstream Blk Time (%)								28	50	10
Queuing Penalty (veh)								48	87	17
Storage Bay Dist (ft)	200				500		600			
Storage Blk Time (%)		3								
Queuing Penalty (veh)		2								

Intersection: 5: Site Access & Chadwick Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	36
Average Queue (ft)	0	10
95th Queue (ft)	6	35
Link Distance (ft)	1055	557
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Greenville Highway & Spartanburg Highway

Movement	EB	EB	WB	NB	NB
Directions Served	T	T	R	T	TR
Maximum Queue (ft)	78	146	87	91	105
Average Queue (ft)	26	102	6	46	62
95th Queue (ft)	64	143	44	83	97
Link Distance (ft)	30	30	510	61	61
Upstream Blk Time (%)	9	36		3	6
Queuing Penalty (veh)	24	100		4	9
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 17: Greenville Highway

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 18: Greenville Highway

Movement	SB	SB	SB
Directions Served	L	L	T
Maximum Queue (ft)	120	166	62
Average Queue (ft)	4	26	2
95th Queue (ft)	45	97	35
Link Distance (ft)		901	901
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 19: Greenville Highway

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	139	224	61
Average Queue (ft)	22	84	3
95th Queue (ft)	100	184	29
Link Distance (ft)		208	208
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		2	
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	0	19	
Queuing Penalty (veh)	1	33	

Network Summary

Network wide Queuing Penalty: 357

Intersection: 1: Shopping Center Entrance & Greenville Highway

Movement	EB	EB	WB	SB
Directions Served	R	R	T	TR
Maximum Queue (ft)	76	39	83	133
Average Queue (ft)	30	9	31	52
95th Queue (ft)	60	32	69	106
Link Distance (ft)	975	975	62	57
Upstream Blk Time (%)			2	5
Queuing Penalty (veh)			1	16
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	R
Maximum Queue (ft)	202	358	272	300	244	243	278	106	119	94
Average Queue (ft)	70	182	137	159	152	132	168	55	94	39
95th Queue (ft)	160	295	226	260	235	219	263	102	127	81
Link Distance (ft)		1057	972	972		807		47	47	47
Upstream Blk Time (%)								29	56	9
Queuing Penalty (veh)								37	72	11
Storage Bay Dist (ft)	200				500		600			
Storage Blk Time (%)		7								
Queuing Penalty (veh)		7								

Intersection: 10: Greenville Highway & Spartanburg Highway

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	T	R	R	T	TR
Maximum Queue (ft)	56	138	177	42	114	140
Average Queue (ft)	18	100	42	2	53	77
95th Queue (ft)	51	137	149	26	98	132
Link Distance (ft)	30	30	735	735	62	62
Upstream Blk Time (%)	5	34			6	10
Queuing Penalty (veh)	15	96			13	22
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 17: Greenville Highway

Movement	NB	NB
Directions Served	T	T
Maximum Queue (ft)	18	37
Average Queue (ft)	1	2
95th Queue (ft)	10	21
Link Distance (ft)	89	89
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 18: Greenville Highway

Movement	SB	SB	SB
Directions Served	L	L	T
Maximum Queue (ft)	28	104	5
Average Queue (ft)	1	17	0
95th Queue (ft)	19	65	3
Link Distance (ft)		901	901
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 19: Greenville Highway

Movement	NB	NB	SB	SB	SB
Directions Served	R	R	T	T	T
Maximum Queue (ft)	26	9	102	166	12
Average Queue (ft)	1	0	8	50	0
95th Queue (ft)	11	6	56	132	6
Link Distance (ft)	47	47		208	208
Upstream Blk Time (%)	0	0		0	
Queuing Penalty (veh)	0	0		0	
Storage Bay Dist (ft)			50		
Storage Blk Time (%)			0	13	
Queuing Penalty (veh)			0	16	

Network Summary

Network wide Queuing Penalty: 306

Intersection: 1: Shopping Center Entrance & Greenville Highway

Movement	EB	EB	WB	SB
Directions Served	R	R	T	TR
Maximum Queue (ft)	144	76	40	146
Average Queue (ft)	67	27	10	74
95th Queue (ft)	114	62	34	127
Link Distance (ft)	975	975	62	57
Upstream Blk Time (%)			0	10
Queuing Penalty (veh)			0	41
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	R
Maximum Queue (ft)	196	337	347	362	313	230	244	107	130	103
Average Queue (ft)	60	187	167	175	149	92	114	71	105	55
95th Queue (ft)	132	299	294	314	270	174	188	114	119	100
Link Distance (ft)		1057	972	972		807		47	47	47
Upstream Blk Time (%)								37	57	11
Queuing Penalty (veh)								70	108	21
Storage Bay Dist (ft)	200				500		600			
Storage Blk Time (%)		6			0					
Queuing Penalty (veh)		5			0					

Intersection: 10: Greenville Highway & Spartanburg Highway

Movement	EB	EB	WB	NB	NB
Directions Served	T	T	R	T	TR
Maximum Queue (ft)	82	142	166	89	117
Average Queue (ft)	25	110	19	41	67
95th Queue (ft)	65	143	98	76	104
Link Distance (ft)	30	30	735	62	62
Upstream Blk Time (%)	7	36		2	6
Queuing Penalty (veh)	22	120		4	10
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 17: Greenville Highway

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 18: Greenville Highway

Movement	SB	SB	SB
Directions Served	L	L	T
Maximum Queue (ft)	29	157	37
Average Queue (ft)	1	36	2
95th Queue (ft)	20	108	17
Link Distance (ft)		901	901
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 19: Greenville Highway

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	150	238	42
Average Queue (ft)	36	107	2
95th Queue (ft)	132	203	19
Link Distance (ft)		208	208
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		4	
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	1	25	
Queuing Penalty (veh)	2	47	

Network Summary

Network wide Queuing Penalty: 455

Intersection: 1: Shopping Center Entrance & Greenville Highway

Movement	EB	EB	WB	SB
Directions Served	R	R	T	TR
Maximum Queue (ft)	63	35	79	113
Average Queue (ft)	27	10	30	54
95th Queue (ft)	59	33	66	103
Link Distance (ft)	975	975	62	57
Upstream Blk Time (%)			2	5
Queuing Penalty (veh)			1	17
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	R
Maximum Queue (ft)	211	324	242	290	272	238	299	111	121	100
Average Queue (ft)	68	183	138	156	159	134	175	57	94	44
95th Queue (ft)	141	288	219	243	246	218	270	110	130	88
Link Distance (ft)		1057	972	972		807		47	47	47
Upstream Blk Time (%)								32	55	13
Queuing Penalty (veh)								41	70	16
Storage Bay Dist (ft)	200				500		600			
Storage Blk Time (%)		9								
Queuing Penalty (veh)		9								

Intersection: 10: Greenville Highway & Spartanburg Highway

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	T	R	R	T	TR
Maximum Queue (ft)	61	134	201	101	120	140
Average Queue (ft)	19	100	41	3	53	83
95th Queue (ft)	51	141	149	43	100	135
Link Distance (ft)	30	30	735	735	62	62
Upstream Blk Time (%)	5	34			7	12
Queuing Penalty (veh)	14	94			14	26
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Greenville Highway Apartments - Hendersonville, NC
Queuing and Blocking Report

2040 Build
AM Peak Hour

Intersection: 17: Greenville Highway

Movement	NB	NB
Directions Served	T	T
Maximum Queue (ft)	6	26
Average Queue (ft)	0	1
95th Queue (ft)	5	12
Link Distance (ft)	89	89
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 18: Greenville Highway

Movement	SB	SB	SB
Directions Served	L	L	T
Maximum Queue (ft)	28	109	10
Average Queue (ft)	1	19	0
95th Queue (ft)	19	69	7
Link Distance (ft)		901	901
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 19: Greenville Highway

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	123	166	16
Average Queue (ft)	12	47	1
95th Queue (ft)	67	125	9
Link Distance (ft)		208	208
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	1	12	
Queuing Penalty (veh)	1	15	

Network Summary

Network wide Queuing Penalty: 319

Intersection: 1: Shopping Center Entrance & Greenville Highway

Movement	EB	EB	WB	SB
Directions Served	R	R	T	TR
Maximum Queue (ft)	134	78	48	148
Average Queue (ft)	68	24	10	75
95th Queue (ft)	114	59	34	134
Link Distance (ft)	975	975	62	57
Upstream Blk Time (%)			0	10
Queuing Penalty (veh)			0	42
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Greenville Highway & White Street/Walgreens Entrance

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	R
Maximum Queue (ft)	199	333	339	302	270	195	240	113	129	108
Average Queue (ft)	60	191	167	160	149	101	121	70	105	62
95th Queue (ft)	140	306	285	256	244	173	201	119	118	112
Link Distance (ft)		1057	972	972		807		47	47	47
Upstream Blk Time (%)								39	60	15
Queuing Penalty (veh)								75	114	29
Storage Bay Dist (ft)	200				500		600			
Storage Blk Time (%)		8								
Queuing Penalty (veh)		6								

Intersection: 10: Greenville Highway & Spartanburg Highway

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	T	R	R	T	TR
Maximum Queue (ft)	84	140	154	51	118	130
Average Queue (ft)	25	112	21	3	41	71
95th Queue (ft)	63	141	103	33	90	111
Link Distance (ft)	30	30	735	735	62	62
Upstream Blk Time (%)	6	38			2	7
Queuing Penalty (veh)	21	124			4	13
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Greenville Highway Apartments - Hendersonville, NC
Queuing and Blocking Report

2040 Build
PM Peak Hour

Intersection: 17: Greenville Highway

Movement	NB	NB
Directions Served	T	T
Maximum Queue (ft)	11	4
Average Queue (ft)	0	0
95th Queue (ft)	8	3
Link Distance (ft)	89	89
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 18: Greenville Highway

Movement	SB	SB	SB
Directions Served	L	L	T
Maximum Queue (ft)	72	153	56
Average Queue (ft)	4	41	3
95th Queue (ft)	43	116	24
Link Distance (ft)		901	901
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 19: Greenville Highway

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	150	241	56
Average Queue (ft)	40	111	5
95th Queue (ft)	141	224	30
Link Distance (ft)		208	208
Upstream Blk Time (%)		2	
Queuing Penalty (veh)		7	
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	2	24	
Queuing Penalty (veh)	3	46	

Network Summary

Network wide Queuing Penalty: 484

