

Traffic Impact Analysis
for
Crescent Hill Multifamily Development

Located in
Arden, North Carolina

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JMTE #: WAYN 1099

Traffic Impact Analysis

Crescent Hill Multifamily Development

Arden, North Carolina

Documentation Prepared by:



— Est. 2010 —

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May 2021

A circular red professional engineer seal for David W. Hyder, P.E. The seal contains the text "NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 13387" around the perimeter and "DAVID W. HYDER" at the bottom. A handwritten signature in black ink is written across the seal. Below the seal, the text "David W. Hyder, P.E." is printed, followed by the date "May 7, 2021".

David W. Hyder, P.E.
May 7, 2021

Revision History

Action	Description	Date
Final	Report Sealed	May 7, 2021
Revision 1	Replaced Fig. 3 and revised description of proposed mitigation	May 10, 2021

Executive Summary

Topic	Page(s)
Proposed Facility	1
A multifamily residential development is proposed to be built in Arden, NC on 10.2 acres of vacant land located along Crescent Hill Drive. The site development plan consists of 252 multifamily residential units. The area around the site consists of a church and single-family homes.	
Access Point Studied	1
The proposed development will have access points onto Crescent Hill Road (SR 3531) and Watson Road (SR 3530).	
Existing & Proposed Level of Service	
The intersections operating at LOS E or LOS F in 2021 and under build-out conditions (2022) are: US 25 (Hendersonville Road) and NC-280 (Airport Road), NC 280 (Airport Road) and Old Airport Road (SR 1547), and NC 280 (Airport Road) and Watson Road. All other intersections and approaches operate at LOS D or better in both 2021 and 2022.	
Traffic Counts	Table 1 (Page 5), Figure 5, Appendix C
Peak hour turning movement counts (7:00 - 9:00 AM & 4:00 - 6:00 PM) were conducted on Thursday, March 18, 2021, at the existing studied intersections. Table 1 shows the AM and PM peak periods for each intersection. Figure 6 shows the traffic movements at each intersection and Appendix C shows the actual counts.	
Development Traffic	18
The development is projected to generate 1,372 daily trips, 85 AM peak hour trips, and 108 PM peak hour trips.	
Proposed Mitigation	36
If additional right of way is available at the southwest corner of Crescent Hill Drive and US 25 (Hendersonville Road), separate left and right turn lanes could be constructed to reduce delay and provide convenience for current and future users. (See Figure 11)	

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Appendices

- Appendix A – NCDOT TIA Scoping Checklist
- Appendix B – Synchro and SimTraffic Reports
- Appendix C – Turning Movement Counts
- Appendix D – Traffic Signal Plans
- Appendix E – Turn Lane Warrant Analysis

Introduction and Background

This report summarizes the findings of the Traffic Impact Analysis (TIA) performed for the proposed Crescent Hill Multifamily Development. Figure 1 locates Arden in the region and Figure 2 shows the site location within Arden. Figure 3 shows the Crescent Hill Multifamily Development is proposed to be built on 10.2 acres of vacant land is in located southwest of the intersection of US 25 (Hendersonville Road) and NC 280 (Airport Road)/US 25 Alternate (Sweeten Creek Road). The proposed site is located within Arden, an unincorporated community located in southern Buncombe County, North Carolina, south of the City of Asheville. The purpose of this study is to determine the impact of the anticipated traffic associated with this development and its effect on the intersections listed in the Parameters and Study Area section of the report. The traffic generated by the development will be added to the background traffic, and then analyzed to determine any potential adverse traffic impacts on the adjacent roadway network from the proposed development.

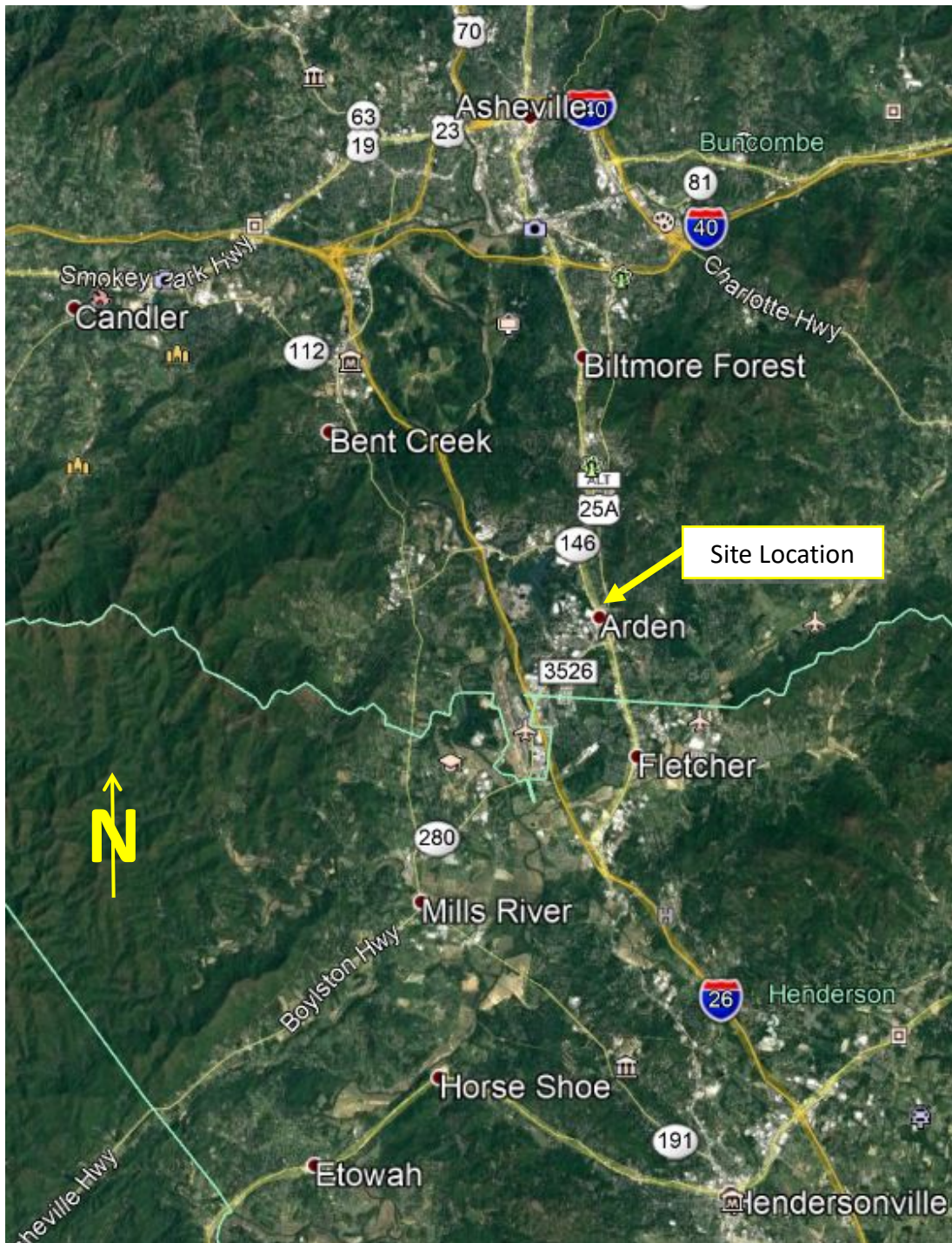


Figure 1 Region of Proposed Site

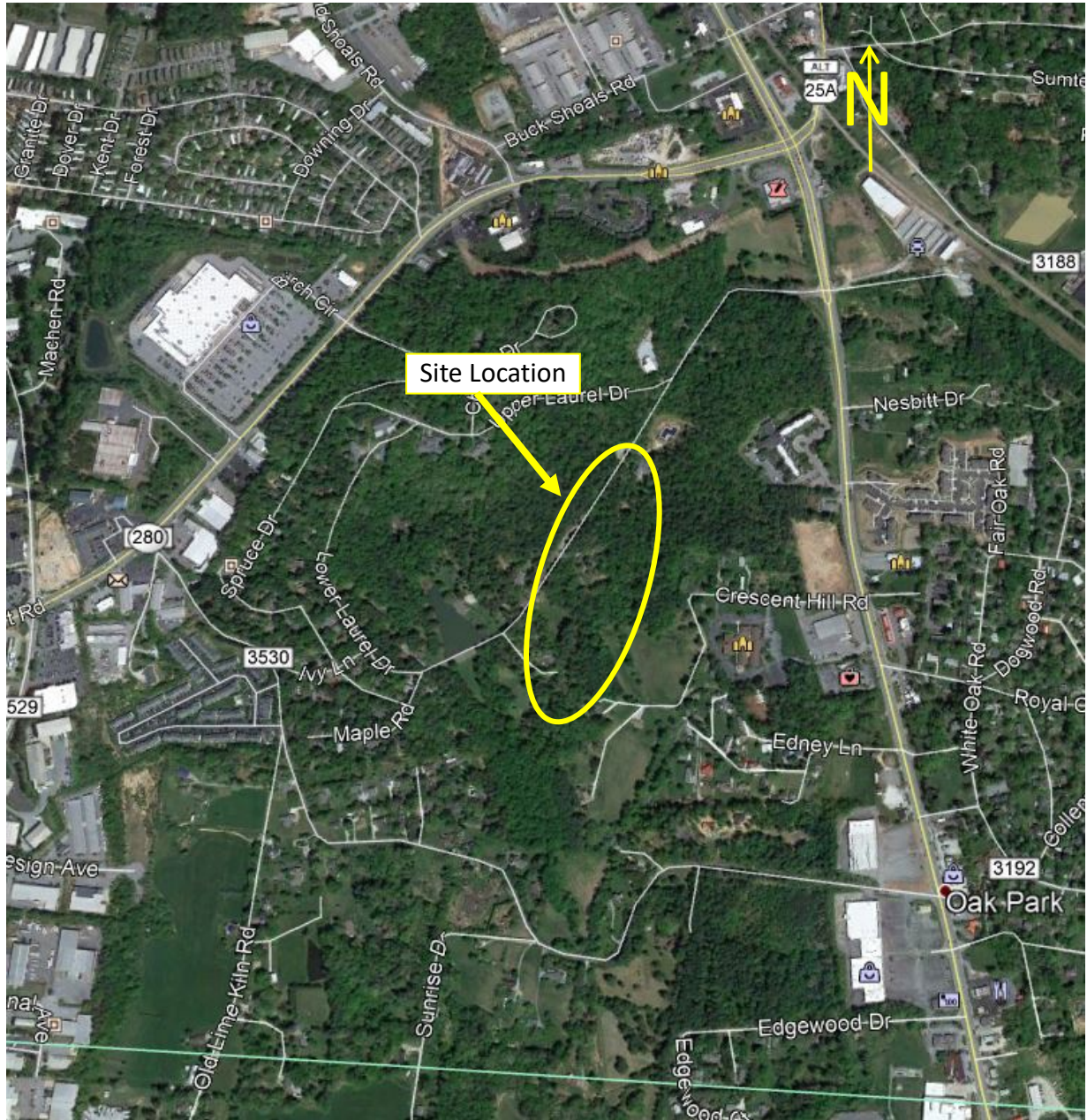


Figure 2 Proposed Site Location

Proposed Site Use and Access

Figure 3 shows the preliminary development plan consisting of 252 multifamily units. The proposed development will have an access point along Watson Road (SR 3530) approximately 0.44 miles west of US 25 (Hendersonville Road) and an access point on Crescent Hill Drive (SR 3531) approximately 0.18 miles west of US 25 (Hendersonville Road).

**CRESCENT HILL
APARTMENT
HOMES**

BUNCOMBE COUNTY
NORTH CAROLINA

**Preliminary
Not For
Construction**

REVISIONS

DATE	DESCRIPTION



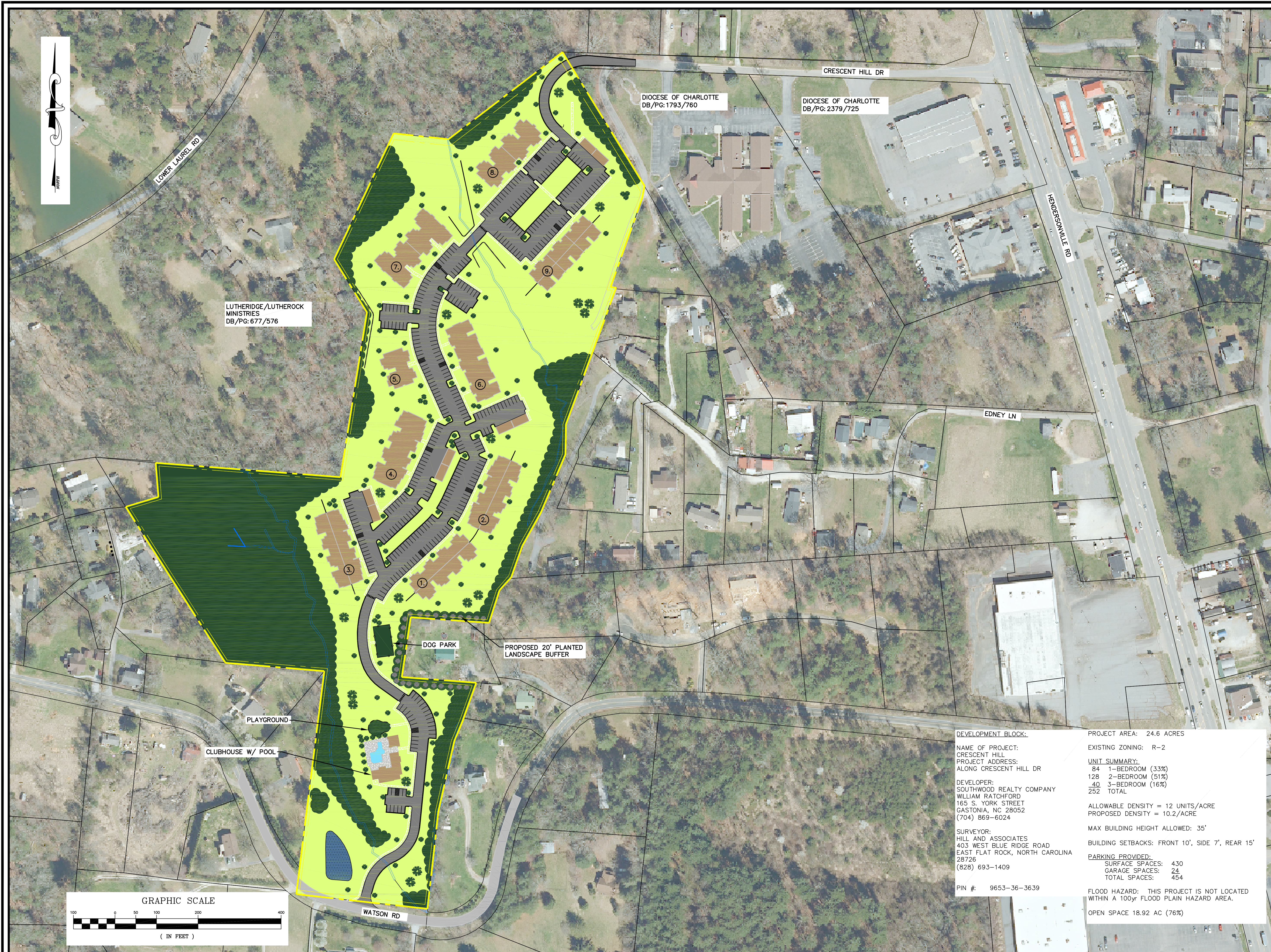
Know what's below.
Call before you dig.

PROJECT NUMBER: 20162
DATE: 4-5-21
DRAWN BY: CTC
CHECKED BY: GTJ

MASTER PLAN

C-100

SCALE: 1"=100'



LUTHERIDGE/LUTHEROCK
MINISTRIES
DB/PG: 677/576

DIOCESE OF CHARLOTTE
DB/PG: 1793/760

DIOCESE OF CHARLOTTE
DB/PG: 2379/725

DOG PARK

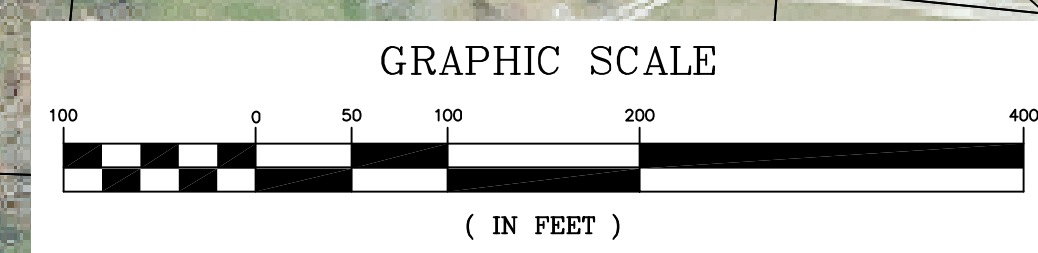
PROPOSED 20' PLANTED
LANDSCAPE BUFFER

PLAYGROUND

CLUBHOUSE W/ POOL

DEVELOPMENT BLOCK:
NAME OF PROJECT: CRESCENT HILL
PROJECT ADDRESS: ALONG CRESCENT HILL DR
DEVELOPER: SOUTHWOOD REALTY COMPANY
WILLIAM RATCHFORD
165 S. YORK STREET
GASTONIA, NC 28052
(704) 869-6024
SURVEYOR: HILL AND ASSOCIATES
403 WEST BLUE RIDGE ROAD
EAST FLAT ROCK, NORTH CAROLINA
28726
(828) 693-1409
PIN #: 9653-36-3639

PROJECT AREA: 24.6 ACRES
EXISTING ZONING: R-2
UNIT SUMMARY:
84 1-BEDROOM (33%)
128 2-BEDROOM (51%)
40 3-BEDROOM (16%)
252 TOTAL
ALLOWABLE DENSITY = 12 UNITS/ACRE
PROPOSED DENSITY = 10.2/ACRE
MAX BUILDING HEIGHT ALLOWED: 35'
BUILDING SETBACKS: FRONT 10', SIDE 7', REAR 15'
PARKING PROVIDED:
SURFACE SPACES: 430
GARAGE SPACES: 24
TOTAL SPACES: 454
FLOOD HAZARD: THIS PROJECT IS NOT LOCATED
WITHIN A 100yr FLOOD PLAIN HAZARD AREA.
OPEN SPACE 18.92 AC (76%)



Parameters and Study Area

This study follows NCDOT’s TIA process including NCDOT’s concurrence on scope and parameters. A copy of the approved NCDOT TIA Checklist is included in Appendix A.

Table 1 shows the intersections studied in this TIA. Peak hour turning movement counts (7:00 - 9:00 AM & 4:00 - 6:00 PM) were conducted on Tuesday, March 9, 2021, at the existing studied intersections. From these counts, AM and PM peak hours were determined for the AM and PM peak periods. AM and PM peak hours for each intersection were analyzed for existing, background, and full build-out traffic conditions. Table 1 also shows the AM and PM peak hours for the intersections.

Table 1: Studied Intersections

Main Line	Cross Street	AM Peak	PM Peak
US 25 (Hendersonville Road)	NC 280 (Airport Road) /US 25 Alternate (Sweeten Creek Road)	7:15 AM – 8:15 AM	4:30 PM – 5:30 PM
US 25 (Hendersonville Road)	Crescent Hill Drive / Access Drive 1 (SR 3531)	7:15 AM – 8:15 AM	4:30 PM – 5:30 PM
US 25 (Hendersonville Road)	Royal Oaks Road (SR 3190)	7:15 AM – 8:15 AM	4:30 PM – 5:30 PM
US 25 (Hendersonville Road)	Watson Road (SR 3530)	7:15 AM – 8:15 AM	4:45 PM – 5:45 PM
US 25 (Hendersonville Road)	Old Airport Road (SR 1547)	7:15 AM – 8:15 AM	4:30 PM – 5:30 PM
NC 280 (Airport Road)	Watson Road (SR 3530)	7:15 AM – 8:15	4:45 PM – 5:45 PM
Watson Road (SR 3530)	Access Drive 2	NA	NA

Other roadway inventory collected included posted speed limits, roadway geometrics, turn lane taper, storage lengths, and existing traffic signal timings. Additional analysis parameters for the analysis are included in Table 2 (at right).

Parameter	Value
Build-out Year	2022
Annual Growth Rate	2.0%
Build-out Peak Hour Factor (PHF)	0.90

Surrounding Land Uses

Arden is an unincorporated community located south of Asheville in Buncombe County, North Carolina. The immediate areas surrounding the proposed site consist of a church and multiple single-family home sites.

Surrounding Roadways

According to NCDOT's Online GIS, US 25 (Hendersonville Road) is classified as a United States route. US 25 (Hendersonville Road) is a four-lane two-way road with a two-way left-turn lane within the study area. The posted speed limit is 45 mph. According to NCDOT data, the Average Annual Daily Traffic (AADT) on US 25 (Hendersonville Road) was 30,500 vehicles per day (vpd) south of the intersection with US 25 Alternate (Sweeten Creek Road) in 2018, the AADT was 24,000 vpd between Crescent Hill Drive and Royal Oaks Road in 2016, and the AADT was 31,000 vpd between Watson Road and Old Airport Road in 2018.

NCDOT's Online GIS classifies NC 280 (Airport Road) as a North Carolina route. NC 280 (Airport Road) is a four-lane two-way road with a two-way left-turn lane within the study area. The posted speed limit is 45 mph. The AADT on NC 280 (Airport Road) west of the intersection with US 25 (Hendersonville Road) was 24,000 vpd in 2018.

NCDOT's Online GIS classifies US 25 Alternate (Sweeten Creek Road) as a United States route. US 25 Alternate (Sweeten Creek Road) is a two-lane two-way road with a posted speed limit of 45 mph. The AADT on US 25 Alternate (Sweeten Creek Road) northeast of the intersection with US 25 (Hendersonville Road) was 16,000 vpd in 2018.

NCDOT's Online GIS classifies Crescent Hill Drive (SR 3531) as a secondary route. Crescent Hill Drive (SR 3531) is a two-lane two-way road. The speed limit was not available at the time of the study. From traffic data collected, it shows that the daily traffic is approximately 530 vpd in 2020.

NCDOT's Online GIS classifies Royal Oaks Road (SR 3190) as a secondary route. Royal Oaks Road (SR 3190) is a two-lane two-way road with a subdivision posted speed limit of 25 mph. The AADT on Royal Oaks Road (SR 3190) east of US 25 (Hendersonville Road) was 990 vpd in 2016. NCDOT's Online GIS classifies Watson Road (SR 3530) as a secondary route. Watson Road (SR 3530) is a two-lane two-way road with a posted speed limit of 25 mph. From traffic data collected, the daily traffic is approximately 2,410 vpd in 2020.

NCDOT's Online GIS classifies Old Airport Road (SR 1547) as a secondary route. Old Airport Road (SR 1547) is a two-lane two-way road with a two-way left-turn lane. The posted speed limit is 35 mph. The AADT on Old Airport Road (SR 1547) east of the intersection with US 25 (Hendersonville Road) was 11,500 vpd in 2018.

Analysis Method

A traffic impact analysis is a method of determining the impacts of new development traffic on the surrounding roadway. This is done by comparing the effects of additional traffic generated

by the site to the traffic that would normally use the road network upon completion of the development. This traffic is defined as background traffic. Figure 4 is an outline of the process.

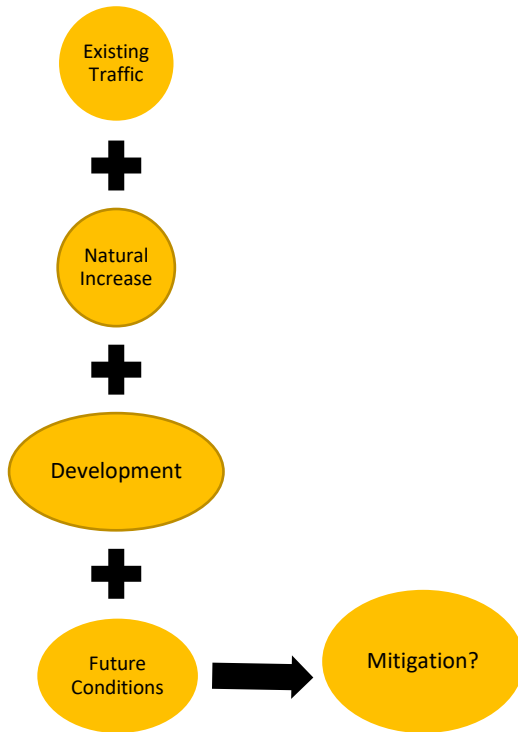


Figure 4 Analysis Flowchart

Background traffic is the traffic that would be at the studied intersections in the build-out year (2022), without the proposed development. Background traffic is the existing traffic plus and any change in volumes caused by the general growth trends in the area or nearby specific developments. It also assumes no significant roadway geometric changes from the existing condition scenario. A growth factor of 2% was used for this study up to the anticipated project completion year (build-out) of 2022. The site-generated traffic is added to the background traffic to determine the build-out traffic. These two numbers, background and build-out, are then compared to determine the overall impact that the development traffic has on the roadway.

The studied intersections were analyzed using Synchro. Synchro is a specialized software package that allows the user to model intersections and roadway networks to determine levels of service (LOS), based on the thresholds specified in the Highway Capacity Manual (HCM) published by the Transportation Research Board. Synchro also gives an analysis of capacity, vehicle delay, volume to capacity ratio (v/c), queue lengths, traffic signal timing, and vehicle flow rate.

Sim Traffic was also used, which is an extension of Synchro that allows the user to better model closely spaced intersections. This animation software allows the user to see traffic moving through the study intersections.

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The HCM defines peak hour factor (PHF) as the hourly volume during the maximum-volume hour of the day divided by the highest 15-minute flow rate during the peak hour. PHF is a measure of traffic demand fluctuations during the peak hour. A PHF of 1.0 means that traffic during the peak is steady. The smaller the PHF the more variable traffic is during the peak hour. The HCM recommended default values are based on data collected throughout the United States. The HCM lists the peak hour factor of 0.88 for Rural and 0.92 for Urban conditions. A peak hour factor of 0.90 was used, which is the median value between these two factors and is the recommended PHF recommended by NCDOT for background and build-out Synchro software simulations.

The HCM defines capacity as “the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point 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, with respect to traffic congestion. It is defined as a “qualitative measure describing operational and perceptual conditions within a traffic stream”. LOS “A” represents free-flow traffic conditions with no congestion. LOS “F” represents severely impacted traffic flow due to vehicle congestion. LOS is generally determined by the total “Control Delay” experienced by drivers (Control delay is vehicle delay that is ultimately caused by the traffic control device. This includes deceleration delay, queue move-up time delay, stopped delay, and acceleration delay). Table 3 shows typical delays associated with each Level of Service for intersections.

Table 3: Highway Capacity Manual Level of Service and Delay

Level of Service	Average Control Delay Per Vehicle (Seconds)	
	Un-signalized Intersection	Signalized Intersection
A	0-10	0-10
B	10-15	10-20
C	15-25	20-35
D	25-35	35-55
E	35-50	55-80
F	> 50	> 80

A well-designed transportation system balances travel efficiency with construction cost. That means that roads will have more traffic during peak periods than during non-peak times.

The analysis for un-signalized intersections can project very high delays on the side street, thus it is recommended to use LOS measurements as a comparative tool rather than a design tool. The 95th percentile queue the vehicle queue (back-up) that has a 5% probability of being exceeded during the analysis period. At un-signalized intersections, p_0 (queue free percent) is the probability of there being no backup.

Existing Traffic

To determine existing traffic, peak period turning movement counts were conducted at the existing intersections listed above and in accordance with the methodology previously explained.

The U-turn volumes were combined with the left turn volumes for the Synchro and Sim Traffic analysis for the following times and locations:

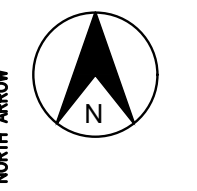
- PM traffic count at US 25 (Hendersonville Road) at NC 280 (Airport Road) northbound and eastbound approaches, and

- AM and PM traffic count at US 25 (Hendersonville Road) at Old Airport Road (SR 1547) southbound approaches.

Figure 5 shows the 2021 peak hour volumes. The existing lane diagram is shown in Figure 6. The existing turning movement counts are in Appendix C.

Volume Balancing

The *NCDOT Congestion Management Capacity Analysis Guidelines* recommend that: “All efforts should be made to ensure that upstream and downstream traffic volumes along corridors balance and maintain continuity. If balanced volumes are not attainable, explanation should be provided.” In this case, the differences in the AM and PM traffic volumes on the segment between NC 280 (Airport Road) & Watson Road to NC 280 (Airport Road) and US 25 (Hendersonville Road) are attributable to the Walmart Supercenter and a large residential neighborhood situated midway between these intersections. To adjust these traffic flows to comply with the recommended guidelines, in this case, would mean applying significant adjustments to the inbound and outbound flows in the range of triple digits, rendering the analyses unreflective of actual, or projected conditions with the proposed buildout of the project. It was thought to be more technically sound to analyze the actual unbalanced traffic to determine the true anticipated impact of the proposed development.



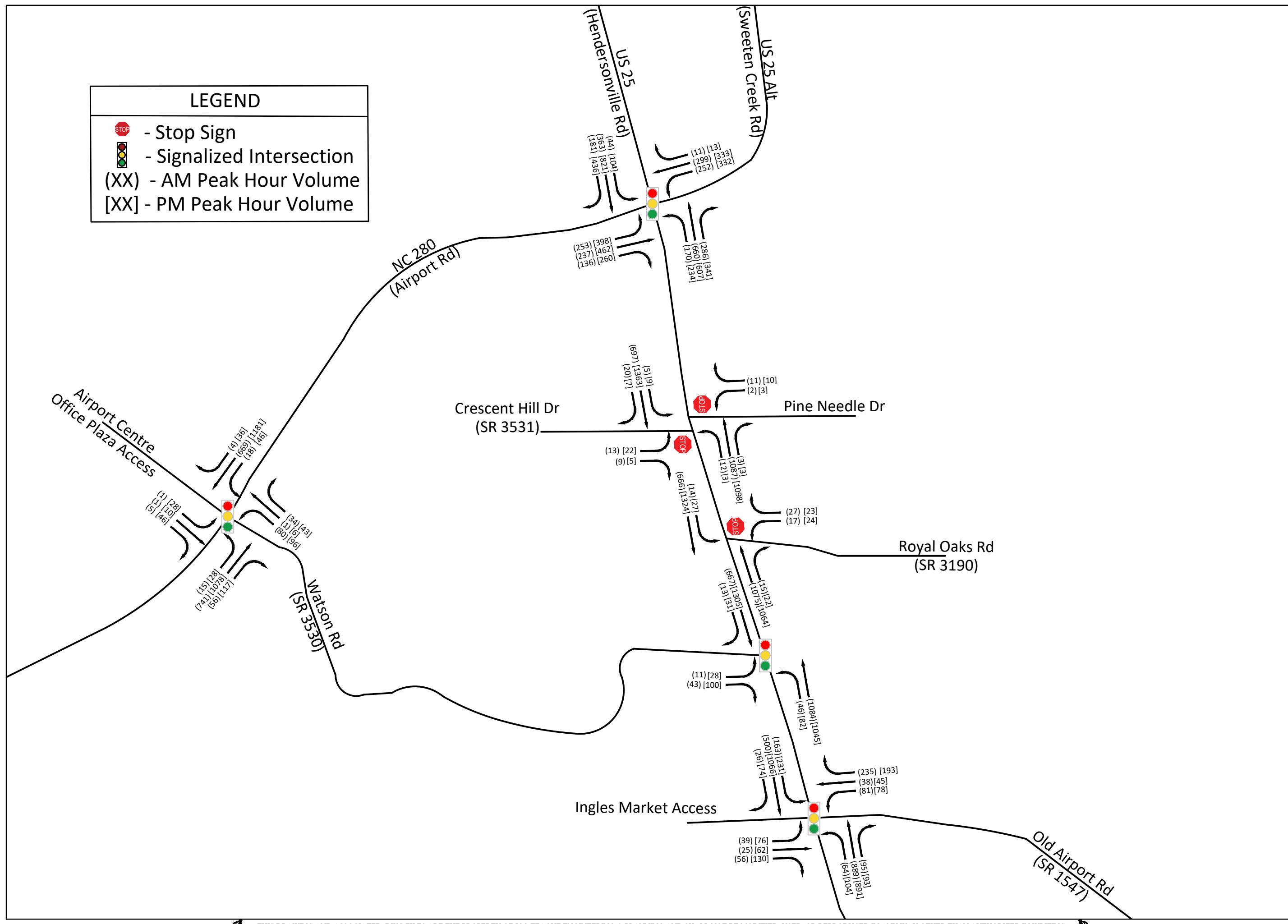
SHEET TITLE
EXISTING
AM & PM
PEAK HOUR TRAFFIC




PROJECT:
CRESCENT HILL
MULTIFAMILY
ADDRESS, CITY, STATE, ZIP (COUNTY)

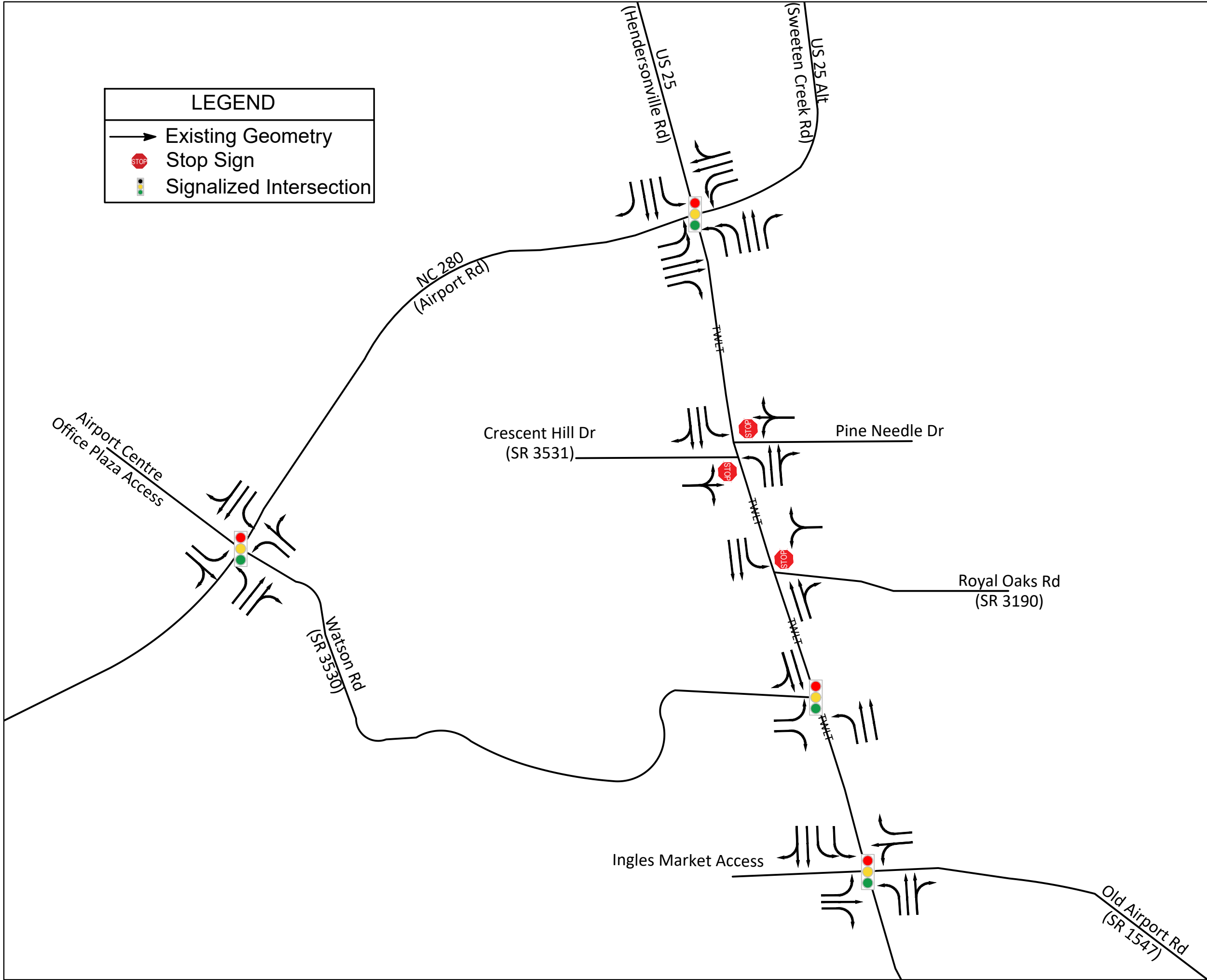
DATE:	12/03/2020
SCALE:	N.T.S.
DRAWN:	P. STEPP
CHECKED:	W. THOMPSEN
PROJECT No.:	WAYN 1099

SHEET NUMBER
FIGURE
5

LEGEND	
	- Stop Sign
	- Signalized Intersection
(XX)	- AM Peak Hour Volume
[XX]	- PM Peak Hour Volume



LEGEND	
	Existing Geometry
	Stop Sign
	Signalized Intersection



SHEET TITLE
EXISTING LANE
DIAGRAM

PROJECT:
CRESCENT HILL
MULTIFAMILY
ADDRESS, CITY, STATE, ZIP (COUNTY)

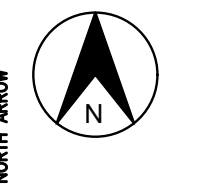
DATE:	12/03/2020
SCALE:	N.T.S.
DRAWN:	P. STEPP
CHECKED:	W. THOMPSEN
PROJECT No.:	WAYN 1099

SHEET NUMBER
FIGURE
6

Background Traffic

Background traffic is the traffic that would be at the studied intersections in the build-out year (2022), without the proposed development. Background traffic is comprised of existing traffic and any change caused by growth trends in the surrounding area or nearby developments. It also assumes no significant roadway changes from the existing conditions. As noted earlier, the growth rate of 2% per year was used for calculating background traffic for this study for the project build-out year 2022.

Figure 7 shows the expected AM and PM peak hour background traffic volumes for 2022.



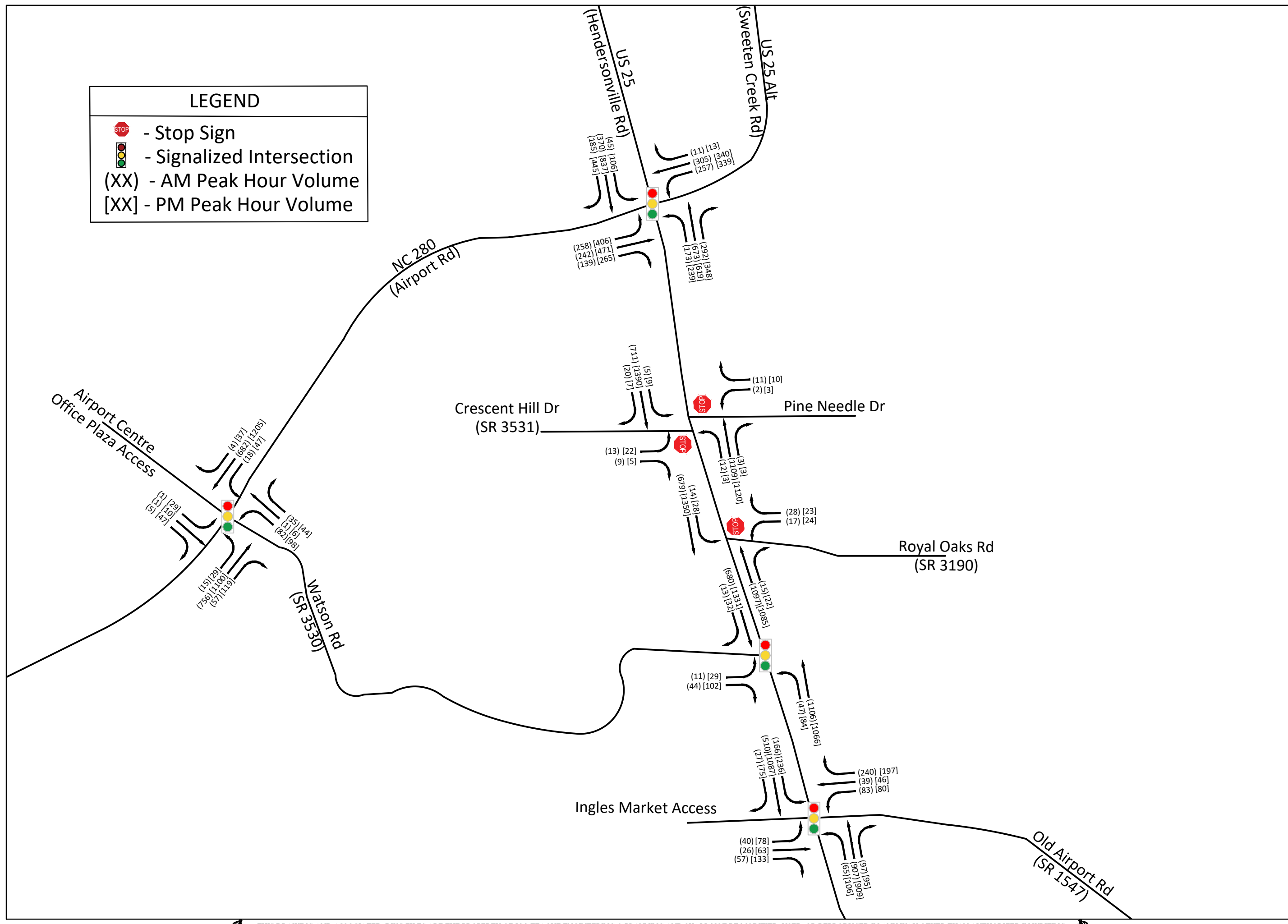
SHEET TITLE
BACKGROUND
AM & PM
PEAK HOUR TRAFFIC

PROJECT:
CRESCENT HILL
MULTIFAMILY
ADDRESS, CITY, STATE, ZIP (COUNTY)

DATE:	12/03/2020
SCALE:	N.T.S.
DRAWN:	P. STEPP
CHECKED:	W. THOMPSEN
PROJECT No.:	WAYN 1099

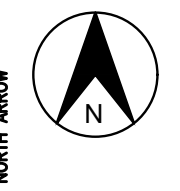
SHEET NUMBER
FIGURE
7

LEGEND	
	- Stop Sign
	- Signalized Intersection
(XX)	- AM Peak Hour Volume
[XX]	- PM Peak Hour Volume



Trip Distribution

Trip distribution is the assignment of project traffic throughout the road network as it enters and exits the site. The pathway is assigned to show the traffic as it travels through the study area intersections. The trip distribution for this development was estimated from the existing traffic volume patterns within the surrounding roadway network, the surrounding population densities, the location of the proposed development, and engineering judgment. Figure 8 shows the entering and exiting peak hour trip distribution percentages.



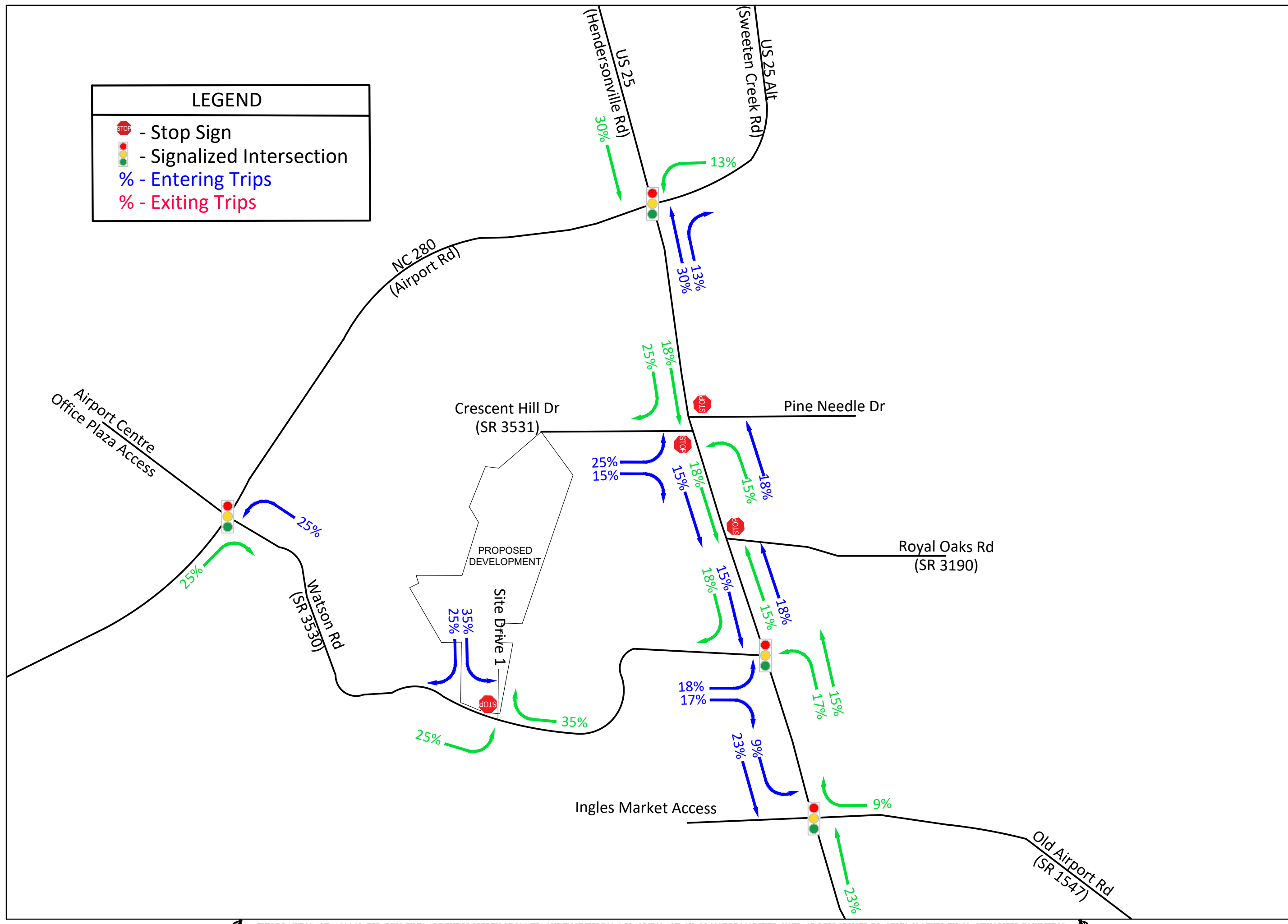
SHEET TITLE
TRIP DISTRIBUTION
INGRESS & EGRESS
PERCENTAGES

PROJECT:
CRESCENT HILL
MULTIFAMILY
ADDRESS, CITY, STATE, ZIP (COUNTY)

DATE:	12/03/2020
SCALE:	N.T.S.
DRAWN:	P. STEPP
CHECKED:	W. THOMPSEN
PROJECT No.:	WAYN 1099

SHEET NUMBER
FIGURE
8

LEGEND	
	- Stop Sign
	- Signalized Intersection
	% - Entering Trips
	% - Exiting Trips



Trip Generation

The 10th edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE) was used as the source of data for determining site-generated traffic. The proposed development has an ITE Land Use Code 221 – Multifamily Housing (Mid-Rise). Mid-rise multifamily housing includes apartments, townhouses, or condominiums located in a building with at least three other dwelling units and that has between three and ten levels (floors).

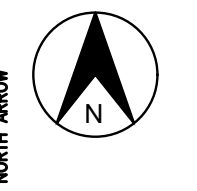
Trip generation volumes for LUC 221 were calculated using the fitted curve equations for the peak hours of adjacent street traffic, in accordance with the NCDOT Congestion Management Unit guidelines. The equation for the AM-Peak Trips is $LN(T) = 0.98LN(DU) - 0.98$. The equation for the PM-Peak, Trips is $LN(T) = 0.96(DU) - 0.63$.

The summarized trip generation numbers for the AM and PM peak hours along with daily totals are in Table 4.

Table 4 Typical Weekday Trip Generation (2022)

ITE Land Use Code	Size	Daily	AM Peak Hour			PM Peak Hour		
			Entering (26%)	Exiting (74%)	Total	Entering (61%)	Exiting (39%)	Total
221 – Multifamily Housing (Mid-Rise)	252 DU	1,372	22	63	85	66	42	108

The AM and PM peak hour trips were distributed to the roadway network using the percentages in Figure 8 and are shown as AM and PM peak hour Entering and Exiting site generated trips in Figure 9.



SHEET TITLE
2022 TRIP GENERATION
AM & PM
ENTERING & EXITING
TRAFFIC

PROJECT:
CRESCENT HILL
MULTIFAMILY

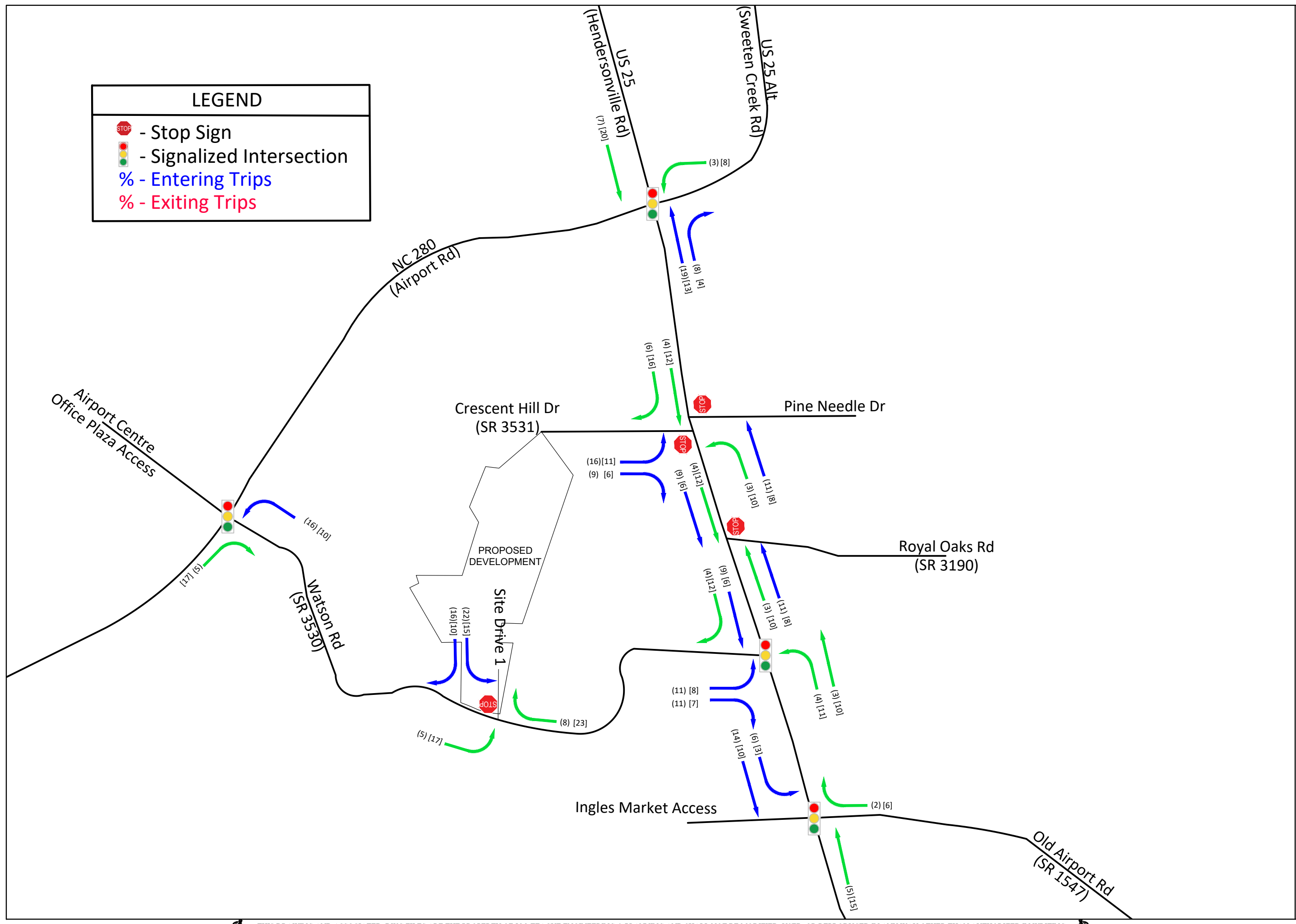
ADDRESS, CITY, STATE, ZIP (COUNTY)

DATE:	12/03/2020
SCALE:	N.T.S.
DRAWN:	P. STEPP
CHECKED:	W. THOMPSEN
PROJECT No.:	WAYN 1099

SHEET NUMBER
FIGURE
9

JMTE Document No.: 000-000-000 Rev'01

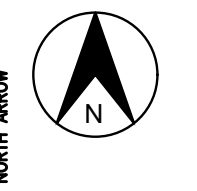
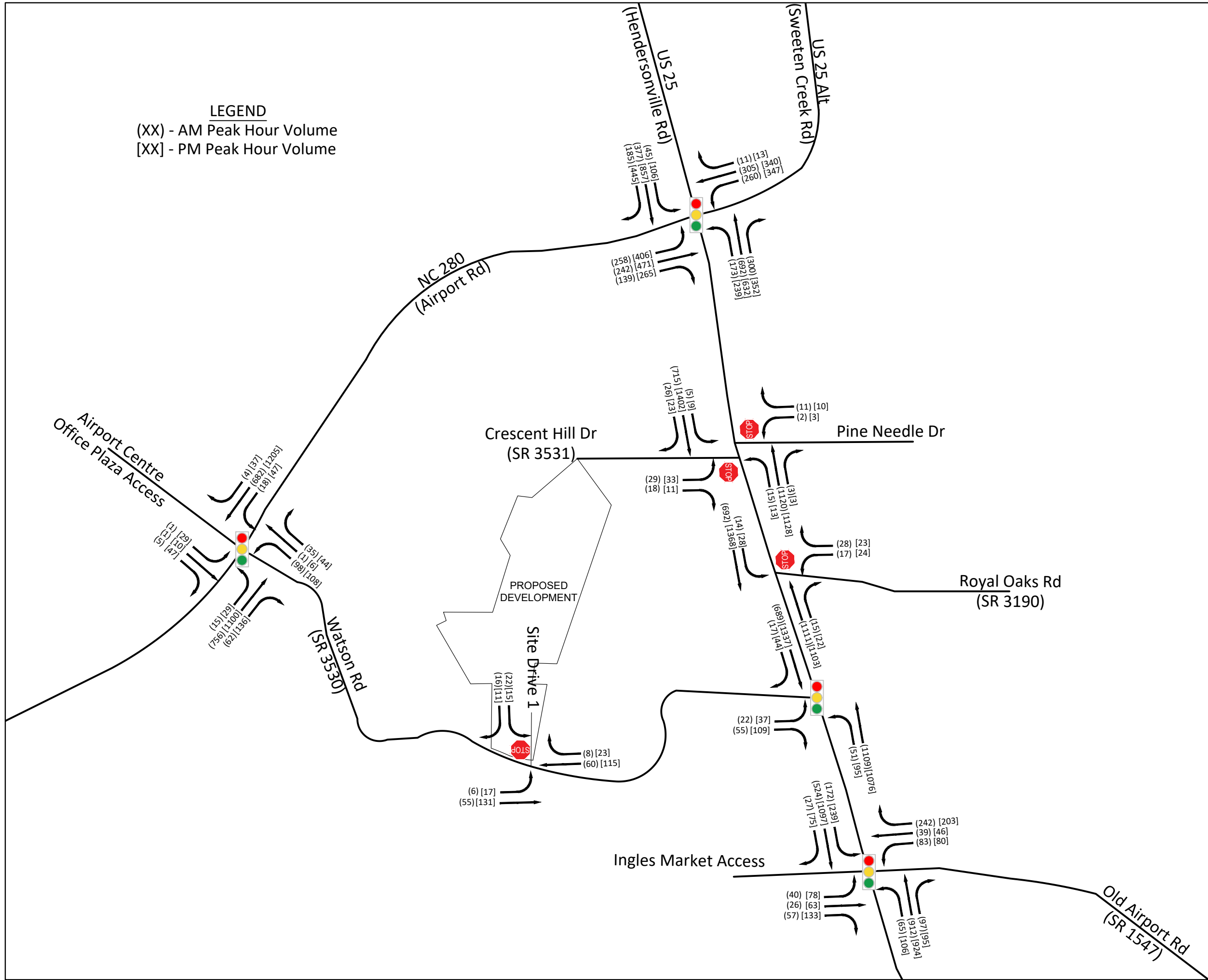
LEGEND	
	- Stop Sign
	- Signalized Intersection
%	- Entering Trips
%	- Exiting Trips



Build-Out Traffic

Build-out traffic is the total traffic volume that will be present on the surrounding roadway network when the project is complete and fully occupied. 2022 is the expected build-out year for this project. Build-out traffic is the sum of background traffic and the proposed site traffic, which is distributed in the AM and PM peak hour periods according to the entering and exiting percentages shown in Figure 8. The anticipated build-out AM and PM Peak Hour traffic is shown in Figure 10.

LEGEND
 (XX) - AM Peak Hour Volume
 [XX] - PM Peak Hour Volume



SHEET TITLE
 BUILD-OUT
 AM & PM
 PEAK HOUR TRAFFIC

PROJECT:
 CRESCENT HILL
 MULTIFAMILY
 ADDRESS, CITY, STATE, ZIP (COUNTY)

DATE:	12/03/2020
SCALE:	N.T.S.
DRAWN:	P. STEPP
CHECKED:	W. THOMPSEN
PROJECT No.:	WAYN 1099

SHEET NUMBER
FIGURE
 10

Analysis of Existing Traffic Conditions

The analysis for existing conditions was based on *NCDOT's Congestion Management Capacity Analysis Guidelines*. Table 5 shows the existing LOS, delay, v/c ratio, and queue for the studied intersections. The existing traffic volumes from the AM & PM peak hours were analyzed using existing lane configurations and traffic control conditions. Since existing turning movement count data was collected, the existing peak hour factor (PHF) was used for analyzing existing conditions. Based on HCM and NCDOT guidance, the free-flow movements / approaches were not analyzed for existing conditions.

The capacity analysis (Synchro) reports for the existing conditions are in Appendix B.

Table 5: Analysis of Existing AM/PM Peak Hour Traffic Conditions

Intersection	Approach	Lane	Queue Length (ft)	LOS [AM]	Delay (sec)	V/C Ratio	Queue Length (ft)	LOS	Delay (sec)	V/C Ratio
			[AM]		[AM]	[AM]	[PM]	[PM]	[PM]	[PM]
US 25 & NC 280	Eastbound	Left	255	F	100.40	0.65	372	F	86.30	0.59
	Eastbound	Left	265	F	100.40	0.65	403	F	86.30	0.59
	Eastbound	Thru	248	F	95.80	0.52	434	F	88.20	0.65
	Eastbound	Thru	248	F	95.80	0.52	445	F	88.20	0.65
	Eastbound	Right	256	D	52.40	0.40	363	D	46.80	0.60
	Westbound	Left	355	F	104.10	0.63	449	F	111.80	0.80
	Westbound	Left	405	F	104.10	0.63	525	F	111.80	0.80
	Westbound	Thru	352	F	114.40	0.81	376	F	113.10	0.82
	Westbound	Thru/Right	335	F	114.40	0.81	376	F	113.10	0.82
	Northbound	Left	193	F	119.40	0.73	258	F	118.10	0.77
	Northbound	Left	205	F	119.40	0.73	262	F	118.10	0.77
	Northbound	Thru	432	C	29.40	0.40	492	D	43.70	0.40
	Northbound	Thru	432	C	29.40	0.40	492	D	43.70	0.40
	Northbound	Right	186	A	8.30	0.30	284	B	15.50	0.41
	Southbound	Left	137	F	126.10	0.60	350	F	125.40	0.73
	Southbound	Thru	234	C	27.60	0.21	631	D	46.70	0.49
Southbound	Thru	234	C	27.60	0.21	631	D	46.70	0.49	
Southbound	Right	173	B	11.50	0.19	463	B	17.90	0.45	
US 25 & Crescent Hill Dr	Eastbound	Left/Thru/Right	56	F	169.00	0.86	71	F	*	*
	Westbound	Left/Thru/Right	36	F	122.70	0.64	74	F	*	*
	Northbound	Left	22	A	9.70	0.03	13	B	14.80	0.03
	Northbound	Thru	0	-	0.00	0.00	0	-	0.00	0.00
	Northbound	Thru/Right	0	-	0.00	0.00	0	-	0.00	0.00
	Southbound	Left	21	B	11.80	0.02	26	B	11.50	0.04
US 25 & Royal Oaks Rd	Westbound	Left/Right	65	C	23.30	0.27	79	D	26.10	0.29
	Northbound	Thru	0	-	0.00	0.00	0	-	0.00	0.00
	Northbound	Thru/Right	0	-	0.00	0.00	9	-	0.00	0.00
	Southbound	Left	29	B	12.30	0.08	43	B	11.60	0.08
	Southbound	Thru	0	-	0.00	0.00	0	-	0.00	0.00
US 25 & Watson Rd	Southbound	Thru	0	-	0.00	0.00	0	-	0.00	0.00
	Eastbound	Left	40	E	65.30	0.20	73	E	69.10	0.41
	Eastbound	Right	92	E	57.50	0.32	156	E	59.20	0.50
	Northbound	Left	47	A	15.00	0.10	90	A	4.50	0.31
	Northbound	Thru	105	A	1.60	0.38	125	A	2.40	0.37
	Northbound	Thru	130	A	1.60	0.38	126	A	2.40	0.37
US 25 & Old Airport Rd	Southbound	Thru	110	A	3.50	0.27	330	A	7.70	0.58
	Southbound	Thru/Right	110	A	3.50	0.27	330	A	7.70	0.58
	Eastbound	Left	84	E	65.20	0.41	154	F	91.10	0.74
	Eastbound	Thru	87	D	54.50	0.19	216	E	55.40	0.26
	Eastbound	Right	83	D	43.20	0.17	162	D	47.60	0.42
	Westbound	Left/Thru	208	E	78.30	0.72	199	E	79.90	0.75
	Westbound	Right	90	A	0.20	0.17	92	A	0.20	0.15
	Northbound	Left	72	A	5.20	0.14	139	A	8.70	0.38
	Northbound	Thru	405	B	15.10	0.49	450	B	18.60	0.51
	Northbound	Thru/Right	405	B	15.10	0.49	450	B	18.60	0.51
NC 280 & Watson Rd	Southbound	Left	138	E	73.70	0.61	190	E	72.50	0.71
	Southbound	Left	153	E	73.70	0.61	258	E	72.50	0.17
	Southbound	Thru	158	B	10.00	0.26	477	B	15.80	0.59
	Southbound	Thru/Right	158	B	10.00	0.26	477	B	15.80	0.59
	Eastbound	Left	26	A	4.10	0.06	61	A	5.70	0.15
	Eastbound	Thru	139	A	4.50	0.33	253	A	5.80	0.50
	Eastbound	Thru/Right	139	A	4.50	0.33	253	A	5.80	0.50
	Westbound	Left	50	A	4.20	0.06	64	A	7.10	0.23
	Westbound	Thru	153	A	4.10	0.28	252	A	5.80	0.49
	Westbound	Thru/Right	160	A	4.10	0.28	252	A	5.80	0.49
NC 280 & Watson Rd	Northbound	Left	125	E	58.50	0.57	165	E	60.00	0.60
	Northbound	Thru/Right	77	D	46.40	0.28	104	D	45.90	0.27
	Southbound	Left	24	D	42.50	0.09	68	D	44.60	0.20
	Southbound	Thru/Right	37	D	42.40	0.10	129	D	49.30	0.40

Analysis of Background Traffic Conditions

The analysis for background conditions was based on methodologies presented in NCDOT's *Congestion Management Capacity Analysis Guidelines*. To estimate the background LOS, delay, v/c ratio, and queue at the study intersections, the background traffic was analyzed using existing lane configurations and traffic control conditions and results are provided in Table 6. A PHF of 0.90 was used for all background conditions in accordance with NCDOT guidelines. Based on HCM and NCDOT guidance, the free-flow movements / approaches were not analyzed for background conditions. The 0.90 PHF is used by traffic engineering companies and NCDOT to simulate worst-case scenarios for LOS calculations. The worst-case PHF assumption can sometimes create fluctuations in LOS and delay readings without any change in the traffic volumes.

The capacity analysis (Synchro) reports for the existing conditions are in Appendix B.

Table 6 Analysis of Background AM/PM Peak Hour Traffic Conditions

Intersection	Approach	Lane	Queue Length (ft) [AM]	LOS [AM]	Delay (sec) [AM]	V/C Ratio [AM]	Queue Length (ft) [PM]	LOS [PM]	Delay (sec) [PM]	V/C Ratio [PM]
US 25 & NC 280	Eastbound	Left	270	F	101.9	0.62	390	F	84.8	0.59
	Eastbound	Left	270	F	101.9	0.62	400	F	84.8	0.59
	Eastbound	Thru	260	F	99.7	0.56	440	F	87.4	0.66
	Eastbound	Thru	260	F	99.7	0.56	467	F	87.4	0.66
	Eastbound	Right	258	E	57	0.45	399	D	44.4	0.57
	Westbound	Left	372	F	106.6	0.67	397	F	112	0.8
	Westbound	Left	275	F	106.6	0.67	543	F	112	0.8
	Westbound	Thru	351	F	114.7	0.81	372	F	112.7	0.81
	Westbound	Thru/Right	342	F	114.7	0.81	372	F	112.7	0.81
	Northbound	Left	201	F	120.1	0.71	264	F	118.1	0.77
	Northbound	Left	201	F	120.1	0.71	277	F	118.1	0.77
	Northbound	Thru	416	C	25.1	0.35	523	D	44.8	0.42
	Northbound	Thru	416	C	25.1	0.35	523	D	44.8	0.42
	Northbound	Right	224	A	7.1	0.28	304	B	16.1	0.41
	Southbound	Left	165	F	124.7	0.51	374	F	125.8	0.72
	Southbound	Thru	228	C	24.9	0.2	752	D	50.5	0.57
Southbound	Thru	228	C	24.9	0.2	752	D	50.5	0.57	
Southbound	Right	155	B	10.6	0.18	483	B	17.8	0.45	
US 25 & Crescent Hill Dr	Eastbound	Left/Thru/Right	56	F	53	0.28	76	F	658.5	1.566
	Westbound	Left/Thru/Right	45	E	45.8	0.194	48	F	147.3	0.465
	Northbound	Left	14	A	9.5	0.016	14	B	13.6	0.011
	Northbound	Thru	0	-	0	0	0	-	0	0
	Northbound	Thru/Right	0	-	0	0	0	-	0	0
	Southbound	Left	20	B	11.5	0.01	26	B	11.6	0.018
	Southbound	Thru	0	-	0	0	0	-	0	0
	Southbound	Thru/Right	0	-	0	0	0	-	0	0
US 25 & Royal Oaks Rd	Westbound	Left/Right	61	C	20	0.172	70	D	25.7	0.231
	Northbound	Thru	0	-	0	0	0	-	0	0
	Northbound	Thru/Right	0	-	0	0	5	-	0	0
	Southbound	Left	44	B	11.6	0.028	48	B	11.8	0.055
	Southbound	Thru	0	-	0	0	0	-	0	0
US 25 & Watson Rd	Southbound	Thru	0	-	0	0	0	-	0	0
	Eastbound	Left	39	E	61.4	0.1	76	E	64.9	0.26
	Eastbound	Right	73	D	54.2	0.26	157	D	53.6	0.44
	Northbound	Left	112	E	67.3	0.39	161	E	69	0.54
	Northbound	Thru	113	A	1.3	0.37	162	A	1.8	0.37
	Northbound	Thru	130	A	1.3	0.37	124	A	1.8	0.37
	Southbound	Thru	143	A	4	0.26	430	A	9.1	0.57
	Southbound	Thru/Right	155	A	4	0.26	430	A	9.1	0.57
US 25 & Old Airport Rd	Eastbound	Left	90	E	71.7	0.33	169	E	77.5	0.54
	Eastbound	Thru	89	D	40.5	0.07	250	D	41.6	0.15
	Eastbound	Right	90	C	29.8	0.12	162	C	29.7	0.24
	Westbound	Left/Thru	204	E	79	0.69	207	F	83.8	0.73
	Westbound	Right	110	A	0.02	0.17	107	A	0.2	0.14
	Northbound	Left	130	E	75.7	0.48	220	F	80.5	0.64
	Northbound	Thru	521	C	22.8	0.55	503	C	27.1	0.6
	Northbound	Thru/Right	521	C	22.8	0.55	503	C	27.1	0.6
	Southbound	Left	138	E	73.7	0.6	208	E	75.6	0.71
	Southbound	Left	149	E	73.7	0.6	274	E	75.6	0.71
	Southbound	Thru	240	B	17.9	0.29	626	C	29.6	0.69
	Southbound	Thru/Right	240	B	17.9	0.29	626	C	29.6	0.69
NC 280 & Watson Rd	Eastbound	Left	47	D	53.3	0.12	174	E	56.1	0.23
	Eastbound	Thru	286	A	8.8	0.35	478	C	21.1	0.66
	Eastbound	Thru/Right	286	A	8.8	0.35	478	C	21.1	0.66
	Westbound	Left	59	D	53.6	0.14	200	E	58.7	0.35
	Westbound	Thru	286	A	8.2	0.29	488	B	18.9	0.63
	Westbound	Thru/Right	290	A	8.2	0.29	488	B	18.9	0.63
	Northbound	Left	146	E	56.5	0.46	194	E	59.3	0.53
	Northbound	Thru/Right	108	D	50.4	0.24	128	D	48	0.24
	Southbound	Left	24	D	52.2	0.03	94	E	55.6	0.22
Southbound	Thru/Right	50	D	53.2	0.08	129	E	61.8	0.44	

Analysis of Build-Out Traffic Conditions

The analysis of build-out conditions was based on methodologies presented in *NCDOT's Congestion Management Capacity Analysis Guidelines*. The build-out traffic was analyzed using existing lane configurations and traffic control conditions as well as the addition of the proposed site access points. A PHF of 0.90 was used for all build-out conditions in accordance with NCDOT guidelines. The build-out LOS, delay, v/c ratio, and queue at the study intersections in the AM and PM peak hours are provided below in Table 7. Based on HCM and NCDOT guidance, "LOS for un-signalized intersections should only be reported for individual stop-controlled or yield movements." As a result, the free-flow movements / approaches were not reported for the build-out traffic conditions. The 0.90 PHF is used by traffic engineering companies and NCDOT to simulate worst-case scenarios for LOS calculations. The worse-case PHF assumption can sometimes create fluctuations in LOS and delay readings without any change in the traffic volumes.

The Synchro Reports for the Build-out conditions are in Appendix B.

Table 7 Analysis of Build-out AM/PM Peak Hour Traffic Conditions

Intersection	Approach	Lane	Queue Length (ft) [AM]	LOS [AM]	Delay (sec) [AM]	V/C Ratio [AM]	Queue Length (ft) [PM]	LOS [PM]	Delay (sec) [PM]	V/C Ratio [PM]
US 25 & NC 280	Eastbound	Left	270	F	101.9	0.62	371	F	84.8	0.59
	Eastbound	Left	273	F	101.9	0.62	378	F	84.8	0.59
	Eastbound	Thru	260	F	99.7	0.56	450	F	87.4	0.66
	Eastbound	Thru	270	F	99.7	0.56	472	F	87.4	0.66
	Eastbound	Right	264	E	56.9	0.45	382	D	44.3	0.57
	Westbound	Left	365	F	106.9	0.68	452	F	112.8	0.82
	Westbound	Left	410	F	106.9	0.68	582	F	112.8	0.82
	Westbound	Thru	362	F	114.7	0.81	375	F	111.8	0.81
	Westbound	Thru/Right	342	F	114.7	0.81	371	F	111.8	0.81
	Northbound	Left	213	F	120.2	0.71	264	F	118.1	0.77
	Northbound	Left	227	F	120.2	0.71	264	F	118.1	0.77
	Northbound	Thru	430	C	25.3	0.36	538	D	45.3	0.43
	Northbound	Thru	430	C	25.3	0.36	538	D	45.3	0.43
	Northbound	Right	171	A	7.1	0.29	307	B	16.1	0.41
	Southbound	Left	138	F	124.7	0.51	374	F	125.8	0.72
	Southbound	Thru	232	C	25	0.2	778	D	51.2	0.58
	Southbound	Thru	232	C	25	0.2	778	D	51.2	0.58
Southbound	Right	172	B	10.6	0.18	486	B	18	0.45	
US 25 & Crescent Hill Dr	Eastbound	Left/Thru/Right	81	F	75	0.545	101	F	1130.8	2.54
	Westbound	Left/Thru/Right	40	E	48.2	0.203	53	F	184.3	0.541
	Northbound	Left	24	A	9.6	0.021	31	B	14.1	0.035
	Northbound	Thru	0	-	0	0	0	-	0	0
	Northbound	Thru/Right	4	-	0	0	4	-	0	0
	Southbound	Left	20	B	11.6	0.01	23	B	11.7	0.018
	Southbound	Thru	0	-	0	0	0	-	0	0
	Southbound	Thru/Right	0	-	0	0	10	-	0	0
US 25 & Royal Oaks Rd	Westbound	Left/Right	63	C	20.3	0.175	91	D	26.3	0.236
	Northbound	Thru	0	-	0	0	0	-	0	0
	Northbound	Thru/Right	0	-	0	0	0	-	0	0
	Southbound	Left	44	B	11.7	0.028	54	B	11.9	0.056
	Southbound	Thru	0	-	0	0	0	-	0	0
US 25 & Watson Rd	Eastbound	Left	53	E	63.6	0.2	83	E	66.2	0.32
	Eastbound	Right	86	D	51.5	0.27	187	D	49.6	0.4
	Northbound	Left	102	E	67.9	0.41	148	E	70.9	0.59
	Northbound	Thru	117	A	1.8	0.38	162	A	2.3	0.39
	Northbound	Thru	151	A	1.8	0.38	162	A	2.3	0.39
	Southbound	Thru	148	A	4.9	0.28	465	B	10.9	0.6
	Southbound	Thru/Right	148	A	4.9	0.28	465	B	10.9	0.6
US 25 & Old Airport Rd	Eastbound	Left	82	E	71.7	0.33	154	E	77.5	0.54
	Eastbound	Thru	104	D	40.5	0.07	234	D	41.6	0.15
	Eastbound	Right	89	C	29.8	0.12	164	C	29.7	0.24
	Westbound	Left/Thru	216	E	79	0.69	207	F	83.8	0.73
	Westbound	Right	136	A	0.2	0.17	124	A	0.2	0.14
	Northbound	Left	150	E	75.7	0.48	280	F	80.5	0.64
	Northbound	Thru	526	C	23.1	0.55	514	C	27.5	0.61
	Northbound	Thru/Right	526	C	23.1	0.55	514	C	27.5	0.61
	Southbound	Left	153	E	73.7	0.61	205	E	75.7	0.72
	Southbound	Left	161	E	73.7	0.61	274	E	75.7	0.72
	Southbound	Thru	246	B	18	0.3	634	C	29.8	0.7
	Southbound	Thru/Right	246	B	18	0.3	634	C	29.8	0.7
NC 280 & Watson Rd	Eastbound	Left	52	D	53.3	0.12	151	E	56.1	0.23
	Eastbound	Thru	297	A	9.4	0.36	486	C	21.4	0.67
	Eastbound	Thru/Right	297	A	9.4	0.36	486	C	21.4	0.67
	Westbound	Left	62	D	53.6	0.14	171	E	59.6	0.36
	Westbound	Thru	237	A	8.8	0.3	487	B	19.2	0.64
	Westbound	Thru/Right	237	A	8.8	0.3	487	B	19.2	0.64
	Northbound	Left	167	E	56.7	0.5	196	E	60.3	0.57
	Northbound	Thru/Right	91	D	48.6	0.22	128	D	47.4	0.23
	Southbound	Left	24	D	52.2	0.03	91	E	55.7	0.23
Watson Rd & Site Drive 1	Southbound	Thru/Right	62	D	53.2	0.08	138	E	61.8	0.44
	Eastbound	Left/Thru	6	A	7.4	0.004	40	A	7.6	0.013
	Westbound	Thru/Right	0	-	0	0	0	-	0	0
	Southbound	Left/Right	48	A	9.2	0.047	49	B	10	0.037

Conclusions

This section compares the background and build-out conditions for the studied intersections. The intersection traffic movements that exceed delay and level of service thresholds are discussed in the text and the results provided in the accompanying tables. The mitigation recommendations at each of the studied intersections were based on NCDOT's *Policy on Street and Driveway Access to North Carolina Highways* (Driveway Manual) methodology and mitigation threshold requirements, and engineering judgment.

According to NCDOT guidelines, mitigation improvements to the studied roadway network are required if at least one of the following conditions exists when comparing base network conditions to project build-out conditions:

- Average intersection or approach delay increases by 25% or greater while maintaining the same LOS, or
- LOS degrades by at least one level, or
- LOS is 'F'

The comparison of background and build-out conditions is shown in Table 8 below, and in cases where the build-out conditions exceed NCDOT operational thresholds, the need for mitigating improvements is discussed.

Table 8 Comparison of Background vs Build-out Peak Hour Traffic Conditions

Intersection	Approach Direction	Lane	Peak Hour	Background				Build-Out				Background vs Build-out Delay Increase %	Background Queue & Build-Out Queue Difference (FT)	
				Queue Length (ft) [BG]	LOS [BG]	Delay (sec) [BG]	V/C Ratio [BG]	Queue Length (ft) [BO]	LOS [BO]	Delay (sec) [BO]	V/C Ratio [BO]			
US 25 & NC 280	Eastbound	Left	AM	270	F	101.90	0.62	270	F	102	1	0%	0	
			PM	390	F	84.80	0.59	371	F	85	1	0%	0	
	Eastbound	Left	AM	270	F	101.90	0.62	273	F	102	1	0%	3	
			PM	400	F	84.80	0.59	378	F	85	1	0%	0	
	Eastbound	Thru	AM	260	F	99.70	0.56	260	F	100	1	0%	0	
			PM	440	F	87.40	0.66	450	F	87	1	0%	10	
	Eastbound	Thru	AM	260	F	99.70	0.56	270	F	100	1	0%	10	
			PM	467	F	87.40	0.66	472	F	87	1	0%	5	
	Eastbound	Right	AM	258	E	57.00	0.45	264	E	57	0	0%	6	
			PM	399	D	44.40	0.57	382	D	44	1	0%	0	
	Westbound	Left	AM	372	F	106.60	0.67	365	F	107	1	0%	0	
			PM	397	F	112.00	0.80	452	F	113	1	1%	55	
	Westbound	Left	AM	275	F	106.60	0.67	410	F	107	1	0%	135	
			PM	543	F	112.00	0.80	582	F	113	1	1%	39	
	Westbound	Right	AM	351	F	114.70	0.81	362	F	115	1	0%	11	
			PM	372	F	112.70	0.81	375	F	112	1	0%	3	
	Westbound	Thru/Right	AM	342	F	114.70	0.81	342	F	115	1	0%	0	
			PM	372	F	112.70	0.81	371	F	112	1	0%	0	
	Northbound	Left	AM	201	F	120.10	0.71	213	F	120	1	0%	12	
			PM	264	F	118.10	0.77	264	F	118	1	0%	0	
	Northbound	Left	AM	201	F	120.10	0.71	227	F	120	1	0%	26	
			PM	277	F	118.10	0.77	264	F	118	1	0%	0	
	Northbound	Thru	AM	416	C	25.10	0.35	430	C	25	0	1%	14	
			PM	523	D	44.80	0.42	538	D	45	0	1%	15	
	Northbound	Thru	AM	416	C	25.10	0.35	430	C	25	0	1%	14	
			PM	523	D	44.80	0.42	538	D	45	0	1%	15	
	Northbound	Right	AM	224	A	7.10	0.28	171	A	7	0	0%	0	
			PM	304	B	16.10	0.41	307	B	16	0	0%	3	
	Southbound	Left	AM	165	F	124.70	0.51	138	F	125	1	0%	0	
			PM	374	F	125.80	0.72	374	F	126	1	0%	0	
Southbound	Thru	AM	228	C	24.90	0.20	232	C	25	0	0%	4		
		PM	752	D	50.50	0.57	778	D	51	1	1%	26		
Southbound	Thru	AM	228	C	24.90	0.20	232	C	25	0	0%	4		
		PM	752	D	50.50	0.57	778	D	51	1	1%	26		
Southbound	Right	AM	155	B	10.60	0.18	172	B	11	0	0%	17		
		PM	483	B	17.80	0.45	486	B	18	0	1%	3		
US 25 & Crescent Hill Dr	Eastbound	Left/Thru/Right	AM	56	F	53.00	0.28	81	F	75	1	42%	25	
			PM	76	F	658.50	1.57	101	F	1131	3	72%	25	
	Westbound	Left/Thru/Right	AM	45	E	45.80	0.19	40	E	48	0	5%	0	
			PM	48	F	147.30	0.47	53	F	184	1	25%	5	
	Northbound	Left	AM	14	A	9.50	0.02	24	A	10	0	1%	10	
			PM	14	B	13.60	0.01	31	B	14	0	4%	17	
	Northbound	Thru	AM	0	-	0.00	0.00	0	-	0	0	0%	0	
			PM	0	-	0.00	0.00	0	-	0	0	0%	0	
	Northbound	Thru/Right	AM	0	-	0.00	0.00	4	-	0	0	0%	4	
			PM	0	-	0.00	0.00	4	-	0	0	0%	4	
	Southbound	Left	AM	20	B	11.50	0.01	20	B	12	0	1%	0	
			PM	26	B	11.60	0.02	23	B	12	0	1%	0	
	Southbound	Thru	AM	0	-	0.00	0.00	0	-	0	0	0%	0	
			PM	0	-	0.00	0.00	0	-	0	0	0%	0	
	Southbound	Thru/Right	AM	0	-	0.00	0.00	0	-	0	0	0%	0	
			PM	0	-	0.00	0.00	10	-	0	0	0%	10	
	US 25 & Royal Oaks Rd	Westbound	Left/Right	AM	61	C	20.00	0.17	63	C	20	0	2%	2
				PM	70	D	25.70	0.23	91	D	26	0	2%	21
Northbound		Thru	AM	0	-	0.00	0.00	0	-	0	0	0%	0	
			PM	0	-	0.00	0.00	0	-	0	0	0%	0	
Northbound		Thru/Right	AM	0	-	0.00	0.00	0	-	0	0	0%	0	
			PM	5	-	0.00	0.00	0	-	0	0	0%	0	
Southbound		Left	AM	44	B	11.60	0.03	44	B	12	0	1%	0	
			PM	48	B	11.80	0.06	54	B	12	0	1%	6	
Southbound		Thru	AM	0	-	0.00	0.00	0	-	0	0	0%	0	
			PM	0	-	0.00	0.00	0	-	0	0	0%	0	
Southbound	Thru/Right	AM	0	-	0.00	0.00	0	-	0	0	0%	0		
		PM	0	-	0.00	0.00	0	-	0	0	0%	0		

Table 8 Comparison of Background vs Build-out Peak Hour Traffic Conditions (Cont.)

Intersection	Approach Direction	Lane	Peak Hour	Background				Build-Out				Background vs Build-out Delay Increase %	Background Queue & Build-Out Queue Difference (FT)	
				Queue Length (ft) [BG]	LOS [BG]	Delay (sec) [BG]	V/C Ratio [BG]	Queue Length (ft) [BO]	LOS [BO]	Delay (sec) [BO]	V/C Ratio [BO]			
US 25 & Watson Rd	Eastbound	Left	AM	39	E	61.40	0.10	53	E	64	0	4%	14	
			PM	76	E	64.90	0.26	83	E	66	0	2%	7	
	Eastbound	Right	AM	73	D	54.20	0.26	86	D	52	27	0%	13	
			PM	157	D	53.60	0.44	187	D	50	0	0%	30	
	Northbound	Left	AM	112	E	67.30	0.39	102	E	68	0	1%	0	
			PM	161	E	69.00	0.54	148	E	71	1	3%	0	
	Northbound	Thru	AM	113	A	1.30	0.37	117	A	2	0	38%	4	
			PM	162	A	1.80	0.37	162	A	2	0	28%	0	
	Northbound	Thru/Right	AM	130	A	1.30	0.37	151	A	2	0	38%	21	
			PM	124	A	1.80	0.37	162	A	2	0	28%	38	
	Southbound	Thru	AM	143	A	4.00	0.26	148	A	5	0	23%	5	
			PM	430	A	9.10	0.57	465	B	11	1	20%	35	
Southbound	Thru/Right	AM	155	A	4.00	0.26	148	A	5	0	23%	0		
		PM	430	A	9.10	0.57	465	B	11	1	20%	35		
US 25 & Old Airport Rd	Eastbound	Left	AM	90	E	71.70	0.33	82	E	72	0	0%	0	
			PM	169	E	77.50	0.54	154	E	78	1	0%	0	
	Eastbound	Thru	AM	89	D	40.50	0.07	104	D	41	0	0%	15	
			PM	250	D	41.60	0.15	234	D	42	0	0%	0	
	Eastbound	Right	AM	90	C	29.80	0.12	89	C	30	0	0%	0	
			PM	162	C	29.70	0.24	164	C	30	0	0%	2	
	Westbound	Left/Thru	AM	204	E	79.00	0.69	216	E	79	1	0%	12	
			PM	207	F	83.80	0.73	207	F	84	1	0%	0	
	Westbound	Right	AM	110	A	0.02	0.17	136	A	0	0	900%	26	
			PM	107	A	0.20	0.14	124	A	0	0	0%	17	
	Northbound	Left	AM	130	E	75.70	0.48	150	E	76	0	0%	20	
			PM	220	F	80.50	0.64	280	F	81	1	0%	60	
	Northbound	Thru	AM	521	C	22.80	0.55	526	C	23	1	1%	5	
			PM	503	C	27.10	0.60	514	C	28	1	1%	11	
	Northbound	Thru/Right	AM	521	C	22.80	0.55	526	C	23	1	1%	5	
			PM	503	C	27.10	0.60	514	C	28	1	1%	11	
	Southbound	Left	AM	138	E	73.70	0.60	153	E	74	1	0%	15	
			PM	208	E	75.60	0.71	205	E	76	1	0%	0	
	Southbound	Left	AM	149	E	73.70	0.60	161	E	74	1	0%	12	
			PM	274	E	75.60	0.71	274	E	76	1	0%	0	
	Southbound	Thru	AM	240	B	17.90	0.29	246	B	18	0	1%	6	
			PM	626	C	29.60	0.69	634	C	30	1	1%	8	
	Southbound	Thru/Right	AM	240	B	17.90	0.29	246	B	18	0	1%	6	
			PM	626	C	29.60	0.69	634	C	30	1	1%	8	
NC 280 & Watson Rd	Eastbound	Left	AM	47	D	53.30	0.12	52	D	53	0	0%	5	
			PM	174	E	56.10	0.23	151	E	56	0	0%	0	
	Eastbound	Thru	AM	286	A	8.80	0.35	297	A	9	0	7%	11	
			PM	478	C	21.10	0.66	486	C	21	1	1%	8	
	Eastbound	Thru/Right	AM	286	A	8.80	0.35	297	A	9	0	7%	11	
			PM	478	C	21.10	0.66	486	C	21	1	1%	8	
	Westbound	Left	AM	59	D	53.60	0.14	62	D	54	0	0%	3	
			PM	200	E	58.70	0.35	171	E	60	0	2%	0	
	Westbound	Thru	AM	286	A	8.20	0.29	237	A	9	0	7%	0	
			PM	488	B	18.90	0.63	487	B	19	1	2%	0	
	Westbound	Thru/Right	AM	290	A	8.20	0.29	237	A	9	0	7%	0	
			PM	488	B	18.90	0.63	487	B	19	1	2%	0	
	Northbound	Left	AM	146	E	56.50	0.46	167	E	57	1	0%	21	
			PM	194	E	59.30	0.53	196	E	60	1	2%	2	
	Northbound	Thru/Right	AM	108	D	50.40	0.24	91	D	49	0	0%	0	
			PM	128	D	48.00	0.24	128	D	47	0	0%	0	
	Southbound	Left	AM	24	D	52.20	0.03	24	D	52	0	0%	0	
			PM	94	E	55.60	0.22	91	E	56	0	0%	0	
	Southbound	Thru/Right	AM	50	D	53.20	0.08	62	D	53	0	0%	12	
			PM	129	E	61.80	0.44	138	E	62	0	0%	9	
	Watson Rd & Site Drive 1	Eastbound	Left/Thru	AM	0	0	0.00	0.00	6	A	7	0	0%	6
				PM	0	0	0.00	0.00	40	A	8	0	0%	40
		Westbound	Thru/Right	AM	0	0	0.00	0.00	0	-	0	0	0%	0
				PM	0	0	0.00	0.00	0	-	0	0	0%	0
Southbound		Left/Right	AM	0	0	0.00	0.00	48	A	9	0	0%	48	
			PM	0	0	0.00	0.00	49	B	10	0	0%	49	

US 25 (Hendersonville Road) @ NC 280 (Airport Road)/US 25 Alternate (Sweeten Creek Road)

As can be seen in Table 8, there are slight delay increases for the intersection approaches during AM and PM peak hour operations. The 25 percent increase in delay threshold is not anticipated to be exceeded, however, the LOS is F for the eastbound and westbound movements in both AM and PM peak hours, unchanged from the background conditions.

For the northbound and southbound thru movements, levels of service are acceptable. Mitigation at this location would involve system-level improvements.

US 25 (Hendersonville Road) @ Crescent Hill Drive (SR 3531)/ Proposed Access

Table 8 shows that the eastbound approach on Crescent Hill Drive will experience delay increases of 42% and 72% for the AM and PM peak hours, respectively. The LOS is anticipated to remain the same as the background conditions at LOS E and F. Mitigation at this location could involve the addition of eastbound turn lanes, although as a stop-controlled approach, with the high thru volumes on US 25 (Hendersonville Road), only marginal improvement could be expected.

US 25 (Hendersonville Road) @ Royal Oaks Road (SR 3190)

As can be seen in Table 8, all the approaches are anticipated to operate with an acceptable LOS in the build-out conditions. Since the LOS for these approaches remain acceptable and site-generated traffic is not anticipated to degrade the general roadway or driver safety at this intersection, no changes are recommended.

US 25 (Hendersonville Road) @ Watson Road (SR 3530)

As shown in Table 8, the differences in the delay increase percentages between background and the build-out traffic exceed the NCDOT mitigation thresholds for the US 25 (Hendersonville Road) northbound approach. The LOS is anticipated to remain the same, at LOS A for both AM and PM peak hours. Because of the anticipated minor increase in delay of .5 seconds and the acceptable operating conditions for the northbound thru approach, no changes are recommended.

US 25 (Hendersonville Road) @ Old Airport Road (SR 1547)

As can be seen in Table 8, the difference in delay, between background traffic and the build-out traffic exceed the NCDOT mitigation thresholds for the westbound approach of Old Airport Road (SR 1547). The increase in delay from .02 to .20 yields a 900% increase. It should be noted that the approach LOS at the intersection is anticipated to remain at LOS A. As a result of the very slight delay increase and excellent levels of service, no changes are recommended at this intersection to accommodate traffic generated by the site under build-out conditions. The addition of site-generated traffic is not anticipated to degrade the general roadway or driver safety at this intersection.

NC 280 (Airport Road) @ Watson Road (SR 3530)

The differences in approach movement LOS, delay, and queues between background traffic and the build-out traffic do not exceed the NCDOT mitigation thresholds. Although it should be noted that the LOS for both background and build-out conditions do not change. As a result, no changes are recommended at this intersection to accommodate traffic generated by the site under build-out conditions. The addition of site-generated traffic is not anticipated to degrade the general roadway or driver safety at this intersection.

Watson Road (SR 3530) @ Development

As can be seen in Table 8, the LOS, delay, and queue data for the build-out traffic do not exceed the NCDOT mitigation thresholds. As a result, no changes are recommended at this intersection to accommodate traffic generated by the site under build-out conditions. The addition of site-generated traffic is not anticipated to degrade general roadway or driver safety at this intersection.

A turn lane warrant analysis was performed for the proposed Watson Road Site Access Drive intersection. No turn lanes were shown to be warranted due to the low volumes anticipated at the proposed access. The turn lane warrant chart is provided in Appendix E.

Queuing Analyses

Queuing analyses were performed to determine the effect of the build-out traffic on intersection traffic queues. Sim Traffic was used to generate the Queuing and Blocking Reports for the study area intersections for each analysis scenario. The following guidelines indicate where mitigation improvements are required to ensure that appropriate turn lane storage lengths for queuing vehicles are provided:

Mitigation is required when the Build condition exceeds the No-Build conditions by any of the following minimum thresholds:

- 1. Increase of 50' or more in queue length,*
- 2. Left-turn and/or right-turn lane warrants (NCDOT's Policy on Street and Driveway Access to North Carolina Highways) are identified, or*
- 3. Build with Capacity Improvements queue exceeds the existing storage length.*

Table 9 shows the study area intersection approach queue length increases of 50' or more with the addition of project traffic.

Table 9: Queue Length Increases





Main Line	Cross Street	Movement	AM Peak	PM Peak
US 25 (Hendersonville Road)	NC 280 (Airport Road)	Westbound Left	135'	+55'
US 25 (Hendersonville Road)	Old Airport Road	Northbound Left	No Change	+60'

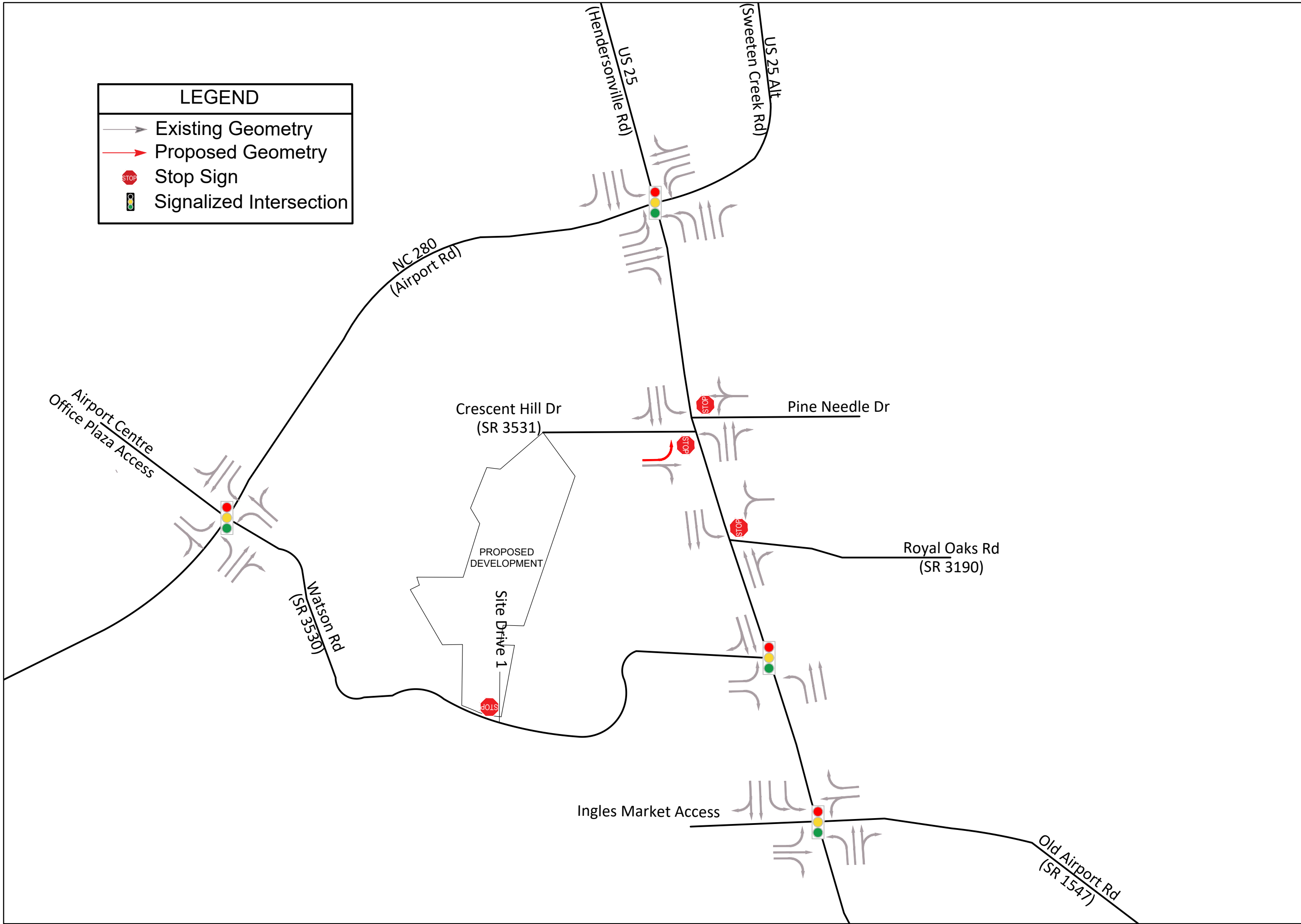
Mitigation Recommendations



US 25 (Hendersonville Road) @ Crescent Hill Drive (SR 3531)

The potential geometric improvement to mitigate the delay attributable to additional proposed site traffic is shown in Figure 11. If additional right of way is available at the southwest corner of the intersection, separate left and right turn lanes could be constructed to reduce delay and provide convenience for current and future users. This will allow the right turning vehicles not to be impeded by the eastbound left-turning movement which adds to excessive delay for eastbound traffic.

As noted earlier, the approach is stop-controlled, and the delays are associated with the high thru volumes on US 25 (Hendersonville Road) and the need for an acceptable gap for vehicles to enter the traffic stream.

LEGEND	
	Existing Geometry
	Proposed Geometry
	Stop Sign
	Signalized Intersection



 1155 N. MAIN ST. WAYNESVILLE, NC 28786 www.jmteagueengineering.com	 NORTH ARROW
	SHEET TITLE PROPOSED MITIGATION IMPROVEMENTS
PROJECT: CRESCENT HILL MULTIFAMILY <small>ADDRESS, CITY, STATE, ZIP (COUNTY)</small>	DATE: 12/03/2020 SCALE: N.T.S. DRAWN: P. STEPP CHECKED: W. THOMPSEN PROJECT No.: WAYN 1099
SHEET NUMBER FIGURE 11	<small>JMTE Document No.: 000-000-000 Rev01</small>

Appendix A

NCDOT TIA Scoping Checklist



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: Crescent Hill Multifamily **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 13 District 2 on _____.

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

 Print Name



NCDOT TIA Scoping Checklist



Project Name: Crescent Hill Multifamily

TIA Scoping Date: _____

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	Crescent Hill Dr	Conventional Full-Mvmt	Stop	932	West	US 25
Access B	Watson Rd.	Conventional Full-Mvmt	Stop	2,300	West	US 25
Access C						
Access D						
Access E						
Access F						
Access G						
Access H						
Existing Access	Existing Intersection of		Access Modification	Proposed Interconnectivity (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1			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	Multifamily		252	1372	Adj. Street	22	63	85	66	42	108	ITE Equation
Unadjusted Site Trips				1372		22	63	85	66	42	108	X
Internal Capture Trips (Attach Calculation Sheets)												Please Select
Internal Capture % of Unadjusted Site Trips				%		%			%			X
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
		Please Select		%	%			%			Please Select	
				%	%			%				
				%	%			%				
				%	%			%				
Pass-By Trips (Attach Calculation Sheets)												X
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips												X
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												X



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 AM to 9 AM
- Weekday PM Peak 4 PM to 6 PM
- 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	US 25	NC 280	Signal	Require New Counts			
#2	US 25	SR 3531	Stop	Require New Counts			
#3	US 25	SR 3190	Stop	Require New Counts			
#4	US 25	SR 1547	Signal	Require New Counts			
#5	US 25	Watson Rd	Signal	Require New Counts			
#6	NC 280	Watson Rd	Signal	Require New Counts			
#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: _____
- 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: 2022

Future Analysis Year(s): 2022

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
2801A	Widen to 4 lanes from US 25 to Rock Hill Rd (SR 3081)		
Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements

Annual Growth Factor: 2 %

Justification/Data Source: As advised by NCDOT in attached comments .

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 _____
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)

Since the full build-out of this development project is scheduled to occur several years prior to the letting of STIP Project U-2801A, this analysis concentrated upon the development's impacts to the current geometry of US-25 A. ROW scheduled for 2024 and construction start is 2027.



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

William Ratchford
Signature

William Ratchford
Print Name

3/2/21
Date

TIA CONSULTANT

William Thompsen
Signature

William Thompsen
Print Name

3/8/21
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 13 District 2 on _____,

Signature

Print Name

Email concurrence may be used in lieu of the signature.



NCDOT TIA Submittal Checklist



Submittal: Final Sealed TIA Report **Document Date:** _____
Project Name: _____ **Previous Name:** If Applicable _____
NCDOT Division: _____ **District:** _____ **County:** _____ **Municipality:** _____
TIA Consultant: _____ **Submitted By:** _____
Phone Number: _____ **Email:** _____
TIA Scoping Checklist Approval Date: _____ **Unadjusted Daily Site Trips:** _____

- The approved TIA Scoping Checklist is included in this submittal.
- LOS D or better is expected at all study intersections after proposed mitigations.
- The study report is sealed by a NC Professional Engineer with expertise in traffic engineering.
- This study has identified all known deficiencies with and without the proposed development.
- This study has identified mitigation measures to adequately accommodate the site trips.

Explain here if any of the boxes above are unchecked:

We have LOS E and LOS F for Existing, Background, and Build-out conditions for US 25 and NC 280 intersection approaches. Deficient intersection approach LOSs are not attributable to project trips. See the conclusions and mitigation recommendations section of the TIA for full explanation

The undersigned affirms that, except for the deviations noted below, the TIA submittal conforms to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), [Policy on Street and Driveway Access to North Carolina Highways](#), and the TIA Scoping Checklist approved by the NCDOT District Office. The undersigned also acknowledges that the TIA will be rejected if the deviations and justifications are not properly documented and approved by NCDOT.

Deviations and Justifications (e.g., changes in site plan, development schedule, site trip and off-site trip estimates, study area, data collection, analysis period and method. Attached separate sheets if needed.)

We have LOS E and LOS F for Existing, Background, and Build-out conditions for US 25 and NC 280 intersection approaches. Deficient intersection approach LOSs are not attributable to project trips. See the conclusions and mitigation recommendations section of the TIA for full explanation.

David W. Hyder
 TIA Consultant's Signature
 (Professional Engineer of TIA Record)

David W. Hyder, P.E.
 Print Name

05/07/2021
 Date

CRESCENT HILL

BUNCOMBE COUNTY
NC

**Preliminary
Not For
Construction**

REVISIONS	
DATE	DESCRIPTION



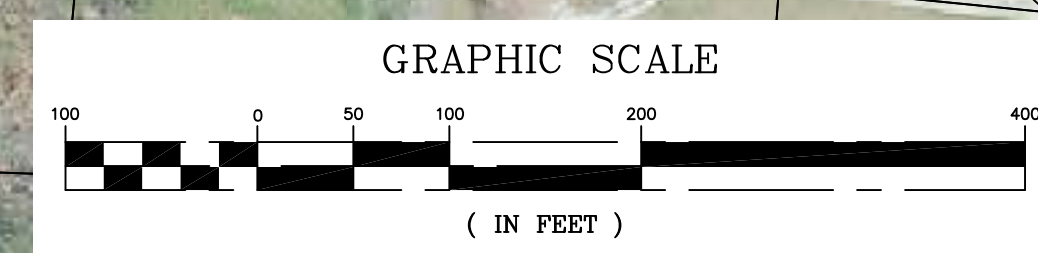
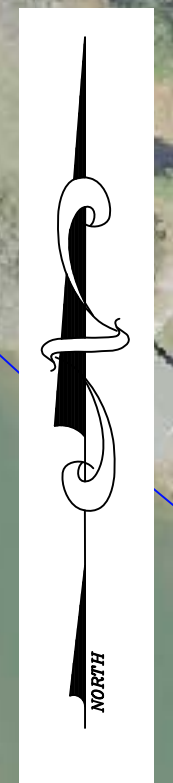
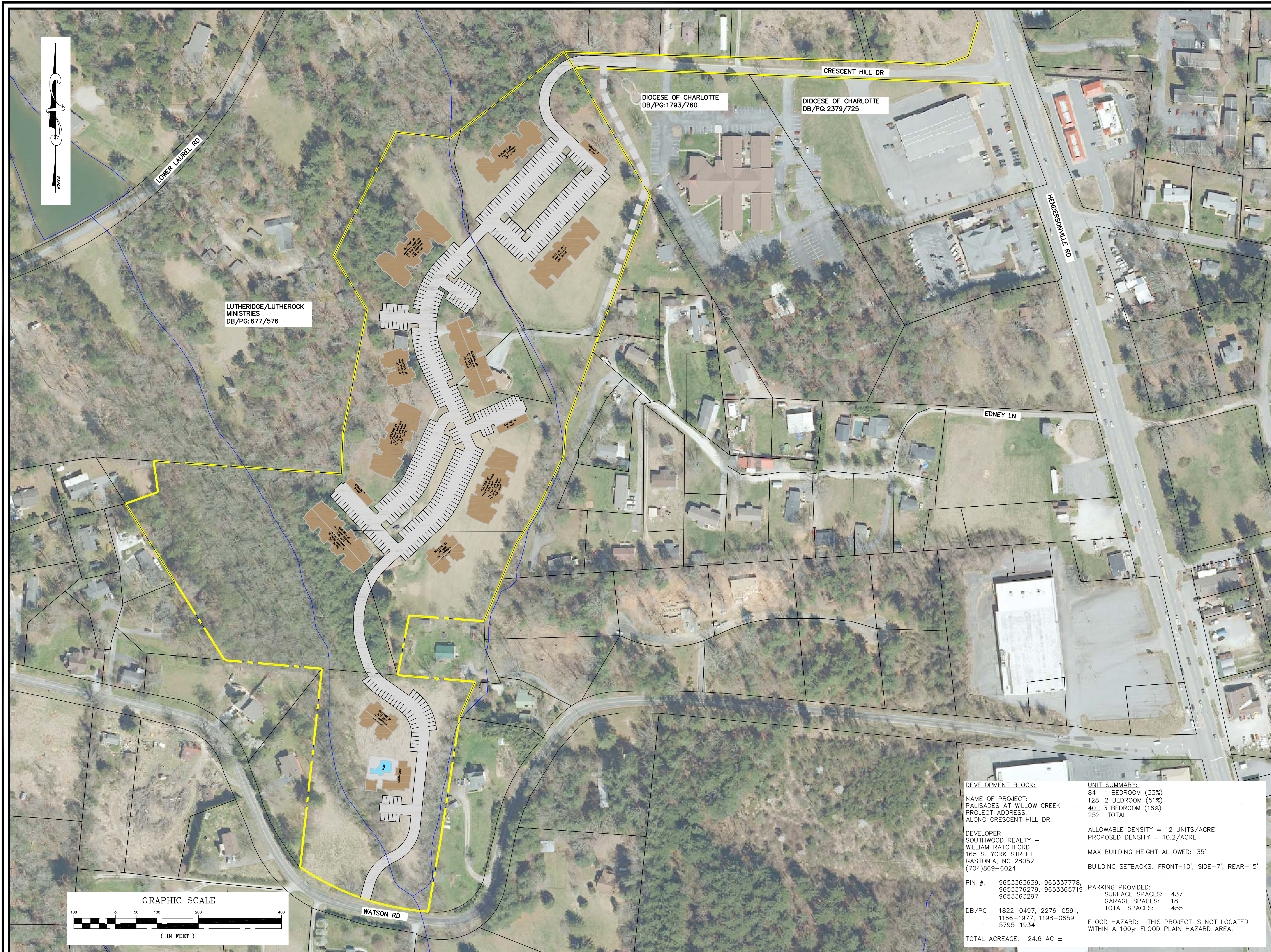
Know what's below.
Call before you dig.

PROJECT NUMBER: 20162
DATE: 1-7-21
DRAWN BY: JHL
CHECKED BY:

MASTER PLAN

C-100

SCALE: 1"=100'



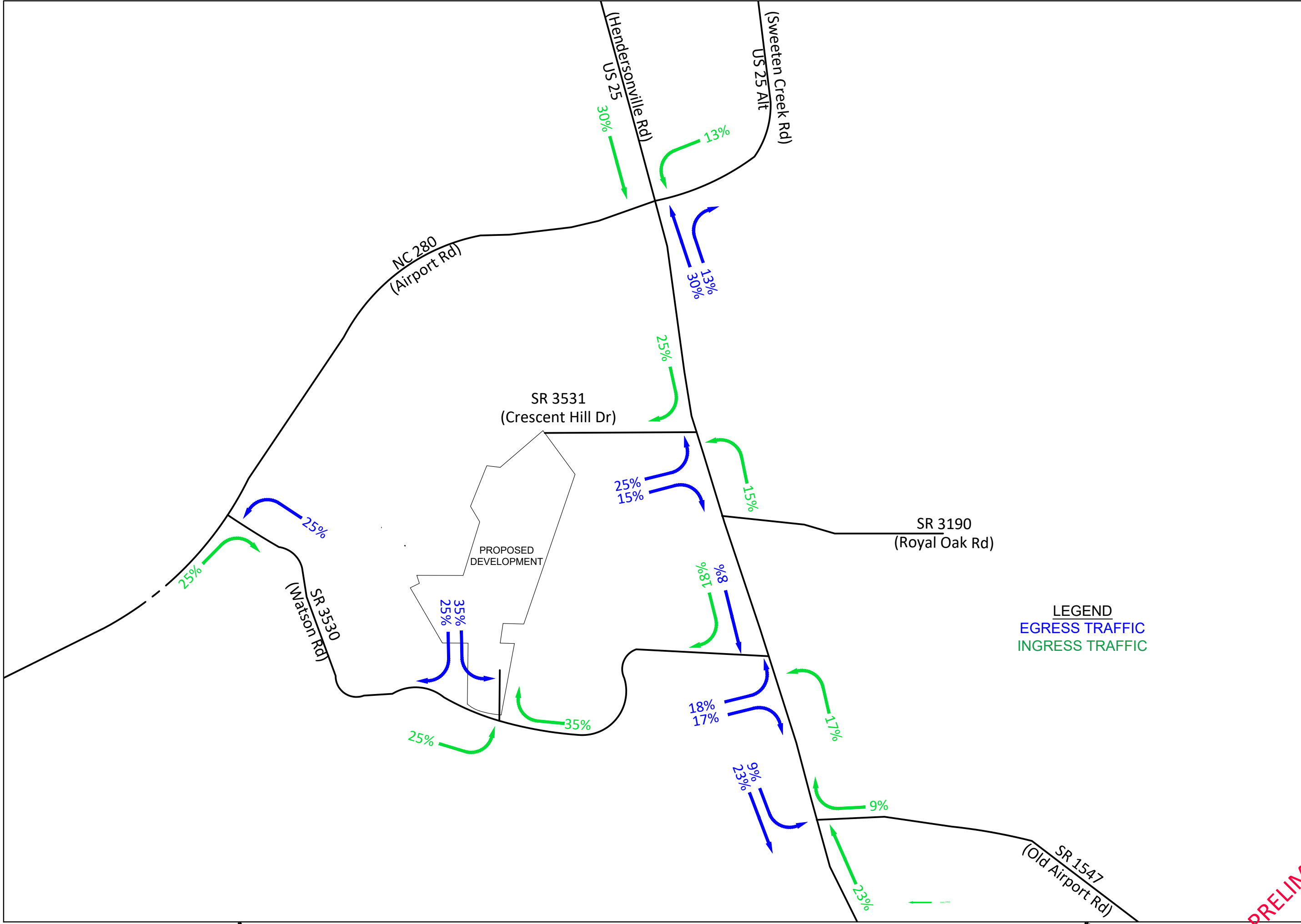
DEVELOPMENT BLOCK:
NAME OF PROJECT: PALISADES AT WILLOW CREEK
PROJECT ADDRESS: ALONG CRESCENT HILL DR
DEVELOPER: SOUTHWOOD REALTY - WILLIAM RATCHFORD
165 S. YORK STREET
GASTONIA, NC 28052
(704)869-6024
PIN #: 9653363639, 965337778, 9653376279, 9653365719, 9653363297
DB/PG: 1822-0497, 2276-0591, 1166-1977, 1198-0659, 5795-1934
TOTAL ACREAGE: 24.6 AC ±

UNIT SUMMARY:
84 1 BEDROOM (33%)
128 2 BEDROOM (51%)
40 3 BEDROOM (16%)
252 TOTAL

PARKING PROVIDED:
SURFACE SPACES: 437
GARAGE SPACES: 18
TOTAL SPACES: 455

FLOOD HAZARD: THIS PROJECT IS NOT LOCATED WITHIN A 100yr FLOOD PLAIN HAZARD AREA.

ALLOWABLE DENSITY = 12 UNITS/ACRE
PROPOSED DENSITY = 10.2/ACRE
MAX BUILDING HEIGHT ALLOWED: 35'
BUILDING SETBACKS: FRONT-10', SIDE-7', REAR-15'



 1155 N. MAIN ST. WAYNESVILLE, NC 28786 www.jmteagueengineering.com	NORTH ARROW 	SHEET TITLE TRIP DISTRIBUTION INGRESS & EGRESS PERCENTAGES	PROJECT: CRESCENT HILL MULTIFAMILY ADDRESS, CITY, STATE, ZIP (COUNTY)	DATE: 12/03, 2020
				SCALE: N.T.S.
				DRAWN: P. STEPP
				CHECKED: W. THOMPSEN
				PROJECT No.: WAYN 1099
				SHEET NUMBER: C-1

PRELIMINARY PLANS
DRAFT TIA DRAWINGS

Crescent Hill Multifamily TIA

SCOPING REVIEW

BULLET LIST OF NCDOT COMMENTS AND CONCERNS (SC-2020-268)

December 14, 2020

The Department of Transportation (NCDOT) has performed a review of the scoping document for the proposed Crescent Hill Multifamily development prepared by J.M. Teague (received December 7, 2020). According to the document, the proposed development is to be located in the southwest quadrant of US 25 (Hendersonville Rd) and SR 3531 (Crescent Hill Rd) in Arden, Buncombe County. The scoping document states that the full build-out of the development is to be constructed by 2022 and is to consist of residential land use. Based on our review, we have the following comments at this time:

General

- TIP Project U-2801A is in the immediate area of this project. The scoping documents indicate that TIP Design Year Analyses will not be provided and that a rezoning request will NOT be made for this project. **If this rezoning was not included in the forecast, then TIP Design Year Analysis should be provided. Justification should be provided for its exclusion.**

Trip Generation

- The Trip Generation appears reasonable.

Trip Distribution and Growth Rate

- Trip distribution appears reasonable.
- **Growth factor of 3.85 percent appears too high based on AADT growth trends in this area; it is suggested to rather use a 2 percent growth factor.**

Study Intersections

- Proposed study intersections appear reasonable.

Site Plan and Proposed Driveways

- Site plan appears reasonable and matches with the trip generation; however, please ensure that the proposed driveways are in accordance with the NCDOT Driveway Manual.

NOTE: This list should not be considered all-inclusive. Further review may identify additional areas of concern.

Crescent Hill Multifamily TIA

SCOPING REVIEW

BULLET LIST OF NCDOT COMMENTS AND CONCERNS (SC-2020-268)

March 10, 2021

The Department of Transportation (NCDOT) has performed a review of the scoping (2nd submittal) document for the proposed Crescent Hill Multifamily development prepared by J.M. Teague (received March 8, 2021).

According to the document, the proposed development is to be located in the southwest quadrant of US 25 (Hendersonville Rd) and SR 3531 (Crescent Hill Rd) in Arden, Buncombe County. The scoping document states that the full build-out of the development is to be constructed by 2022 and is to consist of 252 units of Multifamily Housing (Mid-Rise) [LUC code 221]. Based on our review, we have the following comments at this time:

General

- TIP Project U-2801A is in the immediate area of this project. The scoping documents indicate that TIP Design Year Analysis will not be provided and that a rezoning request will NOT be made for this project. **If this rezoning was not included in the forecast, then TIP Design Year Analysis should be provided. Justification should be provided for its exclusion.*** [Comment from December 11, 2020 CMS scope review]
 - ***NOTE: Current LET date is 09/21/2027**

Trip Generation

- The updated Trip Generation appears reasonable. The trip generation increased from 1077 trips to 1372 trips. [Observation]

Trip Distribution and Growth Rate

- Updated trip distribution appears reasonable.
- Updated growth factor of 2 percent appears reasonable.

Proposed Study Intersections

- Proposed study intersections appear reasonable. The intersections below have been added into the proposed network (Observation):
 - NC 280 (Airport Rd) and SR 3530 (Watson Rd)
 - US 25 (Hendersonville Rd) and SR 3530 (Watson Rd)
 - SR 3530 (Watson Rd) and Proposed Site Access Dwy

Site Plan and Proposed Driveways

- Updated site plan appears reasonable and matches with the updated trip generation; however, please ensure that the proposed driveways are in accordance with the NCDOT Driveway Manual.*
 - ***NOTE: Additional proposed site access has been added onto SR 3530 (Watson Rd).** [Observation]

NOTE: This list should not be considered all-inclusive. Further review may identify additional areas of concern.

From: [Dorato, Nicholas K](#)
To: [Will Thompsen](#)
Cc: [Patience Stepp](#); [David Hyder](#); [Ty Parham](#); [Gallo, Robert S](#); [Reese, Michael P](#); [Medlin, Christopher D](#); [Roberts, J. Paul](#)
Subject: RE: [External] Crescent Hill Multifamily - Arden, NC
Date: Monday, April 19, 2021 1:35:24 PM
Attachments: [image002.png](#)
[image003.png](#)

Will,

In addition to the TIP Project being LET after the development build out, the project involving a request for a conditional use approval by the Buncombe County Board of Adjustment rather than a Rezoning appear to be justification for not including a rezoning request.

The District office concurs with the scoping checklist for the proposed Development. This email concurrence may be used in lieu of the approval signature. Please submit TIA in accordance to NCDOT policies and procedures. Thanks in advance.

Thanks,

Nick Dorato
Engineering Specialist I
North Carolina Department of Transportation
Division 13 District 2

8282982741 office
nkdorato@ncdot.gov

11 Old Charlotte Hwy
Asheville, NC 28803



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Will Thompsen <will@jmteagueengineering.com>
Sent: Thursday, April 15, 2021 1:14 PM
To: Dorato, Nicholas K <nkdorato@ncdot.gov>
Cc: Patience Stepp <patience.stepp@jmteagueengineering.com>; David Hyder <David@jmteagueengineering.com>; Ty Parham <ty@jmteagueengineering.com>
Subject: [External] Crescent Hill Multifamily - Arden, NC

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an

attachment to [Report Spam](#).

Nick,

For the General Comment provided in the Scoping checklist review (copy attached) , I did some follow up checking with the development team and the project involves a request for a conditional use approval by the Buncombe County Board of Adjustment rather than a Rezoning. Would a need for a conditional use approval justify checking the rezoning request item? I know that the parcels have had the R-2 zoning classification for quite a few years and the FBRMPO Long-Range Plan Travel Demand Model used for forecasting relies upon land use projections consistent with future land use maps and zoning for Asheville and Buncombe County.

In addition, the note with the Current LET date for the STIP 2801A project will be added to the Scoping Checklist in the Additional Comments section at the bottom of Page 6 of 7.

Let us know if this clarifies the issue.

Thanks,

Will Thompsen

Transportation Specialist

J.M. Teague Engineering & Planning

1155 North Main Street

Waynesville, NC 28786

828.456.8383

www.jmteagueengineering.com



Dependable Planning • Innovative Engineering • Relationship Building

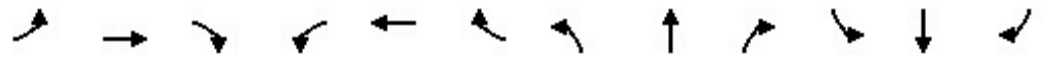
"This electronic mail and any files transmitted with it are confidential and are intended solely for the use of individual or entity to whom they are addressed. If you are not the intended recipient or the person responsible for delivering the electronic mail to the intended recipient, be advised that you have received this electronic mail in error and that any use, dissemination, forwarding, printing, or copying of this electronic mail is strictly prohibited. If you have received this electronic mail in error, please immediately notify the sender by return mail."

Please consider the environment before printing this e-mail.

Appendix B

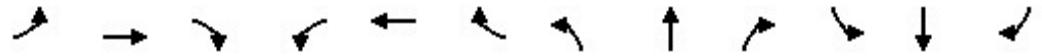
Synchro and Sim Traffic Reports

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2021
 Crescent Hill EX AM.syn 04/28/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	253	237	136	252	299	11	170	660	286	44	363	181
Future Volume (vph)	253	237	136	252	299	11	170	660	286	44	363	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			-5%			2%			0%	
Storage Length (ft)	500		300	450		275	375		375	275		0
Storage Lanes	2		1	1		2	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00
Frnt			0.850		0.993				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3519	3628	1623	3519	3602	0	3399	3504	1567	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3519	3628	1623	3519	3602	0	3399	3504	1567	1770	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2777			1452			2845			1986	
Travel Time (s)		42.1			22.0			43.1			30.1	
Peak Hour Factor	0.77	0.87	0.90	0.92	0.87	0.69	0.80	0.82	0.88	0.61	0.88	0.82
Adj. Flow (vph)	329	272	151	274	344	16	213	805	325	72	413	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	272	151	274	360	0	213	805	325	72	413	221
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	1.01	1.01	1.01	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	4	1	1	1		1	1	1	1	1	1
Detector Template										Left		
Leading Detector (ft)	60	306	40	60	60		60	306	0	40	306	0
Trailing Detector (ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Position(ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Size(ft)	60	40	40	60	60		60	6	0	40	6	0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	5.0	15.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		100										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		2.0										
Detector 3 Position(ft)		200										
Detector 3 Size(ft)		6										

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2021
 Crescent Hill EX AM.syn 04/28/2021









Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type	Cl+Ex											
Detector 3 Channel												
Detector 3 Extend (s)	0.0											
Detector 4 Position(ft)	300											
Detector 4 Size(ft)	6											
Detector 4 Type	Cl+Ex											
Detector 4 Channel												
Detector 4 Extend (s)	0.0											
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3	5	4	4		5	2	4	1	6	3
Permitted Phases			3						2			6
Detector Phase	3	3	5	4	4		5	2	4	1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	48.0	48.0	37.0	52.0	52.0		37.0	105.0	52.0	30.0	98.0	48.0
Total Split (%)	20.4%	20.4%	15.7%	22.1%	22.1%		15.7%	44.7%	22.1%	12.8%	41.7%	20.4%
Maximum Green (s)	41.0	41.0	30.0	45.0	45.0		30.0	98.0	45.0	23.0	91.0	41.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	1.0	1.0	1.0		1.0	6.0	1.0	2.0	6.0	6.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	3.0	0.2	0.2	3.0	0.2
Time Before Reduce (s)	10.0	10.0	0.0	0.0	0.0		0.0	15.0	0.0	0.0	15.0	10.0
Time To Reduce (s)	20.0	20.0	0.0	0.0	0.0		0.0	40.0	0.0	0.0	40.0	20.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	34.1	34.1	54.2	29.1	29.1		20.1	135.9	165.0	15.9	131.7	170.8
Actuated g/C Ratio	0.15	0.15	0.23	0.12	0.12		0.09	0.58	0.70	0.07	0.56	0.73
v/c Ratio	0.65	0.52	0.40	0.63	0.81		0.73	0.40	0.30	0.60	0.21	0.19
Control Delay	100.4	95.8	52.4	104.1	114.4		119.4	29.4	8.3	126.1	27.6	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.4	95.8	52.4	104.1	114.4		119.4	29.4	8.3	126.1	27.6	11.5
LOS	F	F	D	F	F		F	C	A	F	C	B
Approach Delay	89.1				110.0			38.6			32.6	
Approach LOS	F				F			D			C	
Queue Length 50th (ft)	253	210	157	212	292		169	354	108	111	165	104
Queue Length 95th (ft)	255	248	193	263	335		193	432	162	116	234	150
Internal Link Dist (ft)	2697				1372			2765			1906	
Turn Bay Length (ft)	500		300	450			375		375	275		
Base Capacity (vph)	643	663	456	703	720		462	2026	1214	188	1983	1210
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.41	0.33	0.39	0.50		0.46	0.40	0.27	0.38	0.21	0.18

Intersection Summary

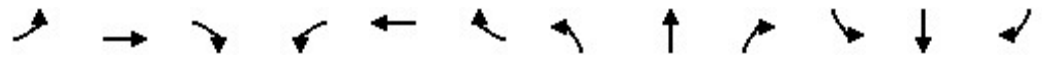
1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2021
 Crescent Hill EX AM.syn 04/28/2021

Area Type:	Other		
Cycle Length:	235		
Actuated Cycle Length:	235		
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection		
Natural Cycle:	65		
Control Type:	Actuated-Coordinated		
Maximum v/c Ratio:	0.81		
Intersection Signal Delay:	61.6	Intersection LOS:	E
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

Splits and Phases: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

 Ø1	 Ø2 (R)	 Ø3	 Ø4
30 s	105 s	48 s	52 s
 Ø5	 Ø6 (R)		
37 s	98 s		

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2021
 Crescent Hill EX PM.syn 05/03/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	398	462	260	332	333	13	234	607	341	104	821	436
Future Volume (vph)	398	462	260	332	333	13	234	607	341	104	821	436
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			-5%			2%			0%	
Storage Length (ft)	500		300	450		275	375		375	275		0
Storage Lanes	2		1	1		2	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850		0.991				0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3519	3628	1623	3519	3595	0	3399	3504	1567	1770	3539	1583
Fl _t Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3519	3628	1623	3519	3595	0	3399	3504	1567	1770	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2777			1452			2845			1986	
Travel Time (s)		42.1			22.0			43.1			30.1	
Peak Hour Factor	0.90	0.93	0.85	0.88	0.90	0.54	0.89	0.92	0.88	0.84	1.00	0.87
Adj. Flow (vph)	442	497	306	377	370	24	263	660	388	124	821	501
Shared Lane Traffic (%)												
Lane Group Flow (vph)	442	497	306	377	394	0	263	660	388	124	821	501
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	1.01	1.01	1.01	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	4	1	1	1		1	1	1	1	1	1
Detector Template										Left		
Leading Detector (ft)	60	306	40	60	60		60	306	0	40	306	0
Trailing Detector (ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Position(ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Size(ft)	60	40	40	60	60		60	6	0	40	6	0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	5.0	15.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		100										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		2.0										
Detector 3 Position(ft)		200										
Detector 3 Size(ft)		6										

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2021
 Crescent Hill EX PM.syn 05/03/2021









Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type	Cl+Ex											
Detector 3 Channel												
Detector 3 Extend (s)	0.0											
Detector 4 Position(ft)	300											
Detector 4 Size(ft)	6											
Detector 4 Type	Cl+Ex											
Detector 4 Channel												
Detector 4 Extend (s)	0.0											
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3	5	4	4		5	2	4	1	6	3
Permitted Phases	3						2			6		
Detector Phase	3	3	5	4	4		5	2	4	1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	57.0	57.0	39.0	48.0	48.0		39.0	94.0	48.0	36.0	91.0	57.0
Total Split (%)	24.3%	24.3%	16.6%	20.4%	20.4%		16.6%	40.0%	20.4%	15.3%	38.7%	24.3%
Maximum Green (s)	50.0	50.0	32.0	41.0	41.0		32.0	87.0	41.0	29.0	84.0	50.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	1.0	1.0	1.0		1.0	6.0	1.0	2.0	6.0	6.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	3.0	0.2	0.2	3.0	0.2
Time Before Reduce (s)	10.0	10.0	0.0	0.0	0.0		0.0	15.0	0.0	0.0	15.0	10.0
Time To Reduce (s)	20.0	20.0	0.0	0.0	0.0		0.0	40.0	0.0	0.0	40.0	20.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	49.7	49.7	73.4	31.4	31.4		23.6	111.0	142.4	22.8	110.2	165.0
Actuated g/C Ratio	0.21	0.21	0.31	0.13	0.13		0.10	0.47	0.61	0.10	0.47	0.70
v/c Ratio	0.59	0.65	0.60	0.80	0.82		0.77	0.40	0.41	0.73	0.49	0.45
Control Delay	86.3	88.2	46.8	111.8	113.1		118.1	43.7	15.5	125.4	46.7	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.3	88.2	46.8	111.8	113.1		118.1	43.7	15.5	125.4	46.7	17.9
LOS	F	F	D	F	F		F	D	B	F	D	B
Approach Delay	77.4				112.5			50.3			43.5	
Approach LOS	E				F			D			D	
Queue Length 50th (ft)	326	379	302	298	320		209	347	189	191	460	325
Queue Length 95th (ft)	368	423	288	344	376		258	492	284	251	631	463
Internal Link Dist (ft)	2697				1372			2765			1906	
Turn Bay Length (ft)	500		300	450			375		375	275		
Base Capacity (vph)	806	831	578	643	657		491	1664	1027	233	1660	1139
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.60	0.53	0.59	0.60		0.54	0.40	0.38	0.53	0.49	0.44

Intersection Summary

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2021
 Crescent Hill EX PM.syn 05/03/2021

Area Type: Other
 Cycle Length: 235
 Actuated Cycle Length: 235
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 65.3 Intersection LOS: E
 Intersection Capacity Utilization 68.3% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

 Ø1	 Ø2 (R)	 Ø3	 Ø4
36 s	94 s	57 s	48 s
 Ø5	 Ø6 (R)		
39 s	91 s		

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	13	4	9	4	4	11	12	1087	4	5	697	20
Future Vol, veh/h	13	4	9	4	4	11	12	1087	4	5	697	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	54	25	45	50	25	55	55	86	38	42	86	56
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	16	20	8	16	20	22	1264	11	12	810	36

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1536	2171	423	1751	2184	638	846	0	0	1275	0	0
Stage 1	852	852	-	1314	1314	-	-	-	-	-	-	-
Stage 2	684	1319	-	437	870	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
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	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	79	46	579	55	45	419	787	-	-	540	-	-
Stage 1	321	374	-	167	226	-	-	-	-	-	-	-
Stage 2	405	225	-	568	367	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	52	44	579	37	43	419	787	-	-	540	-	-
Mov Cap-2 Maneuver	52	44	-	37	43	-	-	-	-	-	-	-
Stage 1	312	366	-	162	220	-	-	-	-	-	-	-
Stage 2	348	219	-	513	359	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	169		122.7		0.2		0.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	787	-	-	70	69	540	-	-
HCM Lane V/C Ratio	0.028	-	-	0.858	0.638	0.022	-	-
HCM Control Delay (s)	9.7	-	-	169	122.7	11.8	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.2	2.8	0.1	-	-

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	22	4	5	4	4	10	4	1098	4	9	1363	7
Future Vol, veh/h	22	4	5	4	4	10	4	1098	4	9	1363	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	25	62	25	25	62	38	92	75	35	82	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	16	8	16	16	16	11	1193	5	26	1662	12

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2347	2940	837	2109	2944	599	1674	0	0	1198	0	0
Stage 1	1720	1720	-	1218	1218	-	-	-	-	-	-	-
Stage 2	627	1220	-	891	1726	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
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	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 19	~ 15	310	29	~ 15	445	379	-	-	578	-	-
Stage 1	93	143	-	191	251	-	-	-	-	-	-	-
Stage 2	438	251	-	304	142	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	~ 14	310	-	~ 14	445	379	-	-	578	-	-
Mov Cap-2 Maneuver	-	~ 14	-	-	~ 14	-	-	-	-	-	-	-
Stage 1	90	137	-	185	244	-	-	-	-	-	-	-
Stage 2	383	244	-	250	136	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s					0.1		0.2	
HCM LOS	-		-					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	379	-	-	-	-	578	-	-
HCM Lane V/C Ratio	0.028	-	-	-	-	0.044	-	-
HCM Control Delay (s)	14.8	-	-	-	-	11.5	-	-
HCM Lane LOS	B	-	-	-	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓		↔	↑↑
Traffic Vol, veh/h	17	27	1075	15	14	666
Future Vol, veh/h	17	27	1075	15	14	666
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	61	61	85	62	32	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	44	1265	24	44	766

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1748	645	0	0	1289
Stage 1	1277	-	-	-	-
Stage 2	471	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	77	415	-	-	534
Stage 1	226	-	-	-	-
Stage 2	594	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	71	415	-	-	534
Mov Cap-2 Maneuver	171	-	-	-	-
Stage 1	226	-	-	-	-
Stage 2	545	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.3	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	268	534
HCM Lane V/C Ratio	-	-	0.269	0.082
HCM Control Delay (s)	-	-	23.3	12.3
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1.1	0.3

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑		↑↑		↑	↑↑
Traffic Vol, veh/h	24	23	1064	22	27	1324
Future Vol, veh/h	24	23	1064	22	27	1324
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	64	93	79	61	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	36	1144	28	44	1576

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2034	586	0	0	1172
Stage 1	1158	-	-	-	-
Stage 2	876	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	49	454	-	-	592
Stage 1	261	-	-	-	-
Stage 2	368	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	45	454	-	-	592
Mov Cap-2 Maneuver	155	-	-	-	-
Stage 1	261	-	-	-	-
Stage 2	341	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.1	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	238	592
HCM Lane V/C Ratio	-	-	0.285	0.075
HCM Control Delay (s)	-	-	26.1	11.6
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	1.1	0.2

4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)
Crescent Hill EX AM.syn

Year 2021
04/28/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	43	46	1084	667	13
Future Volume (vph)	11	43	46	1084	667	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			2%	2%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.850			0.996	
Fl _t Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1752	3504	3490	0
Fl _t Permitted	0.950		0.329			
Satd. Flow (perm)	1770	1583	607	3504	3490	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			45	45	
Link Distance (ft)	1390			2181	1316	
Travel Time (s)	37.9			33.0	19.9	
Peak Hour Factor	0.55	0.77	0.72	0.88	0.87	0.65
Adj. Flow (vph)	20	56	64	1232	767	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	56	64	1232	787	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	1.00	1.00	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	1	1	
Detector Template						
Leading Detector (ft)	60	55	60	306	306	
Trailing Detector (ft)	0	-5	0	300	300	
Detector 1 Position(ft)	0	-5	0	300	300	
Detector 1 Size(ft)	60	60	60	6	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	3.0	15.0	15.0	0.0	0.0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	12.0	12.0	
Minimum Split (s)	12.0	12.0	12.0	19.0	19.0	

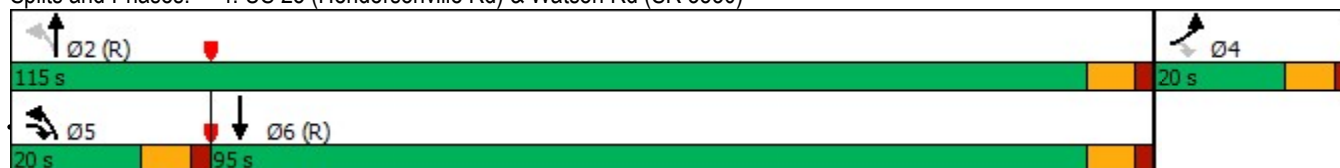


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Split (s)	20.0	20.0	20.0	115.0	95.0	
Total Split (%)	14.8%	14.8%	14.8%	85.2%	70.4%	
Maximum Green (s)	13.0	13.0	13.0	108.0	88.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	
Minimum Gap (s)	0.2	0.2	0.2	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	30.0	30.0	
Recall Mode	None	None	None	C-Min	C-Min	
Act Effect Green (s)	7.6	15.1	122.2	124.2	113.3	
Actuated g/C Ratio	0.06	0.11	0.91	0.92	0.84	
v/c Ratio	0.20	0.32	0.10	0.38	0.27	
Control Delay	65.3	57.5	1.5	1.6	3.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	65.3	57.5	1.5	1.6	3.5	
LOS	E	E	A	A	A	
Approach Delay	59.5			1.6	3.5	
Approach LOS	E			A	A	
Queue Length 50th (ft)	17	44	5	76	85	
Queue Length 95th (ft)	27	73	9	105	110	
Internal Link Dist (ft)	1310			2101	1236	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	196	267	676	3223	2928	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.21	0.09	0.38	0.27	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 135
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.38
 Intersection Signal Delay: 4.4
 Intersection Capacity Utilization 42.5%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)



4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)
Crescent Hill EX PM.syn

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	28	100	82	1045	1305	31
Future Volume (vph)	28	100	82	1045	1305	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			2%	2%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850			0.996	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1752	3504	3490	0
Flt Permitted	0.950		0.121			
Satd. Flow (perm)	1770	1583	223	3504	3490	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			45	45	
Link Distance (ft)	1390			2181	1316	
Travel Time (s)	37.9			33.0	19.9	
Peak Hour Factor	0.54	0.86	0.93	0.92	0.85	0.78
Adj. Flow (vph)	52	116	88	1136	1535	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	116	88	1136	1575	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	1.00	1.00	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	1	1	
Detector Template						
Leading Detector (ft)	60	55	60	306	306	
Trailing Detector (ft)	0	-5	0	300	300	
Detector 1 Position(ft)	0	-5	0	300	300	
Detector 1 Size(ft)	60	60	60	6	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	3.0	15.0	15.0	0.0	0.0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	12.0	12.0	
Minimum Split (s)	12.0	12.0	12.0	19.0	19.0	

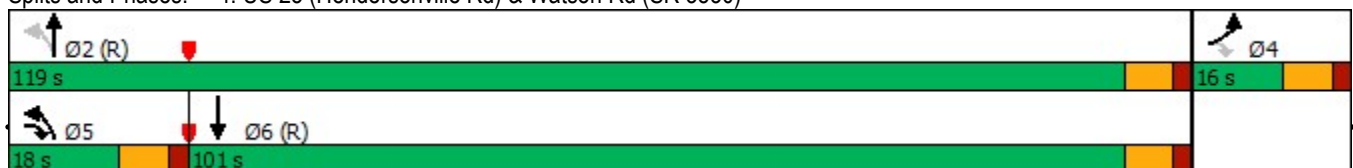


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Split (s)	16.0	18.0	18.0	119.0	101.0	
Total Split (%)	11.9%	13.3%	13.3%	88.1%	74.8%	
Maximum Green (s)	9.0	11.0	11.0	112.0	94.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	
Minimum Gap (s)	0.2	0.2	0.2	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	30.0	30.0	
Recall Mode	None	None	None	C-Min	C-Min	
Act Effct Green (s)	9.6	19.9	117.8	118.8	105.1	
Actuated g/C Ratio	0.07	0.15	0.87	0.88	0.78	
v/c Ratio	0.41	0.50	0.31	0.37	0.58	
Control Delay	69.1	59.2	4.5	2.4	7.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	69.1	59.2	4.5	2.4	7.7	
LOS	E	E	A	A	A	
Approach Delay	62.3			2.5	7.7	
Approach LOS	E			A	A	
Queue Length 50th (ft)	45	94	9	82	266	
Queue Length 95th (ft)	51	144	20	125	330	
Internal Link Dist (ft)	1310			2101	1236	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	149	295	341	3092	2718	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.35	0.39	0.26	0.37	0.58	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 135
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 8.6
 Intersection LOS: A
 Intersection Capacity Utilization 58.3%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)



5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)
Crescent Hill EX AM.syn

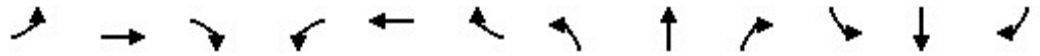
Year 2021
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	25	56	81	38	235	64	889	95	163	500	26
Future Volume (vph)	39	25	56	81	38	235	64	889	95	163	500	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			0%				2%
Storage Length (ft)	75		75	450		0	275		0	175		0
Storage Lanes	1		1	1		1	1		0	2		0
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	0.97	0.95	0.95
Fr _t			0.850			0.850		0.982			0.993	
Fl _t Protected	0.950				0.965		0.950			0.950		
Satd. Flow (prot)	1743	1835	1560	0	1816	1599	1770	3476	0	3399	3479	0
Fl _t Permitted	0.453				0.754		0.390			0.950		
Satd. Flow (perm)	831	1835	1560	0	1419	1599	726	3476	0	3399	3479	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45				45
Link Distance (ft)		1236			2004			1164				2181
Travel Time (s)		33.7			39.0			17.6				33.0
Peak Hour Factor	0.75	0.48	0.88	0.72	0.86	0.86	0.76	0.91	0.72	0.87	0.83	0.93
Adj. Flow (vph)	52	52	64	113	44	273	84	977	132	187	602	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	52	64	0	157	273	84	1109	0	187	630	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				24
Link Offset(ft)		0			12			12				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane								Yes				Yes
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template				Left								
Leading Detector (ft)	40	40	40	20	40	0	40	316		60	301	
Trailing Detector (ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Position(ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Size(ft)	40	40	40	20	40	0	40	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0	15.0	0.0	3.0	0.0	15.0	0.0		0.0	0.0	
Turn Type	Perm	NA	pm+ov	Perm	NA	Free	D.P+P	NA		Prot	NA	
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8		Free	6					
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0		14.0	19.0	

5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)
Crescent Hill EX AM.syn

Year 2021
04/28/2021

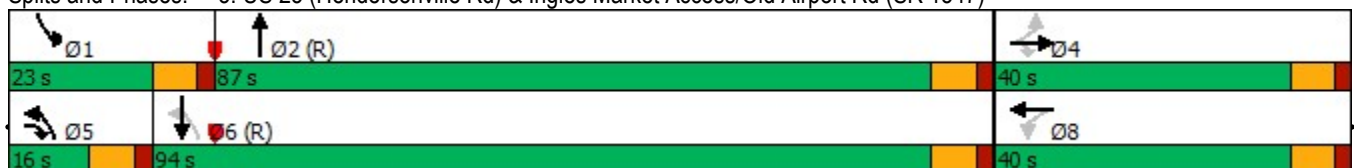


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	40.0	40.0	16.0	40.0	40.0		16.0	87.0		23.0	94.0	
Total Split (%)	26.7%	26.7%	10.7%	26.7%	26.7%		10.7%	58.0%		15.3%	62.7%	
Maximum Green (s)	33.0	33.0	9.0	33.0	33.0		9.0	80.0		16.0	87.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0		-2.0	-2.0		-2.0	-2.0	
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		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	6.0		1.0	6.0	
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	3.2		0.2	3.2	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	23.0	23.0	37.2		23.0	150.0	112.0	98.4		13.7	102.8	
Actuated g/C Ratio	0.15	0.15	0.25		0.15	1.00	0.75	0.66		0.09	0.69	
v/c Ratio	0.41	0.19	0.17		0.72	0.17	0.14	0.49		0.61	0.26	
Control Delay	65.2	54.5	43.2		78.3	0.2	5.2	15.1		73.7	10.0	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.2	54.5	43.2		78.3	0.2	5.2	15.1		73.7	10.0	
LOS	E	D	D		E	A	A	B		E	B	
Approach Delay		53.5			28.7			14.4			24.6	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	47	45	50		148	0	17	272		92	115	
Queue Length 95th (ft)	72	43	83		206	0	31	405		126	158	
Internal Link Dist (ft)		1156			1924			1084			2101	
Turn Bay Length (ft)	75		75				275			175		
Base Capacity (vph)	193	428	405		331	1599	627	2279		407	2384	
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	0.27	0.12	0.16		0.47	0.17	0.13	0.49		0.46	0.26	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 22.5
 Intersection Capacity Utilization 59.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

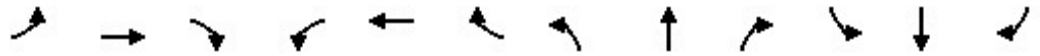


5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)
Crescent Hill EX PM.syn

Year 2021
05/03/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	62	130	78	45	193	104	891	93	231	1066	74
Future Volume (vph)	76	62	130	78	45	193	104	891	93	231	1066	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			0%			2%	
Storage Length (ft)	75		75	450		0	275		0	175		0
Storage Lanes	1		1	1		1	1		0	2		0
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	0.97	0.95	0.95
Fr _t			0.850				0.850			0.984		0.988
Fl _t Protected	0.950				0.968		0.950			0.950		
Satd. Flow (prot)	1743	1835	1560	0	1821	1599	1770	3483	0	3399	3462	0
Fl _t Permitted	0.439				0.737		0.142			0.950		
Satd. Flow (perm)	805	1835	1560	0	1387	1599	265	3483	0	3399	3462	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		1236			2004			1164			2181	
Travel Time (s)		33.7			39.0			17.6			33.0	
Peak Hour Factor	0.79	0.82	0.77	0.70	0.80	0.80	0.93	0.91	0.78	0.77	0.84	0.69
Adj. Flow (vph)	96	76	169	111	56	241	112	979	119	300	1269	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	76	169	0	167	241	112	1098	0	300	1376	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			12			12			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template				Left								
Leading Detector (ft)	40	40	40	20	40	0	40	316		60	301	
Trailing Detector (ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Position(ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Size(ft)	40	40	40	20	40	0	40	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0	15.0	0.0	3.0	0.0	15.0	0.0		0.0	0.0	
Turn Type	Perm	NA	pm+ov	Perm	NA	Free	D.P+P	NA		Prot	NA	
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8		Free	6					
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0		14.0	19.0	

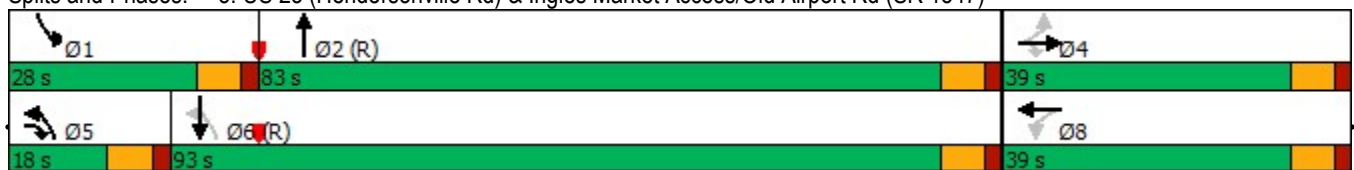


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	39.0	39.0	18.0	39.0	39.0		18.0	83.0		28.0	93.0	
Total Split (%)	26.0%	26.0%	12.0%	26.0%	26.0%		12.0%	55.3%		18.7%	62.0%	
Maximum Green (s)	32.0	32.0	11.0	32.0	32.0		11.0	76.0		21.0	86.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0		-2.0	-2.0		-2.0	-2.0	
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		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	6.0		1.0	6.0	
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	3.2		0.2	3.2	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	24.1	24.1	39.2		24.1	150.0	110.9	92.3		18.6	100.8	
Actuated g/C Ratio	0.16	0.16	0.26		0.16	1.00	0.74	0.62		0.12	0.67	
v/c Ratio	0.74	0.26	0.42		0.75	0.15	0.38	0.51		0.71	0.59	
Control Delay	91.1	55.4	47.6		79.9	0.2	8.7	18.6		72.5	15.8	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	91.1	55.4	47.6		79.9	0.2	8.7	18.6		72.5	15.8	
LOS	F	E	D		E	A	A	B		E	B	
Approach Delay		61.6			32.8			17.7			25.9	
Approach LOS		E			C			B			C	
Queue Length 50th (ft)	91	66	139		158	0	23	302		147	353	
Queue Length 95th (ft)	129	99	157		199	0	50	450		162	477	
Internal Link Dist (ft)		1156			1924			1084			2101	
Turn Bay Length (ft)	75		75				275			175		
Base Capacity (vph)	182	415	438		314	1599	332	2143		523	2326	
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	0.18	0.39		0.53	0.15	0.34	0.51		0.57	0.59	

Intersection Summary

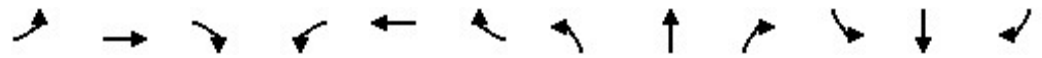
Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 27.3
 Intersection LOS: C
 Intersection Capacity Utilization 63.5%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

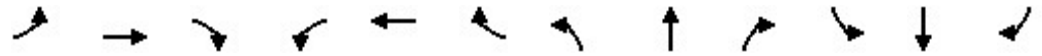


6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)
Crescent Hill EX AM.syn

Year 2021
04/28/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Traffic Volume (vph)	15	741	56	18	669	4	80	4	34	4	4	5
Future Volume (vph)	15	741	56	18	669	4	80	4	34	4	4	5
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		0	0		175	25		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.998			0.890				0.950
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3493	0	1770	3532	0	1770	1658	0	1770	1770	0
Flt Permitted	0.351			0.299			0.742			0.718		
Satd. Flow (perm)	654	3493	0	557	3532	0	1382	1658	0	1337	1770	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25				20
Link Distance (ft)		1295			1938			1047				1134
Travel Time (s)		19.6			29.4			28.6				38.7
Peak Hour Factor	0.47	0.89	0.74	0.64	0.88	0.50	0.77	0.25	0.77	0.25	0.25	0.62
Adj. Flow (vph)	32	833	76	28	760	8	104	16	44	16	16	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	909	0	28	768	0	104	60	0	16	24	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			12				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane		Yes			Yes							
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	35	306		60	306		40	40		35	35	
Trailing Detector (ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Position(ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Size(ft)	40	6		60	6		40	40		45	45	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0		3.0	0.0		3.0	10.0		3.0	10.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	79.0	79.0		79.0	79.0		36.0	36.0		36.0	36.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	68.7%	68.7%		68.7%	68.7%		31.3%	31.3%		31.3%	31.3%	
Maximum Green (s)	72.0	72.0		72.0	72.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	30.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None		None	None	
Act Effect Green (s)	89.9	89.9		89.9	89.9		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.13	0.13		0.13	0.13	
v/c Ratio	0.06	0.33		0.06	0.28		0.57	0.28		0.09	0.10	
Control Delay	4.1	4.5		4.2	4.1		58.5	46.4		42.5	42.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	4.1	4.5		4.2	4.1		58.5	46.4		42.5	42.4	
LOS	A	A		A	A		E	D		D	D	
Approach Delay		4.4			4.1			54.1			42.5	
Approach LOS		A			A			D			D	
Queue Length 50th (ft)	5	85		4	68		73	41		11	16	
Queue Length 95th (ft)	7	139		9	111		104	21		8	10	
Internal Link Dist (ft)		1215			1858			967			1054	
Turn Bay Length (ft)	75			125						25		
Base Capacity (vph)	511	2730		435	2761		372	446		360	477	
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	0.06	0.33		0.06	0.28		0.28	0.13		0.04	0.05	

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 40
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.57
 Intersection Signal Delay: 9.3
 Intersection LOS: A
 Intersection Capacity Utilization 41.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)



6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)
Crescent Hill EX PM.syn

Year 2021
05/03/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	1078	117	46	1181	36	96	6	43	28	10	46
Future Volume (vph)	28	1078	117	46	1181	36	96	6	43	28	10	46
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		0	0		175	25		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.995			0.880				0.884
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3483	0	1770	3522	0	1770	1639	0	1770	1647	0
Flt Permitted	0.176			0.177			0.695			0.718		
Satd. Flow (perm)	328	3483	0	330	3522	0	1295	1639	0	1337	1647	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25				20
Link Distance (ft)		1295			1938			1047				1134
Travel Time (s)		19.6			29.4			28.6				38.7
Peak Hour Factor	0.75	0.90	0.81	0.77	0.91	0.75	0.92	0.50	0.90	0.78	0.50	0.68
Adj. Flow (vph)	37	1198	144	60	1298	48	104	12	48	36	20	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	1342	0	60	1346	0	104	60	0	36	88	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			12				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane		Yes			Yes							
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	35	306		60	306		40	40		35	35	
Trailing Detector (ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Position(ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Size(ft)	40	6		60	6		40	40		45	45	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0		3.0	0.0		3.0	10.0		3.0	10.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	86.0	86.0		86.0	86.0		29.0	29.0		29.0	29.0	

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2022
 Crescent Hill BG AM.syn 04/28/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	242	139	257	305	11	173	673	292	45	370	185
Future Volume (vph)	258	242	139	257	305	11	173	673	292	45	370	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			-5%			2%			0%	
Storage Length (ft)	500		300	450		275	375		375	275		0
Storage Lanes	2		1	1		2	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850		0.995				0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3519	3628	1623	3519	3610	0	3399	3504	1567	1770	3539	1583
Fl _t Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3519	3628	1623	3519	3610	0	3399	3504	1567	1770	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2777			1452			2845			1986	
Travel Time (s)		42.1			22.0			43.1			30.1	
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)	287	269	154	286	339	12	192	748	324	50	411	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	269	154	286	351	0	192	748	324	50	411	206
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	1.01	1.01	1.01	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	4	1	1	1		1	1	1	1	1	1
Detector Template										Left		
Leading Detector (ft)	60	306	40	60	60		60	306	0	40	306	0
Trailing Detector (ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Position(ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Size(ft)	60	40	40	60	60		60	6	0	40	6	0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	5.0	15.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		100										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		2.0										
Detector 3 Position(ft)		200										
Detector 3 Size(ft)		6										

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2022
 Crescent Hill BG AM.syn 04/28/2021









Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type	Cl+Ex											
Detector 3 Channel												
Detector 3 Extend (s)	0.0											
Detector 4 Position(ft)	300											
Detector 4 Size(ft)	6											
Detector 4 Type	Cl+Ex											
Detector 4 Channel												
Detector 4 Extend (s)	0.0											
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3	5	4	4		5	2	4	1	6	3
Permitted Phases	3						2			6		
Detector Phase	3	3	5	4	4		5	2	4	1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	47.0	47.0	37.0	54.0	54.0		37.0	108.0	54.0	26.0	97.0	47.0
Total Split (%)	20.0%	20.0%	15.7%	23.0%	23.0%		15.7%	46.0%	23.0%	11.1%	41.3%	20.0%
Maximum Green (s)	40.0	40.0	30.0	47.0	47.0		30.0	101.0	47.0	19.0	90.0	40.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	1.0	1.0	1.0		1.0	6.0	1.0	2.0	6.0	6.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	3.0	0.2	0.2	3.0	0.2
Time Before Reduce (s)	10.0	10.0	0.0	0.0	0.0		0.0	15.0	0.0	0.0	15.0	10.0
Time To Reduce (s)	20.0	20.0	0.0	0.0	0.0		0.0	40.0	0.0	0.0	40.0	20.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	31.0	31.0	49.7	28.4	28.4		18.6	142.4	170.8	13.1	136.9	172.9
Actuated g/C Ratio	0.13	0.13	0.21	0.12	0.12		0.08	0.61	0.73	0.06	0.58	0.74
v/c Ratio	0.62	0.56	0.45	0.67	0.81		0.71	0.35	0.28	0.51	0.20	0.18
Control Delay	101.9	99.7	57.0	106.6	114.7		120.1	25.1	7.1	124.7	24.9	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.9	99.7	57.0	106.6	114.7		120.1	25.1	7.1	124.7	24.9	10.6
LOS	F	F	E	F	F		F	C	A	F	C	B
Approach Delay	91.3					111.0		34.9		28.0		
Approach LOS	F					F		C		C		
Queue Length 50th (ft)	221	210	167	223	285		153	301	100	77	156	92
Queue Length 95th (ft)	270	260	207	275	342		201	416	156	133	228	150
Internal Link Dist (ft)	2697					1372		2765		1906		
Turn Bay Length (ft)	500		300	450				375	375		275	
Base Capacity (vph)	628	648	435	733	752		462	2122	1263	158	2061	1238
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.42	0.35	0.39	0.47		0.42	0.35	0.26	0.32	0.20	0.17

Intersection Summary

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2022
 Crescent Hill BG AM.syn 04/28/2021

Area Type: Other
 Cycle Length: 235
 Actuated Cycle Length: 235
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 60.5 Intersection LOS: E
 Intersection Capacity Utilization 57.2% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

 Ø1	 2 (R)	 Ø3	 Ø4
26 s	108 s	47 s	54 s
 Ø5	 Ø6 (R)		
37 s	97 s		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	406	471	265	339	340	13	239	619	348	106	837	445
Future Volume (vph)	406	471	265	339	340	13	239	619	348	106	837	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			-5%			2%			0%	
Storage Length (ft)	500		300	450		275	375		375	275		0
Storage Lanes	2		1	1		2	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850		0.995				0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3519	3628	1623	3519	3610	0	3399	3504	1567	1770	3539	1583
Fl _t Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3519	3628	1623	3519	3610	0	3399	3504	1567	1770	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2777			1452			2845			1986	
Travel Time (s)		42.1			22.0			43.1			30.1	
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)	451	523	294	377	378	14	266	688	387	118	930	494
Shared Lane Traffic (%)												
Lane Group Flow (vph)	451	523	294	377	392	0	266	688	387	118	930	494
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	1.01	1.01	1.01	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	4	1	1	1		1	1	1	1	1	1
Detector Template										Left		
Leading Detector (ft)	60	306	40	60	60		60	306	0	40	306	0
Trailing Detector (ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Position(ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Size(ft)	60	40	40	60	60		60	6	0	40	6	0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	5.0	15.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		100										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		2.0										
Detector 3 Position(ft)		200										
Detector 3 Size(ft)		6										

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2022
 Crescent Hill BG PM.syn 05/03/2021









Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type	Cl+Ex											
Detector 3 Channel												
Detector 3 Extend (s)	0.0											
Detector 4 Position(ft)	300											
Detector 4 Size(ft)	6											
Detector 4 Type	Cl+Ex											
Detector 4 Channel												
Detector 4 Extend (s)	0.0											
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3	5	4	4		5	2	4	1	6	3
Permitted Phases	3						2			6		
Detector Phase	3	3	5	4	4		5	2	4	1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	57.0	57.0	35.0	45.0	45.0		35.0	100.0	45.0	33.0	98.0	57.0
Total Split (%)	24.3%	24.3%	14.9%	19.1%	19.1%		14.9%	42.6%	19.1%	14.0%	41.7%	24.3%
Maximum Green (s)	50.0	50.0	28.0	38.0	38.0		28.0	93.0	38.0	26.0	91.0	50.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	1.0	1.0	1.0		1.0	6.0	1.0	2.0	6.0	6.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	3.0	0.2	0.2	3.0	0.2
Time Before Reduce (s)	10.0	10.0	0.0	0.0	0.0		0.0	15.0	0.0	0.0	15.0	10.0
Time To Reduce (s)	20.0	20.0	0.0	0.0	0.0		0.0	40.0	0.0	0.0	40.0	20.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	51.4	51.4	75.2	31.3	31.3		23.8	110.3	141.6	22.0	108.5	164.9
Actuated g/C Ratio	0.22	0.22	0.32	0.13	0.13		0.10	0.47	0.60	0.09	0.46	0.70
v/c Ratio	0.59	0.66	0.57	0.80	0.81		0.77	0.42	0.41	0.72	0.57	0.45
Control Delay	84.8	87.4	44.4	112.0	112.7		118.1	44.8	16.1	125.8	50.5	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.8	87.4	44.4	112.0	112.7		118.1	44.8	16.1	125.8	50.5	17.8
LOS	F	F	D	F	F		F	D	B	F	D	B
Approach Delay	76.5			112.4			51.1			45.8		
Approach LOS	E			F			D			D		
Queue Length 50th (ft)	329	397	282	299	318		211	370	197	182	553	318
Queue Length 95th (ft)	371	440	287	352	372		264	523	304	259	752	483
Internal Link Dist (ft)	2697			1372			2765			1906		
Turn Bay Length (ft)	500		300	450			375		375	275		
Base Capacity (vph)	821	846	561	598	614		433	1677	1002	212	1661	1134
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.62	0.52	0.63	0.64		0.61	0.41	0.39	0.56	0.56	0.44

Intersection Summary

Area Type: Other
 Cycle Length: 235
 Actuated Cycle Length: 235
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 65.5 Intersection LOS: E
 Intersection Capacity Utilization 69.3% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

 Ø1 33 s	 Ø2 (R) 100 s	 Ø3 57 s	 Ø4 45 s
 Ø5 35 s	 Ø6 (R) 98 s		

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	13	4	9	4	4	11	12	1109	4	5	711	20
Future Vol, veh/h	13	4	9	4	4	11	12	1109	4	5	711	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	100	-	-
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	14	4	10	4	4	12	13	1232	4	6	790	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1457	2075	406	1669	2084	618	812	0	0	1236	0	0
Stage 1	813	813	-	1260	1260	-	-	-	-	-	-	-
Stage 2	644	1262	-	409	824	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
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	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	91	53	594	63	52	432	810	-	-	559	-	-
Stage 1	339	390	-	180	240	-	-	-	-	-	-	-
Stage 2	428	239	-	590	385	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	81	52	594	57	51	432	810	-	-	559	-	-
Mov Cap-2 Maneuver	81	52	-	57	51	-	-	-	-	-	-	-
Stage 1	334	386	-	177	236	-	-	-	-	-	-	-
Stage 2	402	235	-	567	381	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	53	45.8	0.1	0.1
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	810	-	-	103	109	559	-	-
HCM Lane V/C Ratio	0.016	-	-	0.28	0.194	0.01	-	-
HCM Control Delay (s)	9.5	-	-	53	45.8	11.5	-	-
HCM Lane LOS	A	-	-	F	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.7	0	-	-

Intersection												
Int Delay, s/veh	9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	22	4	5	4	4	10	4	1120	4	9	1390	7
Future Vol, veh/h	22	4	5	4	4	10	4	1120	4	9	1390	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	100	-	-
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	24	4	6	4	4	11	4	1244	4	10	1544	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2200	2824	776	2048	2826	624	1552	0	0	1248	0	0
Stage 1	1568	1568	-	1254	1254	-	-	-	-	-	-	-
Stage 2	632	1256	-	794	1572	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
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	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	25	17	340	32	17	428	423	-	-	553	-	-
Stage 1	116	170	-	182	242	-	-	-	-	-	-	-
Stage 2	435	241	-	348	169	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 19	17	340	25	17	428	423	-	-	553	-	-
Mov Cap-2 Maneuver	~ 19	17	-	25	17	-	-	-	-	-	-	-
Stage 1	115	167	-	180	240	-	-	-	-	-	-	-
Stage 2	412	239	-	327	166	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	658.5	147.3	0	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	423	-	-	22	43	553	-	-
HCM Lane V/C Ratio	0.011	-	-	1.566	0.465	0.018	-	-
HCM Control Delay (s)	13.6	-	-	658.5	147.3	11.6	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	4.5	1.7	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓		↔	↑↑
Traffic Vol, veh/h	17	28	1097	15	14	679
Future Vol, veh/h	17	28	1097	15	14	679
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	31	1219	17	16	754

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1637	618	0	0	1236
Stage 1	1228	-	-	-	-
Stage 2	409	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	91	432	-	-	559
Stage 1	240	-	-	-	-
Stage 2	639	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	88	432	-	-	559
Mov Cap-2 Maneuver	188	-	-	-	-
Stage 1	240	-	-	-	-
Stage 2	620	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	290	559
HCM Lane V/C Ratio	-	-	0.172	0.028
HCM Control Delay (s)	-	-	20	11.6
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.6	0.1

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↓		↑↓		↑↓	↑↑
Traffic Vol, veh/h	24	23	1085	22	28	1350
Future Vol, veh/h	24	23	1085	22	28	1350
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	26	1206	24	31	1500

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2030	615	0	0	1230
Stage 1	1218	-	-	-	-
Stage 2	812	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	50	434	-	-	562
Stage 1	243	-	-	-	-
Stage 2	397	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	47	434	-	-	562
Mov Cap-2 Maneuver	155	-	-	-	-
Stage 1	243	-	-	-	-
Stage 2	375	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.7	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	226	562
HCM Lane V/C Ratio	-	-	0.231	0.055
HCM Control Delay (s)	-	-	25.7	11.8
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	0.9	0.2

4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)
Crescent Hill BG AM.syn

Year 2022
04/28/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	44	47	1106	680	13
Future Volume (vph)	11	44	47	1106	680	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			2%	2%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.850			0.997	
Fl _t Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1752	3504	3493	0
Fl _t Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1752	3504	3493	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			45	45	
Link Distance (ft)	1390			2181	1316	
Travel Time (s)	37.9			33.0	19.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	49	52	1229	756	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	49	52	1229	770	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	1.00	1.00	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	1	1	
Detector Template						
Leading Detector (ft)	60	55	60	306	306	
Trailing Detector (ft)	0	-5	0	300	300	
Detector 1 Position(ft)	0	-5	0	300	300	
Detector 1 Size(ft)	60	60	60	6	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	3.0	15.0	15.0	0.0	0.0	
Turn Type	Prot	pm+ov	Prot	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4				
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	19.0	19.0	

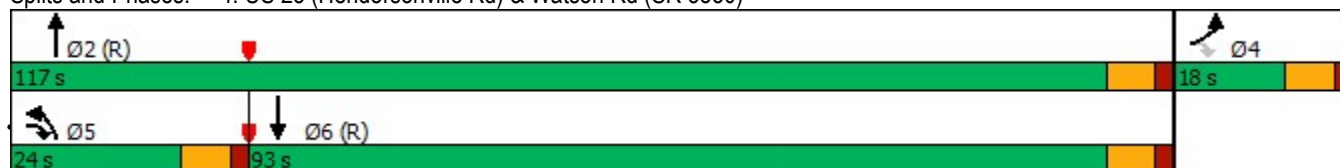


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Split (s)	18.0	24.0	24.0	117.0	93.0	
Total Split (%)	13.3%	17.8%	17.8%	86.7%	68.9%	
Maximum Green (s)	11.0	17.0	17.0	110.0	86.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	
Minimum Gap (s)	0.2	0.2	0.2	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	30.0	30.0	
Recall Mode	None	None	None	C-Min	C-Min	
Act Effect Green (s)	9.0	16.0	10.4	127.4	112.8	
Actuated g/C Ratio	0.07	0.12	0.08	0.94	0.84	
v/c Ratio	0.10	0.26	0.39	0.37	0.26	
Control Delay	61.4	54.2	67.3	1.3	4.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	61.4	54.2	67.3	1.3	4.0	
LOS	E	D	E	A	A	
Approach Delay	55.6			4.0	4.0	
Approach LOS	E			A	A	
Queue Length 50th (ft)	10	42	44	0	49	
Queue Length 95th (ft)	32	73	87	107	139	
Internal Link Dist (ft)	1310			2101	1236	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	170	288	246	3306	2918	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.17	0.21	0.37	0.26	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 135
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.39
 Intersection Signal Delay: 5.5
 Intersection Capacity Utilization 44.7%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)



4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)
Crescent Hill BG PM.syn

Year 2022
05/03/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	29	102	84	1066	1331	32
Future Volume (vph)	29	102	84	1066	1331	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			2%	2%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.850			0.996	
Fl _t Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1752	3504	3490	0
Fl _t Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1752	3504	3490	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			45	45	
Link Distance (ft)	1390			2181	1316	
Travel Time (s)	37.9			33.0	19.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	113	93	1184	1479	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	113	93	1184	1515	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	1.00	1.00	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	1	1	
Detector Template						
Leading Detector (ft)	60	55	60	306	306	
Trailing Detector (ft)	0	-5	0	300	300	
Detector 1 Position(ft)	0	-5	0	300	300	
Detector 1 Size(ft)	60	60	60	6	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	3.0	15.0	15.0	0.0	0.0	
Turn Type	Prot	pm+ov	Prot	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4				
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	19.0	19.0	

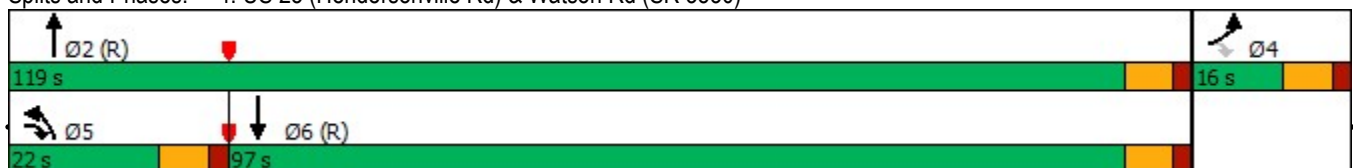


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Split (s)	16.0	22.0	22.0	119.0	97.0	
Total Split (%)	11.9%	16.3%	16.3%	88.1%	71.9%	
Maximum Green (s)	9.0	15.0	15.0	112.0	90.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	
Minimum Gap (s)	0.2	0.2	0.2	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	30.0	30.0	
Recall Mode	None	None	None	C-Min	C-Min	
Act Effect Green (s)	9.3	22.1	13.3	123.3	102.9	
Actuated g/C Ratio	0.07	0.16	0.10	0.91	0.76	
v/c Ratio	0.26	0.44	0.54	0.37	0.57	
Control Delay	64.9	53.6	69.0	1.8	9.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	64.9	53.6	69.0	1.8	9.1	
LOS	E	D	E	A	A	
Approach Delay	56.1			6.7	9.1	
Approach LOS	E			A	A	
Queue Length 50th (ft)	27	86	79	85	301	
Queue Length 95th (ft)	62	138	135	115	430	
Internal Link Dist (ft)	1310			2101	1236	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	144	302	221	3199	2661	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.22	0.37	0.42	0.37	0.57	

Intersection Summary

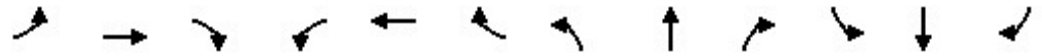
Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 135
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.57
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 62.0%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)

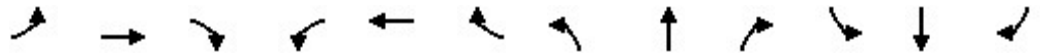


5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)
Crescent Hill BG AM.syn

Year 2022
04/28/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	26	57	83	39	240	65	907	97	166	510	27
Future Volume (vph)	40	26	57	83	39	240	65	907	97	166	510	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			0%			2%	
Storage Length (ft)	75		75	450		0	275		0	175		0
Storage Lanes	1		1	1		1	1		0	2		0
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	0.97	0.95	0.95
Fr _t			0.850			0.850		0.985			0.992	
Fl _t Protected	0.950				0.967		0.950			0.950		
Satd. Flow (prot)	1743	1835	1560	0	1819	1599	1770	3486	0	3399	3476	0
Fl _t Permitted	0.950				0.778		0.950			0.950		
Satd. Flow (perm)	1743	1835	1560	0	1464	1599	1770	3486	0	3399	3476	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		1236			2004			1164			2181	
Travel Time (s)		33.7			39.0			17.6			33.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	44	29	63	92	43	267	72	1008	108	184	567	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	29	63	0	135	267	72	1116	0	184	597	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			12			12			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template				Left								
Leading Detector (ft)	40	40	40	20	40	0	40	316		60	301	
Trailing Detector (ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Position(ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Size(ft)	40	40	40	20	40	0	40	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0	15.0	0.0	3.0	0.0	15.0	0.0		0.0	0.0	
Turn Type	Prot	NA	pm+ov	Perm	NA	Free	Prot	NA		Prot	NA	
Protected Phases	7	4	5		8		5	2		1	6	
Permitted Phases			4	8		Free						
Detector Phase	7	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0		14.0	19.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	16.0	48.0	19.0	32.0	32.0		19.0	81.0		21.0	83.0	
Total Split (%)	10.7%	32.0%	12.7%	21.3%	21.3%		12.7%	54.0%		14.0%	55.3%	
Maximum Green (s)	9.0	41.0	12.0	25.0	25.0		12.0	74.0		14.0	76.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0		-2.0	-2.0		-2.0	-2.0	
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		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0		2.0	6.0		1.0	6.0	
Minimum Gap (s)	3.0	0.2	0.2	0.2	0.2		0.2	3.2		0.2	3.2	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	11.4	33.8	51.4		20.1	150.0	12.7	87.7		13.5	88.6	
Actuated g/C Ratio	0.08	0.23	0.34		0.13	1.00	0.08	0.58		0.09	0.59	
v/c Ratio	0.33	0.07	0.12		0.69	0.17	0.48	0.55		0.60	0.29	
Control Delay	71.7	40.5	29.8		79.0	0.2	75.7	22.8		73.7	17.9	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	71.7	40.5	29.8		79.0	0.2	75.7	22.8		73.7	17.9	
LOS	E	D	C		E	A	E	C		E	B	
Approach Delay		45.6			26.7			26.0			31.0	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	42	22	41		128	0	69	353		90	152	
Queue Length 95th (ft)	82	45	64		194	0	120	521		129	240	
Internal Link Dist (ft)		1156			1924			1084			2101	
Turn Bay Length (ft)	75		75				275			175		
Base Capacity (vph)	140	536	555		264	1599	172	2063		367	2085	
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	0.31	0.05	0.11		0.51	0.17	0.42	0.54		0.50	0.29	

Intersection Summary

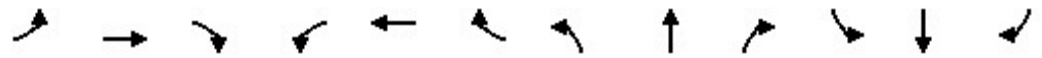
Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 28.7
 Intersection Capacity Utilization 59.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

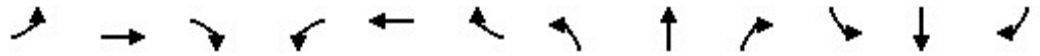


5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)
Crescent Hill BG PM.syn

Year 2022
05/03/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	63	133	80	46	197	106	909	95	236	1087	75
Future Volume (vph)	78	63	133	80	46	197	106	909	95	236	1087	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			0%			2%	
Storage Length (ft)	75		75	450		0	275		0	175		0
Storage Lanes	1		1	1		1	1		0	2		0
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	0.97	0.95	0.95
Fr _t			0.850				0.850			0.986		0.990
Fl _t Protected	0.950				0.969		0.950			0.950		
Satd. Flow (prot)	1743	1835	1560	0	1823	1599	1770	3490	0	3399	3469	0
Fl _t Permitted	0.950				0.765		0.950			0.950		
Satd. Flow (perm)	1743	1835	1560	0	1439	1599	1770	3490	0	3399	3469	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		1236			2004			1164			2181	
Travel Time (s)		33.7			39.0			17.6			33.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	70	148	89	51	219	118	1010	106	262	1208	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	70	148	0	140	219	118	1116	0	262	1291	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			12			12			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template				Left								
Leading Detector (ft)	40	40	40	20	40	0	40	316		60	301	
Trailing Detector (ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Position(ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Size(ft)	40	40	40	20	40	0	40	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0	15.0	0.0	3.0	0.0	15.0	0.0		0.0	0.0	
Turn Type	Prot	NA	pm+ov	Perm	NA	Free	Prot	NA		Prot	NA	
Protected Phases	7	4	5		8		5	2		1	6	
Permitted Phases			4	8		Free						
Detector Phase	7	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0		14.0	19.0	

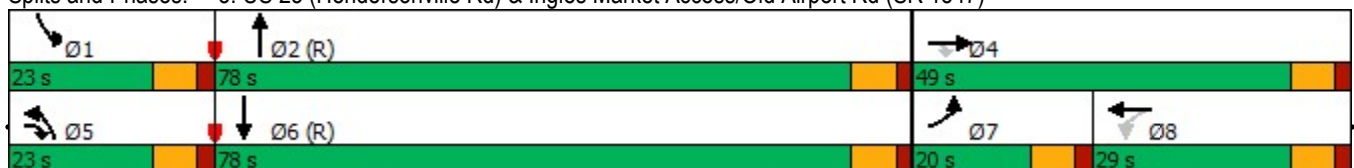


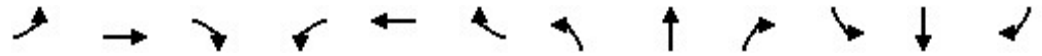
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	20.0	49.0	23.0	29.0	29.0		23.0	78.0		23.0	78.0	
Total Split (%)	13.3%	32.7%	15.3%	19.3%	19.3%		15.3%	52.0%		15.3%	52.0%	
Maximum Green (s)	13.0	42.0	16.0	22.0	22.0		16.0	71.0		16.0	71.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0		-2.0	-2.0		-2.0	-2.0	
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		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0		2.0	6.0		1.0	6.0	
Minimum Gap (s)	3.0	0.2	0.2	0.2	0.2		0.2	3.2		0.2	3.2	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	13.8	38.8	59.3		20.0	150.0	15.5	79.9		16.3	80.7	
Actuated g/C Ratio	0.09	0.26	0.40		0.13	1.00	0.10	0.53		0.11	0.54	
v/c Ratio	0.54	0.15	0.24		0.73	0.14	0.64	0.60		0.71	0.69	
Control Delay	77.5	41.6	29.7		83.8	0.2	80.5	27.1		75.6	29.6	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	77.5	41.6	29.7		83.8	0.2	80.5	27.1		75.6	29.6	
LOS	E	D	C		F	A	F	C		E	C	
Approach Delay		46.1			32.8			32.2			37.4	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	82	52	93		133	0	112	399		129	496	
Queue Length 95th (ft)	143	92	138		207	0	181	503		177	626	
Internal Link Dist (ft)		1156			1924			1084			2101	
Turn Bay Length (ft)	75		75				275			175		
Base Capacity (vph)	178	542	644		230	1599	214	1871		411	1876	
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	0.49	0.13	0.23		0.61	0.14	0.55	0.60		0.64	0.69	

Intersection Summary

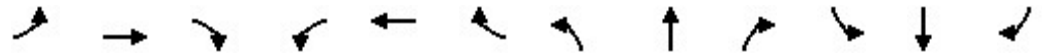
Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 35.8
 Intersection LOS: D
 Intersection Capacity Utilization 64.3%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↗		↖	↗	
Traffic Volume (vph)	15	756	57	18	682	4	82	4	35	4	4	5
Future Volume (vph)	15	756	57	18	682	4	82	4	35	4	4	5
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		0	0		175	25		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.999			0.864			0.910	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3504	0	1770	3536	0	1770	1609	0	1770	1695	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3504	0	1770	3536	0	1770	1609	0	1770	1695	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		1295			1938			1047			1134	
Travel Time (s)		19.6			29.4			28.6			38.7	
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)	17	840	63	20	758	4	91	4	39	4	4	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	903	0	20	762	0	91	43	0	4	10	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			12			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	35	306		60	306		40	40		35	35	
Trailing Detector (ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Position(ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Size(ft)	40	6		60	6		40	40		45	45	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0		3.0	0.0		3.0	10.0		3.0	10.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	65.0		16.0	65.0		23.0	23.0		16.0	16.0	

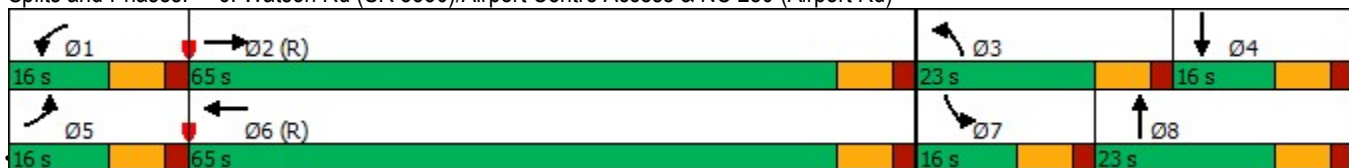


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	13.3%	54.2%		13.3%	54.2%		19.2%	19.2%		13.3%	13.3%	
Maximum Green (s)	9.0	58.0		9.0	58.0		16.0	16.0		9.0	9.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0		3.0	6.0		3.0	2.0		3.0	2.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	0.2		3.0	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	30.0		0.0	30.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	9.4	87.6		9.5	87.7		13.5	13.5		9.0	9.0	
Actuated g/C Ratio	0.08	0.73		0.08	0.73		0.11	0.11		0.08	0.08	
v/c Ratio	0.12	0.35		0.14	0.29		0.46	0.24		0.03	0.08	
Control Delay	53.3	8.8		53.6	8.2		56.5	50.4		52.2	53.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.3	8.8		53.6	8.2		56.5	50.4		52.2	53.2	
LOS	D	A		D	A		E	D		D	D	
Approach Delay		9.6			9.4			54.6			52.9	
Approach LOS		A			A			D			D	
Queue Length 50th (ft)	13	77		15	62		67	31		3	7	
Queue Length 95th (ft)	36	286		40	231		117	65		15	25	
Internal Link Dist (ft)		1215			1858			967			1054	
Turn Bay Length (ft)	75			125						25		
Base Capacity (vph)	162	2559		162	2584		265	241		162	155	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.35		0.12	0.29		0.34	0.18		0.02	0.06	

Intersection Summary

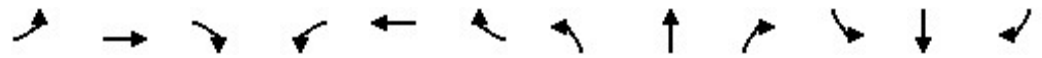
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 13.1
 Intersection LOS: B
 Intersection Capacity Utilization 42.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)



6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)
Crescent Hill BG PM.syn

Year 2022
05/03/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	1100	119	47	1205	37	98	6	44	29	10	47
Future Volume (vph)	29	1100	119	47	1205	37	98	6	44	29	10	47
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		0	0		175	25		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.996			0.869				0.876
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3486	0	1770	3525	0	1770	1619	0	1770	1632	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3486	0	1770	3525	0	1770	1619	0	1770	1632	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25				20
Link Distance (ft)		1295			1938			1047				1134
Travel Time (s)		19.6			29.4			28.6				38.7
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)	32	1222	132	52	1339	41	109	7	49	32	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	1354	0	52	1380	0	109	56	0	32	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			12				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane		Yes			Yes							
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	35	306		60	306		40	40		35	35	
Trailing Detector (ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Position(ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Size(ft)	40	6		60	6		40	40		45	45	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0		3.0	0.0		3.0	10.0		3.0	10.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	14.0	71.0		14.0	71.0		20.0	21.0		14.0	15.0	

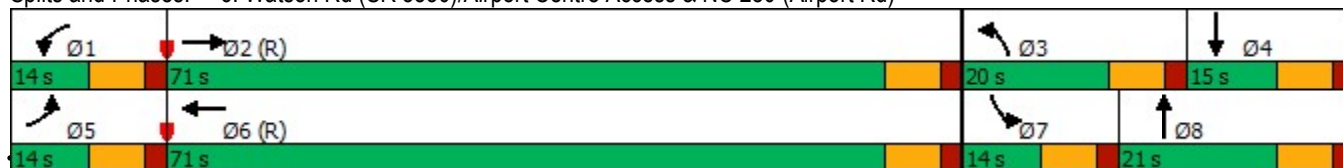


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	11.7%	59.2%		11.7%	59.2%		16.7%	17.5%		11.7%	12.5%	
Maximum Green (s)	7.0	64.0		7.0	64.0		13.0	14.0		7.0	8.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0		3.0	6.0		3.0	2.0		3.0	2.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	0.2		3.0	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	30.0		0.0	30.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effect Green (s)	9.5	71.0		10.1	74.5		13.9	17.6		9.7	10.6	
Actuated g/C Ratio	0.08	0.59		0.08	0.62		0.12	0.15		0.08	0.09	
v/c Ratio	0.23	0.66		0.35	0.63		0.53	0.24		0.22	0.44	
Control Delay	56.1	21.1		58.7	18.9		59.3	48.0		55.6	61.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	56.1	21.1		58.7	18.9		59.3	48.0		55.6	61.8	
LOS	E	C		E	B		E	D		E	E	
Approach Delay		21.9			20.3			55.5			59.7	
Approach LOS		C			C			E			E	
Queue Length 50th (ft)	24	412		38	412		80	39		24	47	
Queue Length 95th (ft)	57	478		81	488		139	81		57	95	
Internal Link Dist (ft)		1215			1858			967			1054	
Turn Bay Length (ft)	75			125						25		
Base Capacity (vph)	139	2128		149	2237		228	253		143	147	
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	0.23	0.64		0.35	0.62		0.48	0.22		0.22	0.43	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 24.1
 Intersection LOS: C
 Intersection Capacity Utilization 59.5%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)



1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2022
 Crescent Hill BO AM.syn 04/28/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	242	139	260	305	11	173	692	300	45	377	185
Future Volume (vph)	258	242	139	260	305	11	173	692	300	45	377	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			-5%			2%			0%	
Storage Length (ft)	500		300	450		275	375		375	275		0
Storage Lanes	2		1	1		2	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850		0.995				0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3519	3628	1623	3519	3610	0	3399	3504	1567	1770	3539	1583
Fl _t Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3519	3628	1623	3519	3610	0	3399	3504	1567	1770	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2777			1452			2845			1986	
Travel Time (s)		42.1			22.0			43.1			30.1	
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)	287	269	154	289	339	12	192	769	333	50	419	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	269	154	289	351	0	192	769	333	50	419	206
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	1.01	1.01	1.01	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	4	1	1	1		1	1	1	1	1	1
Detector Template										Left		
Leading Detector (ft)	60	306	40	60	60		60	306	0	40	306	0
Trailing Detector (ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Position(ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Size(ft)	60	40	40	60	60		60	6	0	40	6	0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	5.0	15.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		100										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		2.0										
Detector 3 Position(ft)		200										
Detector 3 Size(ft)		6										

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2022
 Crescent Hill BO AM.syn 04/28/2021









Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type	Cl+Ex											
Detector 3 Channel												
Detector 3 Extend (s)	0.0											
Detector 4 Position(ft)	300											
Detector 4 Size(ft)	6											
Detector 4 Type	Cl+Ex											
Detector 4 Channel												
Detector 4 Extend (s)	0.0											
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3	5	4	4		5	2	4	1	6	3
Permitted Phases	3						2			6		
Detector Phase	3	3	5	4	4		5	2	4	1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	47.0	47.0	36.0	54.0	54.0		36.0	108.0	54.0	26.0	98.0	47.0
Total Split (%)	20.0%	20.0%	15.3%	23.0%	23.0%		15.3%	46.0%	23.0%	11.1%	41.7%	20.0%
Maximum Green (s)	40.0	40.0	29.0	47.0	47.0		29.0	101.0	47.0	19.0	91.0	40.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	1.0	1.0	1.0		1.0	6.0	1.0	2.0	6.0	6.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	3.0	0.2	0.2	3.0	0.2
Time Before Reduce (s)	10.0	10.0	0.0	0.0	0.0		0.0	15.0	0.0	0.0	15.0	10.0
Time To Reduce (s)	20.0	20.0	0.0	0.0	0.0		0.0	40.0	0.0	0.0	40.0	20.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	31.0	31.0	49.7	28.4	28.4		18.6	142.4	170.8	13.1	136.9	172.9
Actuated g/C Ratio	0.13	0.13	0.21	0.12	0.12		0.08	0.61	0.73	0.06	0.58	0.74
v/c Ratio	0.62	0.56	0.45	0.68	0.81		0.71	0.36	0.29	0.51	0.20	0.18
Control Delay	101.9	99.7	56.9	106.9	114.7		120.2	25.3	7.1	124.7	25.0	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.9	99.7	56.9	106.9	114.7		120.2	25.3	7.1	124.7	25.0	10.6
LOS	F	F	E	F	F		F	C	A	F	C	B
Approach Delay	91.3					111.2		34.7		28.0		
Approach LOS	F					F		C		C		
Queue Length 50th (ft)	221	210	166	226	285		153	311	103	77	160	92
Queue Length 95th (ft)	270	260	207	277	342		201	430	160	133	232	150
Internal Link Dist (ft)	2697			1372			2765			1906		
Turn Bay Length (ft)	500		300	450		375			375	275		
Base Capacity (vph)	628	648	428	733	752		448	2122	1263	158	2061	1238
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.42	0.36	0.39	0.47		0.43	0.36	0.26	0.32	0.20	0.17

Intersection Summary

Area Type: Other
 Cycle Length: 235
 Actuated Cycle Length: 235
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 60.2 Intersection LOS: E
 Intersection Capacity Utilization 57.8% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

 Ø1	 Ø2 (R)	 Ø3	 Ø4
26 s	108 s	47 s	54 s
 Ø5	 Ø6 (R)		
36 s	98 s		

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2022
 Crescent Hill BO PM.syn

05/03/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	406	471	265	347	340	13	239	632	352	106	857	445
Future Volume (vph)	406	471	265	347	340	13	239	632	352	106	857	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			-5%			2%			0%	
Storage Length (ft)	500		300	450		275	375		375	275		0
Storage Lanes	2		1	1		2	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00
Frts			0.850			0.995			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3519	3628	1623	3519	3610	0	3399	3504	1567	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3519	3628	1623	3519	3610	0	3399	3504	1567	1770	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2777			1452			2845			1986	
Travel Time (s)		42.1			22.0			43.1			30.1	
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)	451	523	294	386	378	14	266	702	391	118	952	494
Shared Lane Traffic (%)												
Lane Group Flow (vph)	451	523	294	386	392	0	266	702	391	118	952	494
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	1.01	1.01	1.01	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	4	1	1	1		1	1	1	1	1	1
Detector Template										Left		
Leading Detector (ft)	60	306	40	60	60		60	306	0	40	306	0
Trailing Detector (ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Position(ft)	0	0	0	0	0		0	300	0	0	300	0
Detector 1 Size(ft)	60	40	40	60	60		60	6	0	40	6	0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	5.0	15.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		100										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		2.0										
Detector 3 Position(ft)		200										
Detector 3 Size(ft)		6										

1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd) Year 2022
 Crescent Hill BO PM.syn 05/03/2021

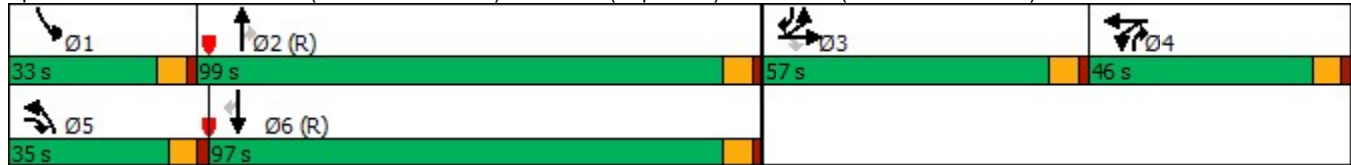


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type	Cl+Ex											
Detector 3 Channel												
Detector 3 Extend (s)	0.0											
Detector 4 Position(ft)	300											
Detector 4 Size(ft)	6											
Detector 4 Type	Cl+Ex											
Detector 4 Channel												
Detector 4 Extend (s)	0.0											
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3	5	4	4		5	2	4	1	6	3
Permitted Phases	3						2			6		
Detector Phase	3	3	5	4	4		5	2	4	1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	57.0	57.0	35.0	46.0	46.0		35.0	99.0	46.0	33.0	97.0	57.0
Total Split (%)	24.3%	24.3%	14.9%	19.6%	19.6%		14.9%	42.1%	19.6%	14.0%	41.3%	24.3%
Maximum Green (s)	50.0	50.0	28.0	39.0	39.0		28.0	92.0	39.0	26.0	90.0	50.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0	1.0	1.0	1.0		1.0	6.0	1.0	2.0	6.0	6.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	3.0	0.2	0.2	3.0	0.2
Time Before Reduce (s)	10.0	10.0	0.0	0.0	0.0		0.0	15.0	0.0	0.0	15.0	10.0
Time To Reduce (s)	20.0	20.0	0.0	0.0	0.0		0.0	40.0	0.0	0.0	40.0	20.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	51.4	51.4	75.2	31.6	31.6		23.8	110.0	141.6	22.0	108.2	164.6
Actuated g/C Ratio	0.22	0.22	0.32	0.13	0.13		0.10	0.47	0.60	0.09	0.46	0.70
v/c Ratio	0.59	0.66	0.57	0.82	0.81		0.77	0.43	0.41	0.72	0.58	0.45
Control Delay	84.8	87.4	44.3	112.8	111.8		118.1	45.3	16.1	125.8	51.2	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.8	87.4	44.3	112.8	111.8		118.1	45.3	16.1	125.8	51.2	18.0
LOS	F	F	D	F	F		F	D	B	F	D	B
Approach Delay	76.5			112.3			51.1			46.4		
Approach LOS	E			F			D			D		
Queue Length 50th (ft)	329	397	281	306	317		211	380	200	182	572	320
Queue Length 95th (ft)	371	440	285	359	371		264	538	307	259	778	486
Internal Link Dist (ft)	2697			1372			2765			1906		
Turn Bay Length (ft)	500		300	450			375		375	275		
Base Capacity (vph)	821	846	561	613	629		433	1671	1007	212	1655	1132
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.62	0.52	0.63	0.62		0.61	0.42	0.39	0.56	0.58	0.44

Intersection Summary

Area Type:	Other		
Cycle Length:	235		
Actuated Cycle Length:	235		
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection		
Natural Cycle:	70		
Control Type:	Actuated-Coordinated		
Maximum v/c Ratio:	0.82		
Intersection Signal Delay:	65.7	Intersection LOS:	E
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

Splits and Phases: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)



Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	29	4	18	4	4	11	15	1120	4	5	715	26
Future Vol, veh/h	29	4	18	4	4	11	15	1120	4	5	715	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	100	-	-
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	32	4	20	4	4	12	17	1244	4	6	794	29

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1479	2103	412	1691	2115	624	823	0	0	1248	0	0
Stage 1	821	821	-	1280	1280	-	-	-	-	-	-	-
Stage 2	658	1282	-	411	835	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
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	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	87	51	589	61	50	428	803	-	-	553	-	-
Stage 1	335	387	-	175	235	-	-	-	-	-	-	-
Stage 2	420	234	-	589	381	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	77	49	589	54	48	428	803	-	-	553	-	-
Mov Cap-2 Maneuver	77	49	-	54	48	-	-	-	-	-	-	-
Stage 1	328	383	-	171	230	-	-	-	-	-	-	-
Stage 2	392	229	-	556	377	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	75	48.2	0.1	0.1
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	803	-	-	104	104	553	-	-
HCM Lane V/C Ratio	0.021	-	-	0.545	0.203	0.01	-	-
HCM Control Delay (s)	9.6	-	-	75	48.2	11.6	-	-
HCM Lane LOS	A	-	-	F	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.5	0.7	0	-	-

Intersection												
Int Delay, s/veh	21.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	33	4	11	4	4	10	13	1128	4	9	1402	23
Future Vol, veh/h	33	4	11	4	4	10	13	1128	4	9	1402	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	100	-	-
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	37	4	12	4	4	11	14	1253	4	10	1558	26

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2248	2876	792	2084	2887	629	1584	0	0	1257	0	0
Stage 1	1591	1591	-	1283	1283	-	-	-	-	-	-	-
Stage 2	657	1285	-	801	1604	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
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	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 23	16	332	30	16	425	411	-	-	549	-	-
Stage 1	112	166	-	175	234	-	-	-	-	-	-	-
Stage 2	420	233	-	344	163	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 17	15	332	21	15	425	411	-	-	549	-	-
Mov Cap-2 Maneuver	~ 17	15	-	21	15	-	-	-	-	-	-	-
Stage 1	108	163	-	169	226	-	-	-	-	-	-	-
Stage 2	387	225	-	316	160	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, \$	1084.9		184.3		0.2		0.1	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	411	-	-	21	37	549	-	-
HCM Lane V/C Ratio	0.035	-	-	2.54	0.541	0.018	-	-
HCM Control Delay (s)	14.1	-	-	\$ 1084.9	184.3	11.7	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	6.9	1.9	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓		↔	↑↑
Traffic Vol, veh/h	17	28	1111	15	14	692
Future Vol, veh/h	17	28	1111	15	14	692
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	31	1234	17	16	769

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1660	626	0	0	1251
Stage 1	1243	-	-	-	-
Stage 2	417	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	88	427	-	-	552
Stage 1	235	-	-	-	-
Stage 2	633	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	85	427	-	-	552
Mov Cap-2 Maneuver	184	-	-	-	-
Stage 1	235	-	-	-	-
Stage 2	615	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.3	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	285	552
HCM Lane V/C Ratio	-	-	0.175	0.028
HCM Control Delay (s)	-	-	20.3	11.7
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.6	0.1

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		TT		T	TT
Traffic Vol, veh/h	24	23	1103	22	28	1368
Future Vol, veh/h	24	23	1103	22	28	1368
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	26	1226	24	31	1520

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2060	625	0	0	1250
Stage 1	1238	-	-	-	-
Stage 2	822	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	47	428	-	-	553
Stage 1	237	-	-	-	-
Stage 2	392	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	44	428	-	-	553
Mov Cap-2 Maneuver	151	-	-	-	-
Stage 1	237	-	-	-	-
Stage 2	370	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.3	0	0.2
HCM LOS	D		

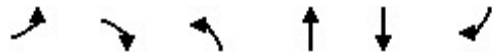
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	221	553
HCM Lane V/C Ratio	-	-	0.236	0.056
HCM Control Delay (s)	-	-	26.3	11.9
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	0.9	0.2

4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)
Crescent Hill BO AM.syn

Year 2022
04/28/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	55	51	1109	689	17
Future Volume (vph)	22	55	51	1109	689	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			2%	2%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.850			0.996	
Fl _t Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1752	3504	3490	0
Fl _t Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1752	3504	3490	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			45	45	
Link Distance (ft)	1390			2181	1316	
Travel Time (s)	37.9			33.0	19.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	61	57	1232	766	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	61	57	1232	785	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	1.00	1.00	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	1	1	
Detector Template						
Leading Detector (ft)	60	55	60	306	306	
Trailing Detector (ft)	0	-5	0	300	300	
Detector 1 Position(ft)	0	-5	0	300	300	
Detector 1 Size(ft)	60	60	60	6	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	3.0	15.0	15.0	0.0	0.0	
Turn Type	Prot	pm+ov	Prot	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4				
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	19.0	19.0	

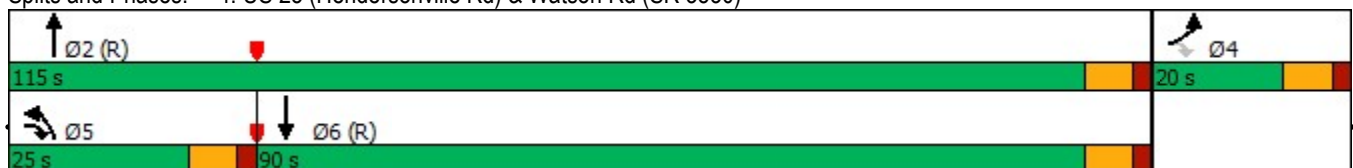


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Split (s)	20.0	25.0	25.0	115.0	90.0	
Total Split (%)	14.8%	18.5%	18.5%	85.2%	66.7%	
Maximum Green (s)	13.0	18.0	18.0	108.0	83.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	
Minimum Gap (s)	0.2	0.2	0.2	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	30.0	30.0	
Recall Mode	None	None	None	C-Min	C-Min	
Act Effect Green (s)	9.1	19.2	10.6	123.5	109.6	
Actuated g/C Ratio	0.07	0.14	0.08	0.91	0.81	
v/c Ratio	0.20	0.27	0.41	0.38	0.28	
Control Delay	63.6	51.5	67.9	1.8	4.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	63.6	51.5	67.9	1.8	4.9	
LOS	E	D	E	A	A	
Approach Delay	54.9			4.7	4.9	
Approach LOS	D			A	A	
Queue Length 50th (ft)	20	46	49	90	103	
Queue Length 95th (ft)	51	86	93	114	148	
Internal Link Dist (ft)	1310			2101	1236	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	196	334	259	3204	2833	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.12	0.18	0.22	0.38	0.28	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 135
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.41
 Intersection Signal Delay: 6.8
 Intersection LOS: A
 Intersection Capacity Utilization 44.8%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	109	95	1076	1337	44
Future Volume (vph)	37	109	95	1076	1337	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			2%	2%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.850			0.995	
Fl _t Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1752	3504	3486	0
Fl _t Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1752	3504	3486	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			45	45	
Link Distance (ft)	1390			2181	1316	
Travel Time (s)	37.9			33.0	19.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	121	106	1196	1486	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	121	106	1196	1535	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	1.00	1.00	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	1	1	
Detector Template						
Leading Detector (ft)	60	55	60	306	306	
Trailing Detector (ft)	0	-5	0	300	300	
Detector 1 Position(ft)	0	-5	0	300	300	
Detector 1 Size(ft)	60	60	60	6	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	3.0	15.0	15.0	0.0	0.0	
Turn Type	Prot	pm+ov	Prot	NA	NA	
Protected Phases	4	5	5	2	6	
Permitted Phases		4				
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	19.0	19.0	

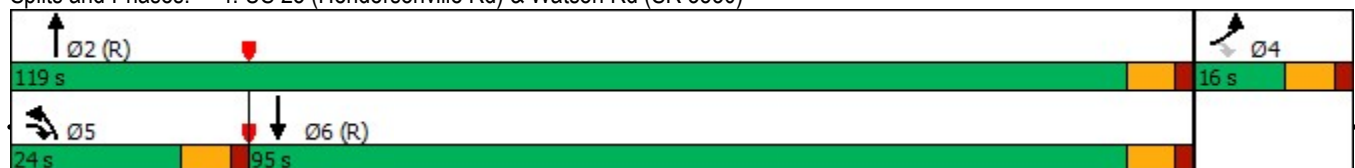


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Split (s)	16.0	24.0	24.0	119.0	95.0	
Total Split (%)	11.9%	17.8%	17.8%	88.1%	70.4%	
Maximum Green (s)	9.0	17.0	17.0	112.0	88.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	
Minimum Gap (s)	0.2	0.2	0.2	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	30.0	30.0	
Recall Mode	None	None	None	C-Min	C-Min	
Act Effct Green (s)	9.7	25.7	13.8	119.1	99.3	
Actuated g/C Ratio	0.07	0.19	0.10	0.88	0.74	
v/c Ratio	0.32	0.40	0.59	0.39	0.60	
Control Delay	66.2	49.6	70.9	2.3	10.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	66.2	49.6	70.9	2.3	10.9	
LOS	E	D	E	A	B	
Approach Delay	53.8			7.9	10.9	
Approach LOS	D			A	B	
Queue Length 50th (ft)	35	92	90	86	318	
Queue Length 95th (ft)	74	143	148	124	465	
Internal Link Dist (ft)	1310			2101	1236	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	146	362	246	3094	2565	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.28	0.33	0.43	0.39	0.60	

Intersection Summary

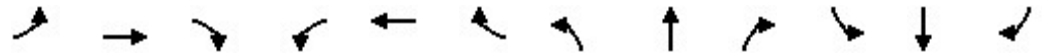
Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 135
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 11.9
 Intersection LOS: B
 Intersection Capacity Utilization 62.5%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)



5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)
Crescent Hill BO AM.syn

Year 2022
04/28/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	26	57	83	39	242	65	912	97	172	524	27
Future Volume (vph)	40	26	57	83	39	242	65	912	97	172	524	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			0%			2%	
Storage Length (ft)	75		75	450		0	275		0	175		0
Storage Lanes	1		1	1		1	1		0	2		0
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	0.97	0.95	0.95
Fr _t			0.850			0.850		0.986			0.993	
Fl _t Protected	0.950				0.967		0.950			0.950		
Satd. Flow (prot)	1743	1835	1560	0	1819	1599	1770	3490	0	3399	3479	0
Fl _t Permitted	0.950				0.778		0.950			0.950		
Satd. Flow (perm)	1743	1835	1560	0	1464	1599	1770	3490	0	3399	3479	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		1236			2004			1164			2181	
Travel Time (s)		33.7			39.0			17.6			33.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	44	29	63	92	43	269	72	1013	108	191	582	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	29	63	0	135	269	72	1121	0	191	612	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			12			12			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template				Left								
Leading Detector (ft)	40	40	40	20	40	0	40	316		60	301	
Trailing Detector (ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Position(ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Size(ft)	40	40	40	20	40	0	40	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	3.0	0.0	15.0	0.0	3.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Perm	NA	Free	Prot	NA		Prot	NA	
Protected Phases	7	4	5		8		5	2		1	6	
Permitted Phases			4	8		Free						
Detector Phase	7	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0		14.0	19.0	

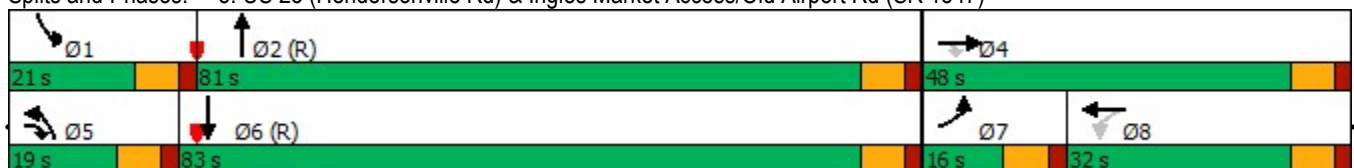


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	16.0	48.0	19.0	32.0	32.0		19.0	81.0		21.0	83.0	
Total Split (%)	10.7%	32.0%	12.7%	21.3%	21.3%		12.7%	54.0%		14.0%	55.3%	
Maximum Green (s)	9.0	41.0	12.0	25.0	25.0		12.0	74.0		14.0	76.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0		-2.0	-2.0		-2.0	-2.0	
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		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0		2.0	6.0		1.0	6.0	
Minimum Gap (s)	3.0	0.2	0.2	0.2	0.2		0.2	3.2		0.2	3.2	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	11.4	33.8	51.4		20.1	150.0	12.7	87.4		13.8	88.6	
Actuated g/C Ratio	0.08	0.23	0.34		0.13	1.00	0.08	0.58		0.09	0.59	
v/c Ratio	0.33	0.07	0.12		0.69	0.17	0.48	0.55		0.61	0.30	
Control Delay	71.7	40.5	29.8		79.0	0.2	75.7	23.1		73.7	18.0	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	71.7	40.5	29.8		79.0	0.2	75.7	23.1		73.7	18.0	
LOS	E	D	C		E	A	E	C		E	B	
Approach Delay		45.6			26.5			26.2			31.2	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	42	22	41		128	0	69	357		94	157	
Queue Length 95th (ft)	82	45	64		194	0	120	526		134	246	
Internal Link Dist (ft)		1156			1924			1084			2101	
Turn Bay Length (ft)	75		75				275			175		
Base Capacity (vph)	140	536	555		264	1599	172	2060		369	2086	
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	0.31	0.05	0.11		0.51	0.17	0.42	0.54		0.52	0.29	

Intersection Summary

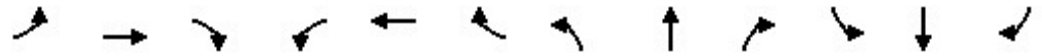
Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 28.9
 Intersection Capacity Utilization 59.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

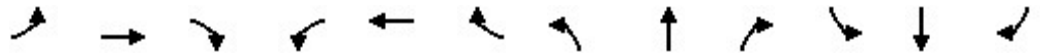


5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)
Crescent Hill BO PM.syn

Year 2022
05/03/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	63	133	80	46	203	106	924	95	239	1097	75
Future Volume (vph)	78	63	133	80	46	203	106	924	95	239	1097	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			0%			2%	
Storage Length (ft)	75		75	450		0	275		0	175		0
Storage Lanes	1		1	1		1	1		0	2		0
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	0.97	0.95	0.95
Fr _t			0.850				0.850			0.986		0.990
Fl _t Protected	0.950				0.969		0.950			0.950		
Satd. Flow (prot)	1743	1835	1560	0	1823	1599	1770	3490	0	3399	3469	0
Fl _t Permitted	0.950				0.765		0.950			0.950		
Satd. Flow (perm)	1743	1835	1560	0	1439	1599	1770	3490	0	3399	3469	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		1236			2004			1164			2181	
Travel Time (s)		33.7			39.0			17.6			33.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	70	148	89	51	226	118	1027	106	266	1219	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	70	148	0	140	226	118	1133	0	266	1302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			12			12			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template				Left								
Leading Detector (ft)	40	40	40	20	40	0	40	316		60	301	
Trailing Detector (ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Position(ft)	0	0	0	0	0	0	0	310		0	295	
Detector 1 Size(ft)	40	40	40	20	40	0	40	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0	15.0	0.0	3.0	0.0	15.0	0.0		0.0	0.0	
Turn Type	Prot	NA	pm+ov	Perm	NA	Free	Prot	NA		Prot	NA	
Protected Phases	7	4	5		8		5	2		1	6	
Permitted Phases			4	8		Free						
Detector Phase	7	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0		14.0	19.0	

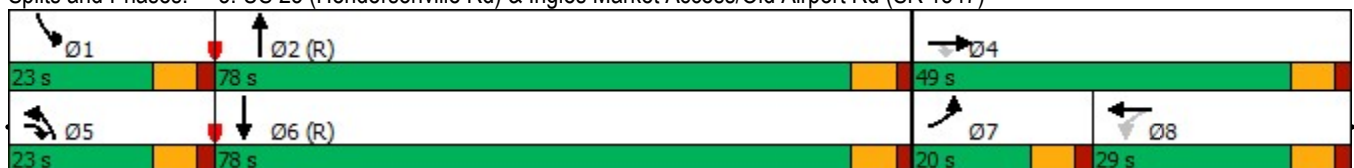


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	20.0	49.0	23.0	29.0	29.0		23.0	78.0		23.0	78.0	
Total Split (%)	13.3%	32.7%	15.3%	19.3%	19.3%		15.3%	52.0%		15.3%	52.0%	
Maximum Green (s)	13.0	42.0	16.0	22.0	22.0		16.0	71.0		16.0	71.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0		-2.0	-2.0		-2.0	-2.0	
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		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0		2.0	6.0		1.0	6.0	
Minimum Gap (s)	3.0	0.2	0.2	0.2	0.2		0.2	3.2		0.2	3.2	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	30.0		0.0	30.0	
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	13.8	38.8	59.3		20.0	150.0	15.5	79.8		16.4	80.7	
Actuated g/C Ratio	0.09	0.26	0.40		0.13	1.00	0.10	0.53		0.11	0.54	
v/c Ratio	0.54	0.15	0.24		0.73	0.14	0.64	0.61		0.72	0.70	
Control Delay	77.5	41.6	29.7		83.8	0.2	80.5	27.5		75.7	29.8	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	77.5	41.6	29.7		83.8	0.2	80.5	27.5		75.7	29.8	
LOS	E	D	C		F	A	F	C		E	C	
Approach Delay		46.1			32.2			32.5			37.6	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	82	52	93		133	0	112	409		130	502	
Queue Length 95th (ft)	143	92	138		207	0	181	514		179	634	
Internal Link Dist (ft)		1156			1924			1084			2101	
Turn Bay Length (ft)	75		75				275			175		
Base Capacity (vph)	178	542	644		230	1599	214	1868		411	1876	
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	0.49	0.13	0.23		0.61	0.14	0.55	0.61		0.65	0.69	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 35.9
 Intersection Capacity Utilization 64.6%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C

Splits and Phases: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	756	62	18	682	4	98	4	35	4	4	5
Future Volume (vph)	15	756	62	18	682	4	98	4	35	4	4	5
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		0	0		175	25		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.999			0.864			0.910	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3500	0	1770	3536	0	1770	1609	0	1770	1695	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3500	0	1770	3536	0	1770	1609	0	1770	1695	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		1295			1938			1047			1134	
Travel Time (s)		19.6			29.4			28.6			38.7	
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)	17	840	69	20	758	4	109	4	39	4	4	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	909	0	20	762	0	109	43	0	4	10	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			12			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	35	306		60	306		40	40		35	35	
Trailing Detector (ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Position(ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Size(ft)	40	6		60	6		40	40		45	45	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0		3.0	0.0		3.0	10.0		3.0	10.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	63.0		16.0	63.0		25.0	26.0		15.0	16.0	

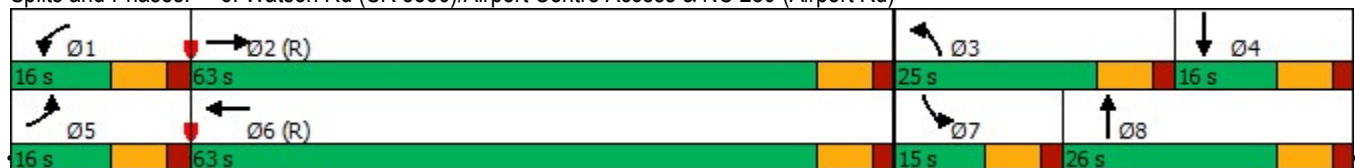


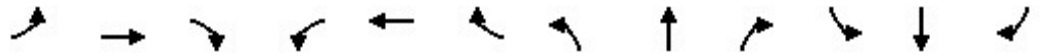
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	13.3%	52.5%		13.3%	52.5%		20.8%	21.7%		12.5%	13.3%	
Maximum Green (s)	9.0	56.0		9.0	56.0		18.0	19.0		8.0	9.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0		3.0	6.0		3.0	2.0		3.0	2.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	0.2		3.0	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	30.0		0.0	30.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	9.4	86.4		9.5	86.5		14.7	14.7		9.0	9.0	
Actuated g/C Ratio	0.08	0.72		0.08	0.72		0.12	0.12		0.08	0.08	
v/c Ratio	0.12	0.36		0.14	0.30		0.50	0.22		0.03	0.08	
Control Delay	53.3	9.4		53.6	8.8		56.7	48.6		52.2	53.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.3	9.4		53.6	8.8		56.7	48.6		52.2	53.2	
LOS	D	A		D	A		E	D		D	D	
Approach Delay		10.2			9.9			54.4			52.9	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	13	83		15	66		80	30		3	7	
Queue Length 95th (ft)	36	297		40	237		134	64		15	25	
Internal Link Dist (ft)		1215			1858			967			1054	
Turn Bay Length (ft)	75			125						25		
Base Capacity (vph)	162	2521		162	2548		295	281		147	155	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.36		0.12	0.30		0.37	0.15		0.03	0.06	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 14.0
 Intersection LOS: B
 Intersection Capacity Utilization 43.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	1100	136	47	1205	37	108	6	44	29	10	47
Future Volume (vph)	29	1100	136	47	1205	37	108	6	44	29	10	47
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		0	0		175	25		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.996			0.869				0.876
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3483	0	1770	3525	0	1770	1619	0	1770	1632	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3483	0	1770	3525	0	1770	1619	0	1770	1632	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25				20
Link Distance (ft)		1295			1938			1047				1134
Travel Time (s)		19.6			29.4			28.6				38.7
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)	32	1222	151	52	1339	41	120	7	49	32	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	1373	0	52	1380	0	120	56	0	32	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			12				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane		Yes			Yes							
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	35	306		60	306		40	40		35	35	
Trailing Detector (ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Position(ft)	-5	300		0	300		0	0		-10	-10	
Detector 1 Size(ft)	40	6		60	6		40	40		45	45	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	3.0	0.0		3.0	0.0		3.0	10.0		3.0	10.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	14.0	71.0		14.0	71.0		20.0	21.0		14.0	15.0	

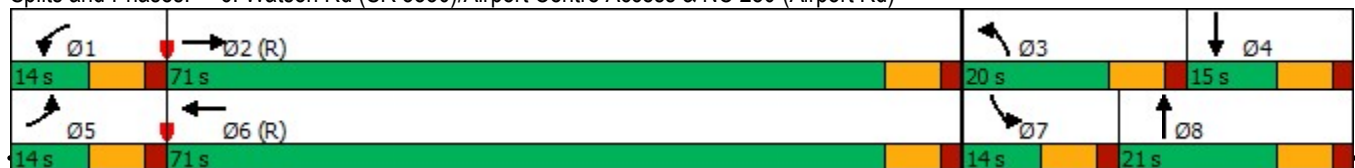


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	11.7%	59.2%		11.7%	59.2%		16.7%	17.5%		11.7%	12.5%	
Maximum Green (s)	7.0	64.0		7.0	64.0		13.0	14.0		7.0	8.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0		3.0	6.0		3.0	2.0		3.0	2.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	0.2		3.0	0.2	
Time Before Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	30.0		0.0	30.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	9.5	70.8		9.8	74.0		14.4	18.1		9.7	10.6	
Actuated g/C Ratio	0.08	0.59		0.08	0.62		0.12	0.15		0.08	0.09	
v/c Ratio	0.23	0.67		0.36	0.64		0.57	0.23		0.23	0.44	
Control Delay	56.1	21.4		59.6	19.2		60.3	47.4		55.7	61.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	56.1	21.4		59.6	19.2		60.3	47.4		55.7	61.8	
LOS	E	C		E	B		E	D		E	E	
Approach Delay		22.2			20.7			56.2			59.7	
Approach LOS		C			C			E			E	
Queue Length 50th (ft)	24	427		38	417		88	39		24	47	
Queue Length 95th (ft)	57	486		81	487		152	81		57	95	
Internal Link Dist (ft)		1215			1858			967			1054	
Turn Bay Length (ft)	75			125						25		
Base Capacity (vph)	139	2120		144	2231		231	259		142	147	
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	0.23	0.65		0.36	0.62		0.52	0.22		0.23	0.43	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 24.6
 Intersection LOS: C
 Intersection Capacity Utilization 60.0%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)



Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	5	55	60	8	22	16
Future Vol, veh/h	5	55	60	8	22	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	61	67	9	24	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	76	0	-	0	145 72
Stage 1	-	-	-	-	72 -
Stage 2	-	-	-	-	73 -
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	1523	-	-	-	847 990
Stage 1	-	-	-	-	951 -
Stage 2	-	-	-	-	950 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1523	-	-	-	844 990
Mov Cap-2 Maneuver	-	-	-	-	844 -
Stage 1	-	-	-	-	947 -
Stage 2	-	-	-	-	950 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1523	-	-	-	900
HCM Lane V/C Ratio	0.004	-	-	-	0.047
HCM Control Delay (s)	7.4	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↖	↗
Traffic Vol, veh/h	17	131	115	23	15	10
Future Vol, veh/h	17	131	115	23	15	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	146	128	26	17	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	154	0	-	0	325 141
Stage 1	-	-	-	-	141 -
Stage 2	-	-	-	-	184 -
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	1426	-	-	-	669 907
Stage 1	-	-	-	-	886 -
Stage 2	-	-	-	-	848 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1426	-	-	-	660 907
Mov Cap-2 Maneuver	-	-	-	-	660 -
Stage 1	-	-	-	-	874 -
Stage 2	-	-	-	-	848 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1426	-	-	-	741
HCM Lane V/C Ratio	0.013	-	-	-	0.037
HCM Control Delay (s)	7.6	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕		↖	↗		↖	↗	
Traffic Vol, veh/h	29	4	18	4	4	11	15	1120	4	5	715	26
Future Vol, veh/h	29	4	18	4	4	11	15	1120	4	5	715	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	75	-	-	-	75	-	-	100	-	-
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	32	4	20	4	4	12	17	1244	4	6	794	29

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1479	2103	412	1691	2115	624	823	0	0	1248	0	0
Stage 1	821	821	-	1280	1280	-	-	-	-	-	-	-
Stage 2	658	1282	-	411	835	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
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	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	87	51	589	61	50	428	803	-	-	553	-	-
Stage 1	335	387	-	175	235	-	-	-	-	-	-	-
Stage 2	420	234	-	589	381	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	77	49	589	54	48	428	803	-	-	553	-	-
Mov Cap-2 Maneuver	77	49	-	54	48	-	-	-	-	-	-	-
Stage 1	328	383	-	171	230	-	-	-	-	-	-	-
Stage 2	392	229	-	556	377	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	57.8		48.2		0.1		0.1	
HCM LOS	F		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	803	-	-	77	196	104	553	-	-
HCM Lane V/C Ratio	0.021	-	-	0.418	0.125	0.203	0.01	-	-
HCM Control Delay (s)	9.6	-	-	81.9	26	48.2	11.6	-	-
HCM Lane LOS	A	-	-	F	D	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.4	0.7	0	-	-

Intersection												
Int Delay, s/veh	14.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕		↖	↗		↖	↗	
Traffic Vol, veh/h	33	4	11	4	4	10	13	1128	4	9	1402	23
Future Vol, veh/h	33	4	11	4	4	10	13	1128	4	9	1402	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	75	-	-	-	75	-	-	100	-	-
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	37	4	12	4	4	11	14	1253	4	10	1558	26

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2248	2876	792	2084	2887	629	1584	0	0	1257	0	0
Stage 1	1591	1591	-	1283	1283	-	-	-	-	-	-	-
Stage 2	657	1285	-	801	1604	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
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	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 23	16	332	30	16	425	411	-	-	549	-	-
Stage 1	112	166	-	175	234	-	-	-	-	-	-	-
Stage 2	420	233	-	344	163	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 17	15	332	21	15	425	411	-	-	549	-	-
Mov Cap-2 Maneuver	~ 17	15	-	21	15	-	-	-	-	-	-	-
Stage 1	108	163	-	169	226	-	-	-	-	-	-	-
Stage 2	387	225	-	316	160	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	721.6	184.3	0.2	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	411	-	-	17	50	37	549	-	-
HCM Lane V/C Ratio	0.035	-	-	2.157	0.333	0.541	0.018	-	-
HCM Control Delay (s)	14.1	-	-	999.8	109.5	184.3	11.7	-	-
HCM Lane LOS	B	-	-	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	5.1	1.2	1.9	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	255	265	226	218	256	355	405	352	297	192	205	271
Average Queue (ft)	150	158	124	128	116	145	177	192	162	97	111	127
95th Queue (ft)	226	235	198	199	211	259	295	292	271	173	184	244
Link Distance (ft)			2680	2680			1393					2729
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500			300	450		275	275	375	375	
Storage Blk Time (%)					0		0	2	1			
Queuing Penalty (veh)					0		1	5	1			

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	284	186	137	200	180	173
Average Queue (ft)	141	48	51	101	76	60
95th Queue (ft)	260	135	110	180	161	142
Link Distance (ft)	2729			1935	1935	1935
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		375	275			
Storage Blk Time (%)	0					
Queuing Penalty (veh)	0					

Intersection: 2: US 25 (Hendersonville Rd) & Crescent Hill Dr. (SR 3531)/Pine Needle Dr.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	56	36	22	21
Average Queue (ft)	18	12	3	2
95th Queue (ft)	44	32	13	12
Link Distance (ft)	1240	1148		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			75	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: US 25 (Hendersonville Rd) & Royal Oaks Rd (SR 3190)

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	65	29
Average Queue (ft)	20	6
95th Queue (ft)	46	24
Link Distance (ft)	1616	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	75	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	40	92	47	101	130	95	80
Average Queue (ft)	10	25	15	12	21	27	22
95th Queue (ft)	31	61	40	55	81	73	63
Link Distance (ft)	1299		2106		2106	1209	1209
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150				
Storage Blk Time (%)	0		0				
Queuing Penalty (veh)	0		0				

Intersection: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	TR	L	L	T	TR
Maximum Queue (ft)	84	87	76	208	90	72	284	227	138	153	149	156
Average Queue (ft)	29	18	25	74	17	22	135	107	55	77	36	50
95th Queue (ft)	69	54	61	158	59	54	230	198	113	132	99	121
Link Distance (ft)	1170			1927			1111	1111			2106	2106
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	75	75		450	275			175		175		
Storage Blk Time (%)	2	0	1						0	0		0
Queuing Penalty (veh)	1	0	1						0	0		0

Intersection: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	26	95	73	50	153	160	125	77	24	37
Average Queue (ft)	4	36	17	9	29	43	58	28	2	7
95th Queue (ft)	15	79	54	31	96	114	106	64	13	27
Link Distance (ft)		1243	1243		1862	1862	979			1074
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	75			125				175	25	
Storage Blk Time (%)		1			0		0		5	6
Queuing Penalty (veh)		0			0		0		0	0

Network Summary

Network wide Queuing Penalty: 11

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	372	403	434	445	363	449	525	373	320	233	262	369
Average Queue (ft)	197	214	233	238	173	198	242	230	192	130	148	170
95th Queue (ft)	316	343	362	374	301	350	413	347	305	213	232	317
Link Distance (ft)			2680	2680			1393					2729
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500			300	450		275	275	375	375	
Storage Blk Time (%)	0	0		6	1	0	6	5	1			0
Queuing Penalty (veh)	0	1		16	1	0	28	18	3			1

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	356	247	350	512	506	406
Average Queue (ft)	176	88	167	281	267	150
95th Queue (ft)	322	194	318	483	469	327
Link Distance (ft)	2729			1935	1935	1935
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		375	275			
Storage Blk Time (%)	0		0	18		
Queuing Penalty (veh)	1		0	19		

Intersection: 2: US 25 (Hendersonville Rd) & Crescent Hill Dr. (SR 3531)/Pine Needle Dr.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	71	74	13	26
Average Queue (ft)	24	18	1	4
95th Queue (ft)	63	58	6	18
Link Distance (ft)	1240	1148		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			75	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: US 25 (Hendersonville Rd) & Royal Oaks Rd (SR 3190)

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	79	9	43
Average Queue (ft)	23	0	11
95th Queue (ft)	54	5	34
Link Distance (ft)	1616	1209	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	73	156	90	118	126	213	211
Average Queue (ft)	20	58	37	22	31	76	70
95th Queue (ft)	54	124	75	76	98	158	154
Link Distance (ft)		1299		2106	2106	1209	1209
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150				
Storage Blk Time (%)		1		0			
Queuing Penalty (veh)		0		0			

Intersection: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	TR	L	L	T	TR
Maximum Queue (ft)	154	216	162	178	92	139	315	313	190	258	339	351
Average Queue (ft)	62	89	83	78	13	59	160	145	90	115	130	144
95th Queue (ft)	131	200	153	156	49	109	278	264	164	194	263	282
Link Distance (ft)		1170			1927		1111	1111			2106	2106
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	75		75	450		275			175	175		
Storage Blk Time (%)	8	10	21				1		1	3	4	
Queuing Penalty (veh)	15	20	29				1		4	14	8	

Intersection: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	61	148	128	64	182	193	165	104	68	129
Average Queue (ft)	11	64	54	21	62	69	77	40	20	51
95th Queue (ft)	34	125	113	50	138	154	141	85	51	105
Link Distance (ft)		1243	1243		1862	1862	979			1074
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	75			125				175	25	
Storage Blk Time (%)	0	3		0	1		0		26	43
Queuing Penalty (veh)	0	1		0	0		0		14	12

Network Summary

Network wide Queuing Penalty: 207

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	228	233	239	248	258	372	419	351	302	167	193	278
Average Queue (ft)	136	148	126	135	115	135	170	205	171	96	113	133
95th Queue (ft)	207	217	207	215	209	260	299	307	274	163	180	254
Link Distance (ft)			2680	2680			1393					2729
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500			300	450		275	275	375	375	
Storage Blk Time (%)				0	0		1	3	0			
Queuing Penalty (veh)				0	0		4	7	1			

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	293	224	165	215	193	155
Average Queue (ft)	145	55	60	112	94	54
95th Queue (ft)	268	154	129	195	183	126
Link Distance (ft)	2729			1935	1935	1935
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		375	275			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 2: US 25 (Hendersonville Rd) & Crescent Hill Dr. (SR 3531)/Pine Needle Dr.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	56	45	14	20
Average Queue (ft)	20	12	2	2
95th Queue (ft)	46	35	11	11
Link Distance (ft)	1240	1148		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			75	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: US 25 (Hendersonville Rd) & Royal Oaks Rd (SR 3190)

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	61	44
Average Queue (ft)	20	9
95th Queue (ft)	47	32
Link Distance (ft)	1616	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	75	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	39	70	112	113	130	143	155
Average Queue (ft)	9	22	34	12	17	41	43
95th Queue (ft)	28	55	81	59	74	107	113
Link Distance (ft)	1299		2106		2106	1209	1209
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150				
Storage Blk Time (%)			0		0		
Queuing Penalty (veh)			1		0		

Intersection: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	TR	L	L	T	TR
Maximum Queue (ft)	90	89	90	204	110	130	315	293	138	149	184	210
Average Queue (ft)	38	20	29	86	22	55	175	156	57	83	62	79
95th Queue (ft)	78	61	70	168	73	106	279	266	113	132	142	165
Link Distance (ft)	1170			1927			1111	1111			2106	2106
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	75		75	450		275		175		175		
Storage Blk Time (%)	3	0	2				1		0		0	
Queuing Penalty (veh)	2	0	1				0		0		0	

Intersection: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	47	180	155	59	286	290	146	108	24	50
Average Queue (ft)	10	70	41	13	47	59	63	42	3	13
95th Queue (ft)	31	146	113	40	166	178	121	87	16	41
Link Distance (ft)		1243	1243		1862	1862	979			1074
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	75			125			175	25		
Storage Blk Time (%)	0	6			2		0	0	6	16
Queuing Penalty (veh)	0	1			0		0	0	1	1

Network Summary

Network wide Queuing Penalty: 20

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	390	400	419	467	399	397	543	364	306	264	277	387
Average Queue (ft)	211	225	232	245	191	194	233	222	185	141	156	159
95th Queue (ft)	341	356	366	390	352	333	444	333	297	235	253	316
Link Distance (ft)			2680	2680			1393					2729
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500			300	450		275	275	375	375	
Storage Blk Time (%)			0	5	3	0	4	4	1			0
Queuing Penalty (veh)			0	14	6	0	21	14	3			1

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	386	288	374	575	537	397
Average Queue (ft)	170	95	169	288	270	162
95th Queue (ft)	330	222	331	508	489	348
Link Distance (ft)	2729			1935	1935	1935
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		375	275			
Storage Blk Time (%)	1		0	17		
Queuing Penalty (veh)	2		1	18		

Intersection: 2: US 25 (Hendersonville Rd) & Crescent Hill Dr. (SR 3531)/Pine Needle Dr.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	76	48	14	26
Average Queue (ft)	24	11	1	4
95th Queue (ft)	61	33	8	18
Link Distance (ft)	1240	1148		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			75	100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: US 25 (Hendersonville Rd) & Royal Oaks Rd (SR 3190)

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	70	5	48
Average Queue (ft)	23	0	12
95th Queue (ft)	53	3	38
Link Distance (ft)	1616	1209	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	76	157	161	162	124	251	251
Average Queue (ft)	23	65	74	27	33	103	103
95th Queue (ft)	58	130	137	100	102	213	218
Link Distance (ft)		1299		2106	2106	1209	1209
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150				
Storage Blk Time (%)		1	1	0			
Queuing Penalty (veh)		0	6	0			

Intersection: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	TR	L	L	T	TR
Maximum Queue (ft)	169	250	162	189	107	220	360	343	208	274	416	385
Average Queue (ft)	67	74	65	83	17	100	212	193	96	134	200	213
95th Queue (ft)	132	181	133	156	60	181	339	323	173	239	357	356
Link Distance (ft)		1170			1927		1111	1111			2106	2106
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	75		75	450		275			175	175		
Storage Blk Time (%)	11	9	13			0	3		1	3	11	
Queuing Penalty (veh)	22	20	19			0	3		5	18	25	

Intersection: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	174	343	344	200	411	390	194	128	94	129
Average Queue (ft)	30	212	194	41	167	168	88	47	26	54
95th Queue (ft)	109	339	338	112	341	340	160	103	65	103
Link Distance (ft)		1243	1243		1862	1862	979			1074
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	75			125			175		25	
Storage Blk Time (%)	1	25		0	11		2		33	54
Queuing Penalty (veh)	6	7		3	5		1		19	16

Network Summary

Network wide Queuing Penalty: 256

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	263	273	244	270	264	365	410	362	301	213	227	351
Average Queue (ft)	139	150	130	134	120	144	180	200	170	95	111	144
95th Queue (ft)	224	231	211	222	219	276	304	302	283	167	183	295
Link Distance (ft)			2680	2680			1393					2729
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500			300	450		275	275	375	375	
Storage Blk Time (%)				0	0	0	1	2	0			0
Queuing Penalty (veh)				0	0	0	6	5	1			0

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	363	171	138	209	193	172
Average Queue (ft)	159	48	64	106	80	64
95th Queue (ft)	310	128	122	194	167	147
Link Distance (ft)	2729			1935	1935	1935
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		375	275			
Storage Blk Time (%)	0			0		
Queuing Penalty (veh)	0			0		

Intersection: 2: US 25 (Hendersonville Rd) & Crescent Hill Dr. (SR 3531)/Pine Needle Dr.

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	81	40	24	4	20
Average Queue (ft)	29	12	3	0	2
95th Queue (ft)	67	31	15	3	11
Link Distance (ft)	1240	1148		340	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75	100	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: US 25 (Hendersonville Rd) & Royal Oaks Rd (SR 3190)

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	63	44
Average Queue (ft)	20	8
95th Queue (ft)	47	30
Link Distance (ft)	1616	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	75	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	53	84	102	117	151	119	133
Average Queue (ft)	16	28	38	21	30	45	43
95th Queue (ft)	44	67	82	76	101	98	103
Link Distance (ft)	1299		2106		2106	1209	1209
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150				
Storage Blk Time (%)			0		0		
Queuing Penalty (veh)			0		0		

Intersection: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	TR	L	L	T	TR
Maximum Queue (ft)	79	104	89	216	136	150	313	273	153	161	191	209
Average Queue (ft)	35	23	28	87	26	60	171	143	61	86	67	85
95th Queue (ft)	73	66	70	177	88	122	283	251	127	147	150	171
Link Distance (ft)	1170			1927			1111	1111			2106	2106
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	75		75	450		275		175		175		
Storage Blk Time (%)	1	1	3				1	0		0	0	
Queuing Penalty (veh)	1	1	2				1	0		1	1	

Intersection: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	52	177	155	62	219	234	167	91	24	62
Average Queue (ft)	8	67	45	17	37	47	78	32	3	13
95th Queue (ft)	30	142	117	47	125	145	140	74	15	43
Link Distance (ft)		1243	1243		1862	1862	979			1074
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	75			125				175	25	
Storage Blk Time (%)	0	6			1		0		6	18
Queuing Penalty (veh)	0	1			0		0		1	1

Intersection: 7: Watson Rd (SR 3530) & Site Drive 1

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	48
Average Queue (ft)	0	23
95th Queue (ft)	4	48
Link Distance (ft)	488	1370
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 22

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	364	378	450	472	382	452	582	375	311	244	262	360
Average Queue (ft)	203	216	234	251	187	203	254	230	197	132	145	171
95th Queue (ft)	321	336	382	411	345	353	439	346	299	212	231	323
Link Distance (ft)			2680	2680			1393					2729
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500			300	450		275	275	375	375	
Storage Blk Time (%)			0	7	3	0	7	4	1			0
Queuing Penalty (veh)			0	17	8	0	36	14	4			1

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	374	220	374	600	593	425
Average Queue (ft)	181	85	170	311	294	169
95th Queue (ft)	337	182	327	526	510	365
Link Distance (ft)	2729			1935	1935	1935
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		375	275			
Storage Blk Time (%)	0		1	20		
Queuing Penalty (veh)	1		2	21		

Intersection: 2: US 25 (Hendersonville Rd) & Crescent Hill Dr. (SR 3531)/Pine Needle Dr.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T
Maximum Queue (ft)	101	53	31	4	23	10
Average Queue (ft)	40	12	4	0	4	0
95th Queue (ft)	85	37	18	3	17	7
Link Distance (ft)	1240	1148		340		2729
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			75		100	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: US 25 (Hendersonville Rd) & Royal Oaks Rd (SR 3190)

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	91	54
Average Queue (ft)	25	14
95th Queue (ft)	64	41
Link Distance (ft)	1616	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	75	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	83	187	142	162	162	285	284
Average Queue (ft)	26	71	75	37	42	112	112
95th Queue (ft)	66	147	127	117	123	222	228
Link Distance (ft)	1299		2106		2106	1209	1209
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150				
Storage Blk Time (%)	3		0		0		
Queuing Penalty (veh)	1		2		0		

Intersection: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB		
Directions Served	L	T	R	LT	R	L	T	TR	L	L	T	TR		
Maximum Queue (ft)	154	234	164	177	124	280	384	395	205	274	535	531		
Average Queue (ft)	73	72	66	82	21	102	214	189	97	140	226	243		
95th Queue (ft)	131	168	133	152	75	205	340	324	170	253	433	444		
Link Distance (ft)	1170			1927			1111		1111		2106		2106	
Upstream Blk Time (%)														
Queuing Penalty (veh)														
Storage Bay Dist (ft)	75		75		450		275		175		175			
Storage Blk Time (%)	14		8		12		0		3		1		4	11
Queuing Penalty (veh)	27		16		17		0		3		3		20	26

Intersection: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	151	340	344	171	368	370	196	128	91	138
Average Queue (ft)	28	199	189	43	171	175	93	48	24	51
95th Queue (ft)	92	325	323	115	321	331	163	106	66	104
Link Distance (ft)		1243	1243		1862	1862	979			1074
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	75			125				175	25	
Storage Blk Time (%)	1	25		0	12		1	0	30	53
Queuing Penalty (veh)	3	7		1	5		1	0	17	16

Intersection: 7: Watson Rd (SR 3530) & Site Drive 1

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	40	49
Average Queue (ft)	3	19
95th Queue (ft)	19	46
Link Distance (ft)	488	1370
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 271

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	238	249	237	282	251	287	337	322	284	188	213	290
Average Queue (ft)	137	148	135	140	115	140	173	204	172	91	107	151
95th Queue (ft)	217	229	211	226	209	255	277	302	275	168	183	275
Link Distance (ft)			2680	2680			1393					2723
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500			300	450		275	275	375	375	
Storage Blk Time (%)				0	0		1	2	0			
Queuing Penalty (veh)				0	1		4	5	0			

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	304	195	150	206	181	169
Average Queue (ft)	164	47	57	112	87	62
95th Queue (ft)	291	129	117	191	174	139
Link Distance (ft)	2723			1935	1935	1935
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		375	275			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: US 25 (Hendersonville Rd) & Crescent Hill Dr. (SR 3531)/Pine Needle Dr.

Movement	EB	EB	WB	NB	NB	SB
Directions Served	L	TR	LTR	L	TR	L
Maximum Queue (ft)	56	41	33	18	4	25
Average Queue (ft)	19	12	10	4	0	3
95th Queue (ft)	47	34	29	15	3	15
Link Distance (ft)	1239		1148		335	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		75		75		100
Storage Blk Time (%)	0					
Queuing Penalty (veh)	0					

Intersection: 3: US 25 (Hendersonville Rd) & Royal Oaks Rd (SR 3190)

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	68	46
Average Queue (ft)	21	7
95th Queue (ft)	47	30
Link Distance (ft)	1616	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	75	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	53	100	94	126	132	130	147
Average Queue (ft)	15	31	38	24	34	45	43
95th Queue (ft)	42	73	80	82	103	99	104
Link Distance (ft)	1299		2106		2106	1209	1209
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150				
Storage Blk Time (%)	0						
Queuing Penalty (veh)	0						

Intersection: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	TR	L	L	T	TR
Maximum Queue (ft)	90	113	93	221	104	143	312	285	163	174	195	216
Average Queue (ft)	36	25	32	92	24	58	178	151	57	83	75	92
95th Queue (ft)	77	76	77	186	72	111	284	261	123	140	168	187
Link Distance (ft)	1170			1927			1111	1111			2106	2106
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	75	75		450	275			175		175		
Storage Blk Time (%)	2	2	3				1	0		0	1	
Queuing Penalty (veh)	2	2	2				1	0		0	1	

Intersection: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	46	187	166	52	211	244	177	97	24	42
Average Queue (ft)	9	71	46	14	42	51	78	37	3	10
95th Queue (ft)	32	143	121	38	141	156	136	80	15	34
Link Distance (ft)		1243	1243		1862	1862	979			1074
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	75			125				175	25	
Storage Blk Time (%)	0	6			2		0		4	14
Queuing Penalty (veh)	0	1			0		0		0	1

Intersection: 7: Watson Rd (SR 3530) & Site Drive 1

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	45
Average Queue (ft)	0	22
95th Queue (ft)	4	46
Link Distance (ft)	488	1370
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 20

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	TR	L	L	T
Maximum Queue (ft)	355	389	447	479	390	410	489	356	312	254	284	344
Average Queue (ft)	204	216	243	249	184	204	244	217	190	137	149	170
95th Queue (ft)	319	338	382	402	342	342	402	336	308	222	242	319
Link Distance (ft)			2680	2680			1393					2723
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500			300	450		275	275	375	375	
Storage Blk Time (%)			0	7	3	0	6	5	1			0
Queuing Penalty (veh)			0	19	7	0	29	18	4			0

Intersection: 1: US 25 (Hendersonville Rd) & NC 280 (Airport Rd)/US 25 ALT (Sweeten Creek Rd)

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	364	260	375	600	585	378
Average Queue (ft)	175	90	175	312	298	165
95th Queue (ft)	331	202	347	533	525	347
Link Distance (ft)	2723			1935	1935	1935
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		375	275			
Storage Blk Time (%)	0		1	20		
Queuing Penalty (veh)	1		3	21		

Intersection: 2: US 25 (Hendersonville Rd) & Crescent Hill Dr. (SR 3531)/Pine Needle Dr.

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	L	L	T
Maximum Queue (ft)	80	56	45	29	21	7
Average Queue (ft)	29	12	13	5	2	0
95th Queue (ft)	66	36	36	20	13	5
Link Distance (ft)	1239		1148			2723
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		75		75	100	
Storage Blk Time (%)	2	0		0		
Queuing Penalty (veh)	0	0		0		

Intersection: 3: US 25 (Hendersonville Rd) & Royal Oaks Rd (SR 3190)

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	79	10	60
Average Queue (ft)	25	0	16
95th Queue (ft)	57	5	46
Link Distance (ft)	1616	1209	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			75
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 4: US 25 (Hendersonville Rd) & Watson Rd (SR 3530)

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	86	168	160	131	149	259	272
Average Queue (ft)	25	65	74	28	34	110	114
95th Queue (ft)	66	136	134	92	108	224	230
Link Distance (ft)		1299		2106	2106	1209	1209
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150				
Storage Blk Time (%)		1	1	0			
Queuing Penalty (veh)		0	5	0			

Intersection: 5: US 25 (Hendersonville Rd) & Ingles Market Access/Old Airport Rd (SR 1547)

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	TR	L	L	T	TR
Maximum Queue (ft)	165	246	167	200	105	224	365	364	184	274	462	458
Average Queue (ft)	70	77	65	88	19	99	215	194	94	135	214	228
95th Queue (ft)	141	188	139	164	69	177	339	318	171	248	400	403
Link Distance (ft)		1170			1927		1111	1111			2106	2106
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	75		75	450		275			175	175		
Storage Blk Time (%)	12	6	12				3		0	2	13	
Queuing Penalty (veh)	23	13	17				3		2	11	30	

Intersection: 6: Watson Rd (SR 3530)/Airport Centre Access & NC 280 (Airport Rd)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	121	338	335	195	399	413	176	116	101	148
Average Queue (ft)	25	200	186	40	159	164	81	48	27	51
95th Queue (ft)	95	322	310	103	332	340	146	95	68	109
Link Distance (ft)		1243	1243		1862	1862	979			1074
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	75			125				175	25	
Storage Blk Time (%)	0	25		0	10		0		36	49
Queuing Penalty (veh)	0	7		0	5		0		21	14

Intersection: 7: Watson Rd (SR 3530) & Site Drive 1

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	42	44
Average Queue (ft)	2	18
95th Queue (ft)	19	44
Link Distance (ft)	488	1370
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 256

Appendix C

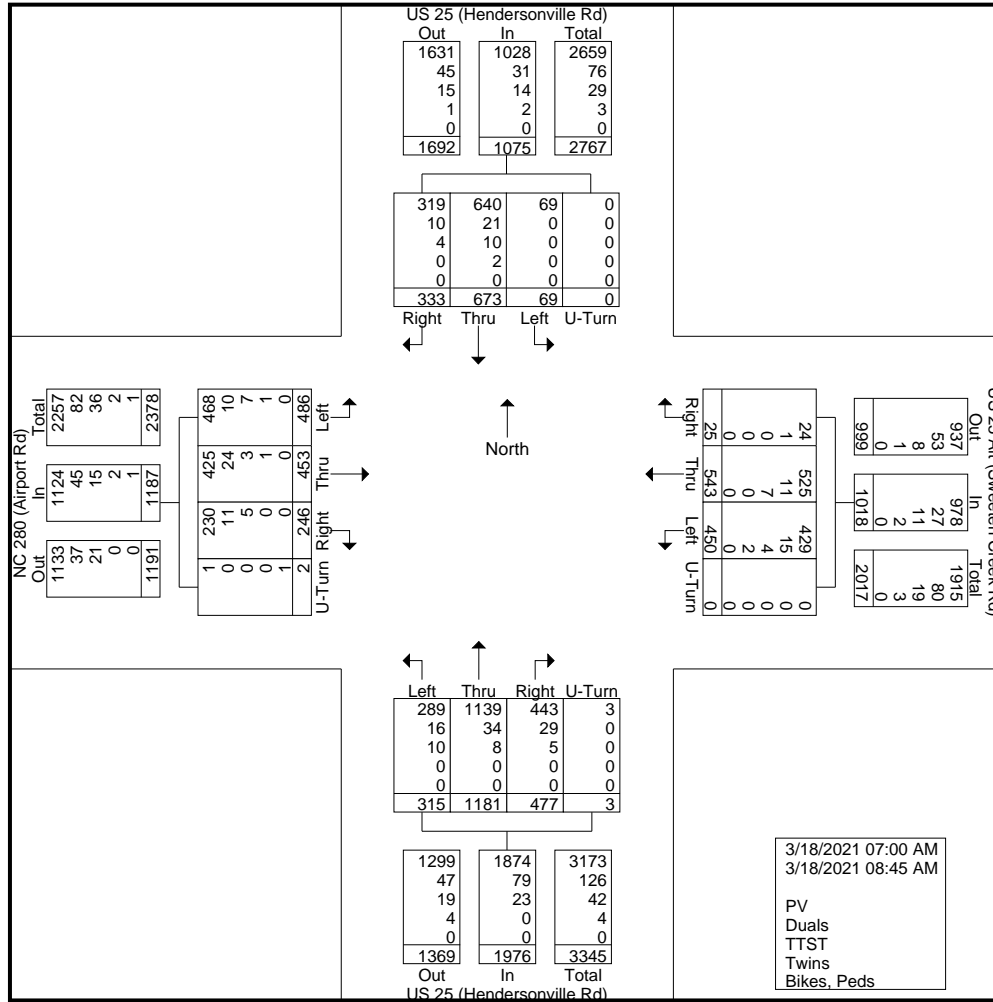
Turning Movement Counts

File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ NC 280 (Airport Rd) - Existing AM
Site Code : 1099.1
Start Date : 3/18/2021
Page No : 1

Groups Printed- PV - Duals - TTST - Twins - Bikes, Peds

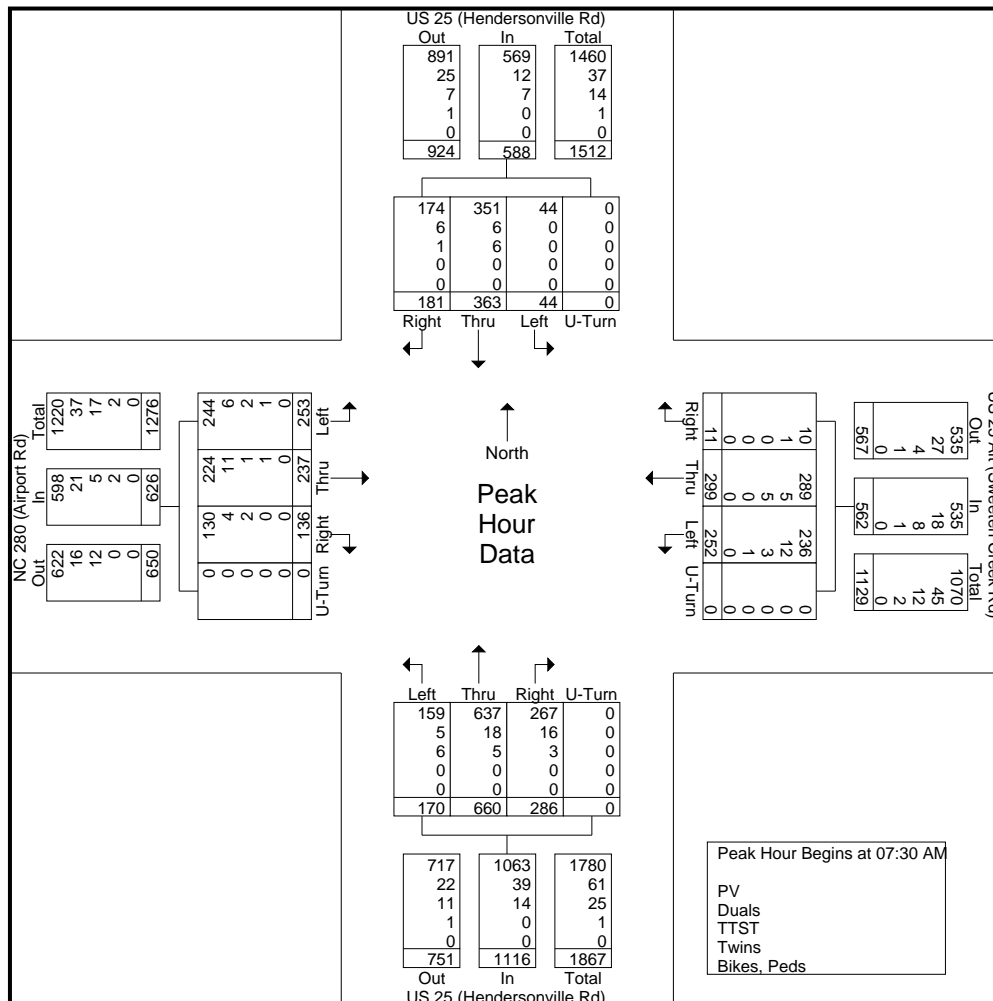
Start Time	US 25 (Hendersonville Rd) Southbound					US 25 Alt (Sweeten Creek Rd) Westbound					US 25 (Hendersonville Rd) Northbound					NC 280 (Airport Rd) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
07:00 AM	4	64	23	0	91	28	50	3	0	81	28	114	34	1	177	53	35	19	0	107	456
07:15 AM	9	79	33	0	121	59	58	4	0	121	31	141	61	0	233	61	52	22	0	135	610
07:30 AM	13	115	36	0	164	66	70	2	0	138	50	201	81	0	332	56	48	33	0	137	771
07:45 AM	9	87	44	0	140	68	86	3	0	157	53	184	70	0	307	82	64	38	0	184	788
Total	35	345	136	0	516	221	264	12	0	497	162	640	246	1	1049	252	199	112	0	563	2625
08:00 AM	18	69	55	0	142	64	80	4	0	148	42	125	77	0	244	58	57	31	0	146	680
08:15 AM	4	92	46	0	142	54	63	2	0	119	25	150	58	0	233	57	68	34	0	159	653
08:30 AM	3	80	42	0	125	46	67	1	0	114	34	128	52	0	214	57	62	37	1	157	610
08:45 AM	9	87	54	0	150	65	69	6	0	140	52	138	44	2	236	62	67	32	1	162	688
Total	34	328	197	0	559	229	279	13	0	521	153	541	231	2	927	234	254	134	2	624	2631
Grand Total	69	673	333	0	1075	450	543	25	0	1018	315	1181	477	3	1976	486	453	246	2	1187	5256
Apprch %	6.4	62.6	31	0		44.2	53.3	2.5	0		15.9	59.8	24.1	0.2		40.9	38.2	20.7	0.2		
Total %	1.3	12.8	6.3	0	20.5	8.6	10.3	0.5	0	19.4	6	22.5	9.1	0.1	37.6	9.2	8.6	4.7	0	22.6	
PV	69	640	319	0	1028	429	525	24	0	978	289	1139	443	3	1874	468	425	230	1	1124	5004
% PV	100	95.1	95.8	0	95.6	95.3	96.7	96	0	96.1	91.7	96.4	92.9	100	94.8	96.3	93.8	93.5	50	94.7	95.2
Duals	0	21	10	0	31	15	11	1	0	27	16	34	29	0	79	10	24	11	0	45	182
% Duals	0	3.1	3	0	2.9	3.3	2	4	0	2.7	5.1	2.9	6.1	0	4	2.1	5.3	4.5	0	3.8	3.5
TTST	0	10	4	0	14	4	7	0	0	11	10	8	5	0	23	7	3	5	0	15	63
% TTST	0	1.5	1.2	0	1.3	0.9	1.3	0	0	1.1	3.2	0.7	1	0	1.2	1.4	0.7	2	0	1.3	1.2
Twins	0	2	0	0	2	2	0	0	0	2	0	0	0	0	0	1	1	0	0	2	6
% Twins	0	0.3	0	0	0.2	0.4	0	0	0	0.2	0	0	0	0	0	0.2	0.2	0	0	0.2	0.1
Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0.1	0

File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ NC 280 (Airport Rd) - Existing AM
 Site Code : 1099.1
 Start Date : 3/18/2021
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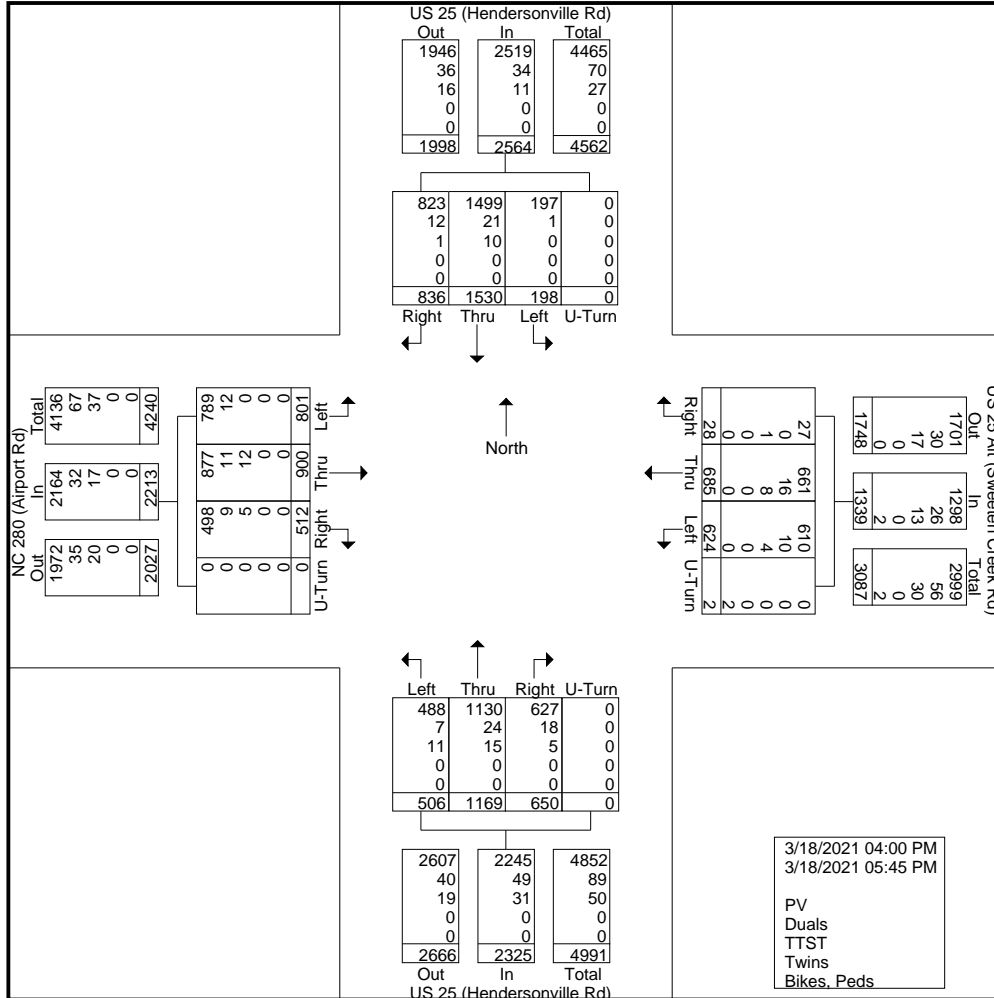
File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ NC 280 (Airport Rd) - Existing AM
Site Code : 1099.1
Start Date : 3/18/2021
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Start Time	US 25 (Hendersonville Rd) Southbound					US 25 Alt (Sweeten Creek Rd) Westbound					US 25 (Hendersonville Rd) Northbound					NC 280 (Airport Rd) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. 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	13	115	36	0	164	66	70	2	0	138	50	201	81	0	332	56	48	33	0	137	771
07:45 AM	9	87	44	0	140	68	86	3	0	157	53	184	70	0	307	82	64	38	0	184	788
08:00 AM	18	69	55	0	142	64	80	4	0	148	42	125	77	0	244	58	57	31	0	146	680
08:15 AM	4	92	46	0	142	54	63	2	0	119	25	150	58	0	233	57	68	34	0	159	653
Total Volume	44	363	181	0	588	252	299	11	0	562	170	660	286	0	1116	253	237	136	0	626	2892
% App. Total	7.5	61.7	30.8	0		44.8	53.2	2	0		15.2	59.1	25.6	0		40.4	37.9	21.7	0		
PHF	.611	.789	.823	.000	.896	.926	.869	.688	.000	.895	.802	.821	.883	.000	.840	.771	.871	.895	.000	.851	.918
PV	44	351	174	0	569	236	289	10	0	535	159	637	267	0	1063	244	224	130	0	598	2765
% PV	100	96.7	96.1	0	96.8	93.7	96.7	90.9	0	95.2	93.5	96.5	93.4	0	95.3	96.4	94.5	95.6	0	95.5	95.6
Duals	0	6	6	0	12	12	5	1	0	18	5	18	16	0	39	6	11	4	0	21	90
% Duals	0	1.7	3.3	0	2.0	4.8	1.7	9.1	0	3.2	2.9	2.7	5.6	0	3.5	2.4	4.6	2.9	0	3.4	3.1
TTST	0	6	1	0	7	3	5	0	0	8	6	5	3	0	14	2	1	2	0	5	34
% TTST	0	1.7	0.6	0	1.2	1.2	1.7	0	0	1.4	3.5	0.8	1.0	0	1.3	0.8	0.4	1.5	0	0.8	1.2
Twins	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	2	3
% Twins	0	0	0	0	0	0.4	0	0	0	0.2	0	0	0	0	0	0.4	0.4	0	0	0.3	0.1
Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Northbound & Eastbound
 U-turns moved to
 Left turn.

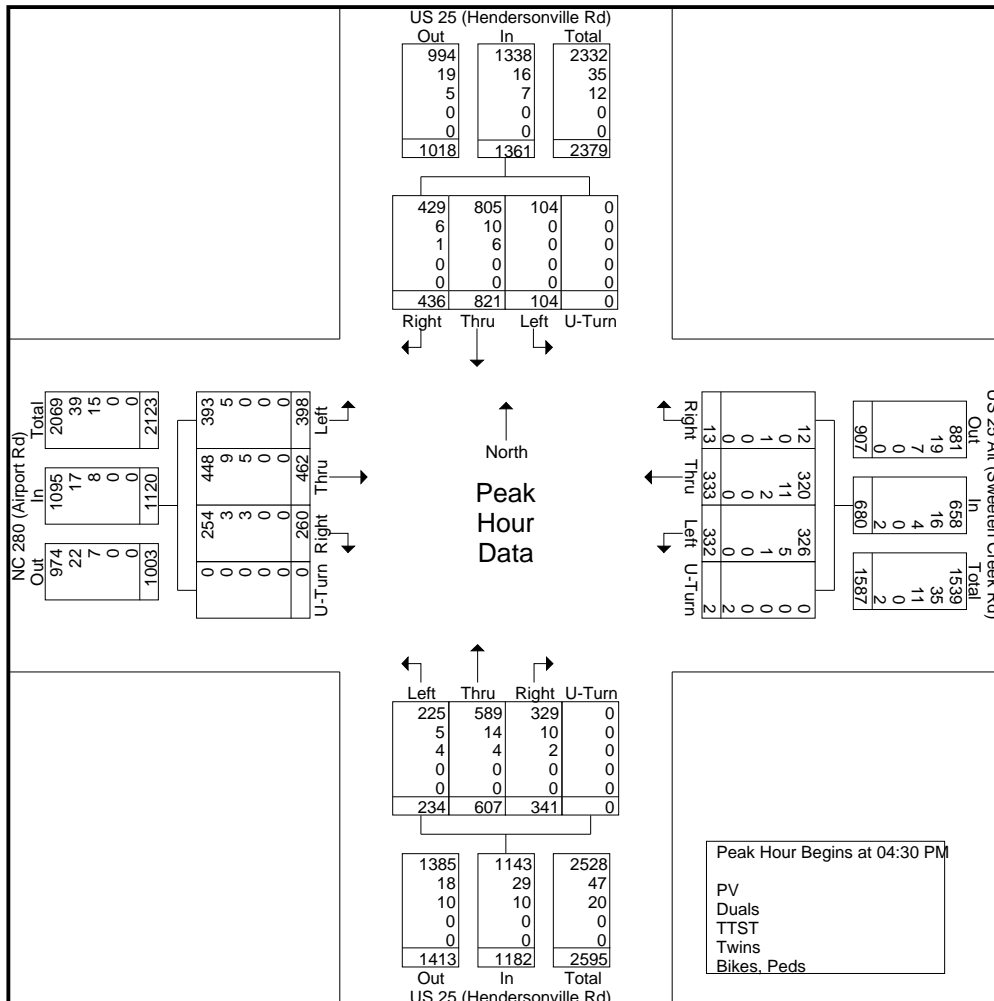
File Name : UT to LT - WAYN 1099 - US 25 @ NC 280 - Existing PM
 Site Code : 1099.1
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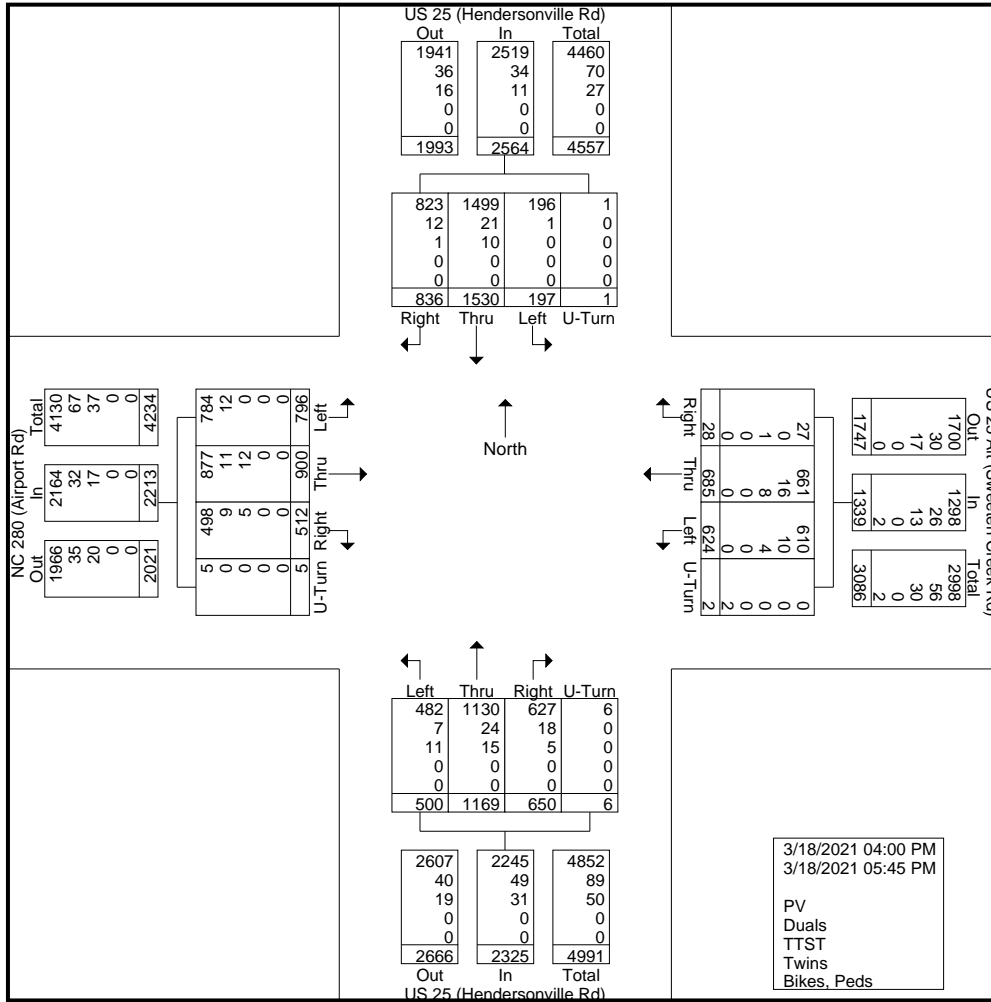
Northbound & Eastbound
U-turns moved to
Left turn.

File Name : UT to LT - WAYN 1099 - US 25 @ NC 280 - Existing PM
Site Code : 1099.1
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Start Time	US 25 (Hendersonville Rd) Southbound					US 25 Alt (Sweeten Creek Rd) Westbound					US 25 (Hendersonville Rd) Northbound					NC 280 (Airport Rd) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. 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	22	183	89	0	294	75	80	4	0	159	64	158	78	0	300	110	117	60	0	287	1040
04:45 PM	28	173	125	0	326	84	93	3	2	182	59	149	84	0	292	100	124	65	0	289	1089
05:00 PM	23	213	119	0	355	79	77	0	0	156	65	165	97	0	327	95	99	59	0	253	1091
05:15 PM	31	252	103	0	386	94	83	6	0	183	46	135	82	0	263	93	122	76	0	291	1123
Total Volume	104	821	436	0	1361	332	333	13	2	680	234	607	341	0	1182	398	462	260	0	1120	4343
% App. Total	7.6	60.3	32	0		48.8	49	1.9	0.3		19.8	51.4	28.8	0		35.5	41.2	23.2	0		
PHF	.839	.814	.872	.000	.881	.883	.895	.542	.250	.929	.900	.920	.879	.000	.904	.905	.931	.855	.000	.962	.967
PV	104	805	429	0	1338	326	320	12	0	658	225	589	329	0	1143	393	448	254	0	1095	4234
% PV	100	98.1	98.4	0	98.3	98.2	96.1	92.3	0	96.8	96.2	97.0	96.5	0	96.7	98.7	97.0	97.7	0	97.8	97.5
Duals	0	10	6	0	16	5	11	0	0	16	5	14	10	0	29	5	9	3	0	17	78
% Duals	0	1.2	1.4	0	1.2	1.5	3.3	0	0	2.4	2.1	2.3	2.9	0	2.5	1.3	1.9	1.2	0	1.5	1.8
TTST	0	6	1	0	7	1	2	1	0	4	4	4	2	0	10	0	5	3	0	8	29
% TTST	0	0.7	0.2	0	0.5	0.3	0.6	7.7	0	0.6	1.7	0.7	0.6	0	0.8	0	1.1	1.2	0	0.7	0.7
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
% Bikes, Peds	0	0	0	0	0	0	0	0	100	0.3	0	0	0	0	0	0	0	0	0	0	0.0

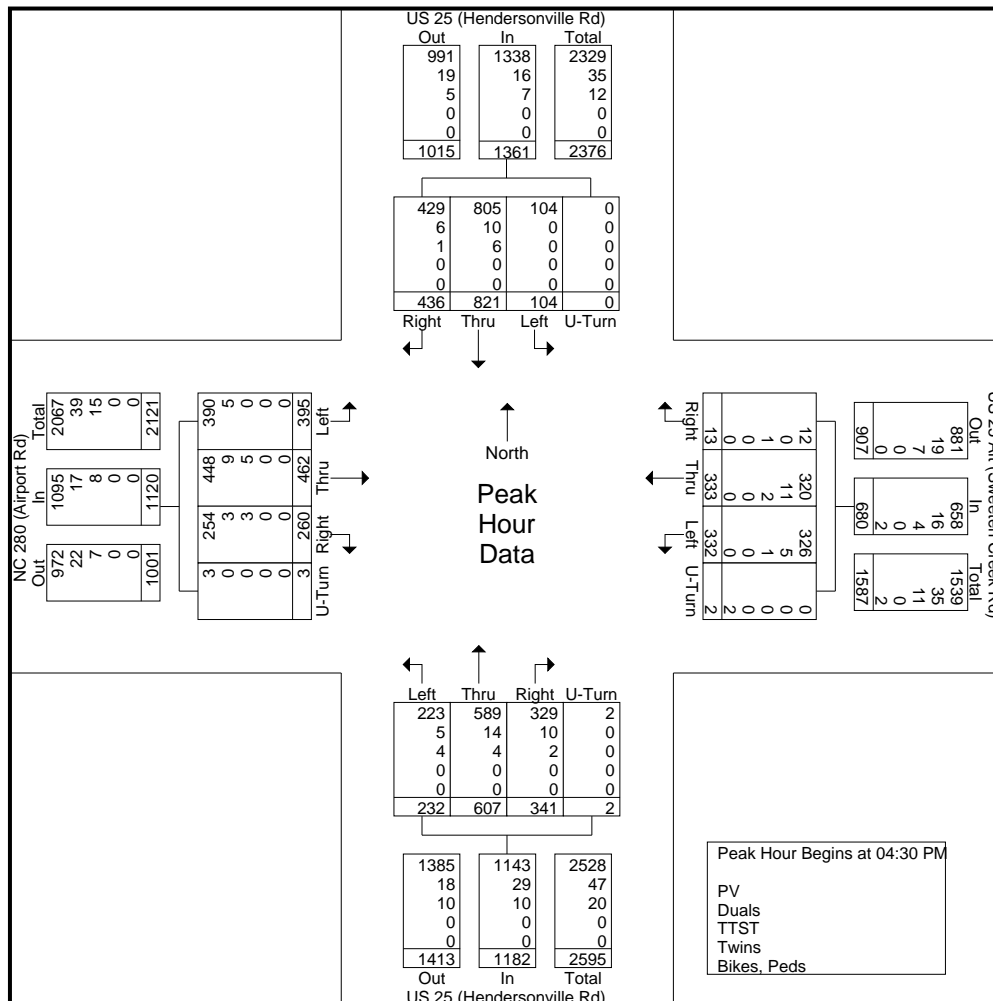


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ NC 280 (Airport Rd) - Existing PM
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 Start Date : 3/18/2021
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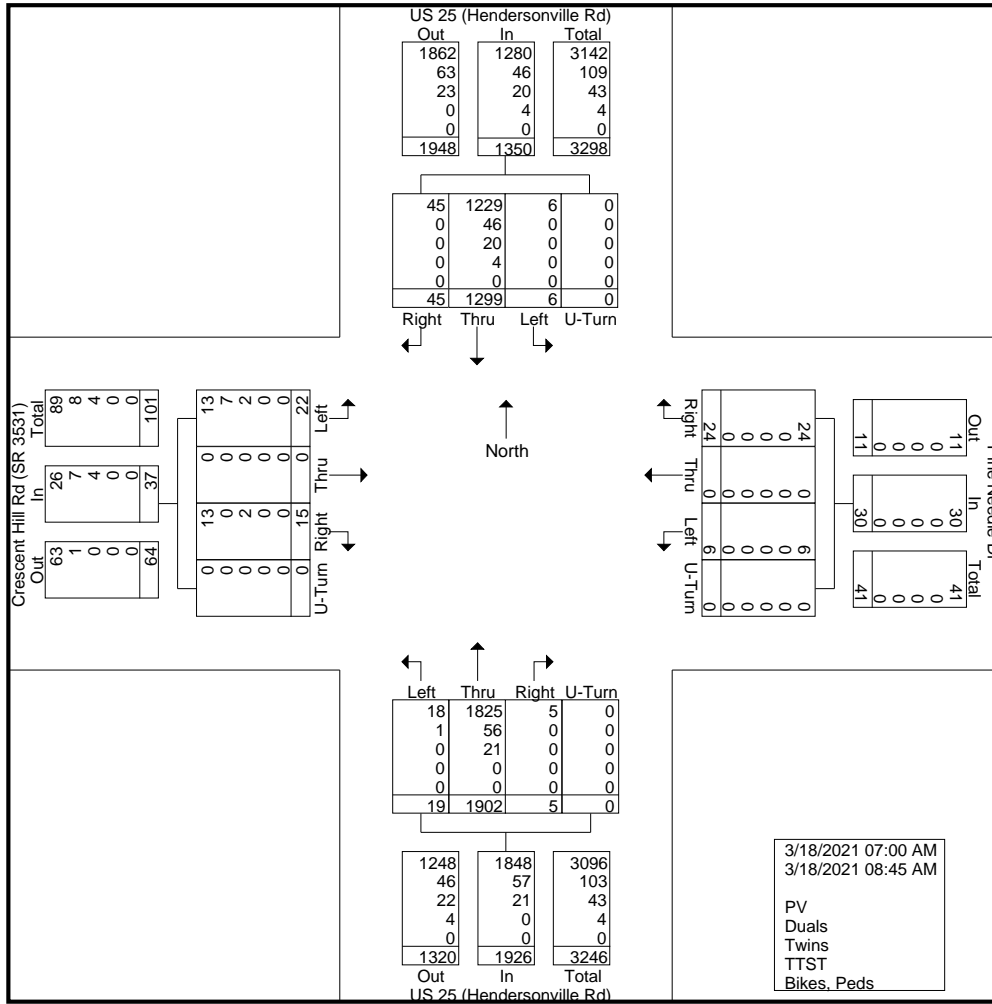


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ NC 280 (Airport Rd) - Existing PM
Site Code : 1099.1
Start Date : 3/18/2021
Page No : 3

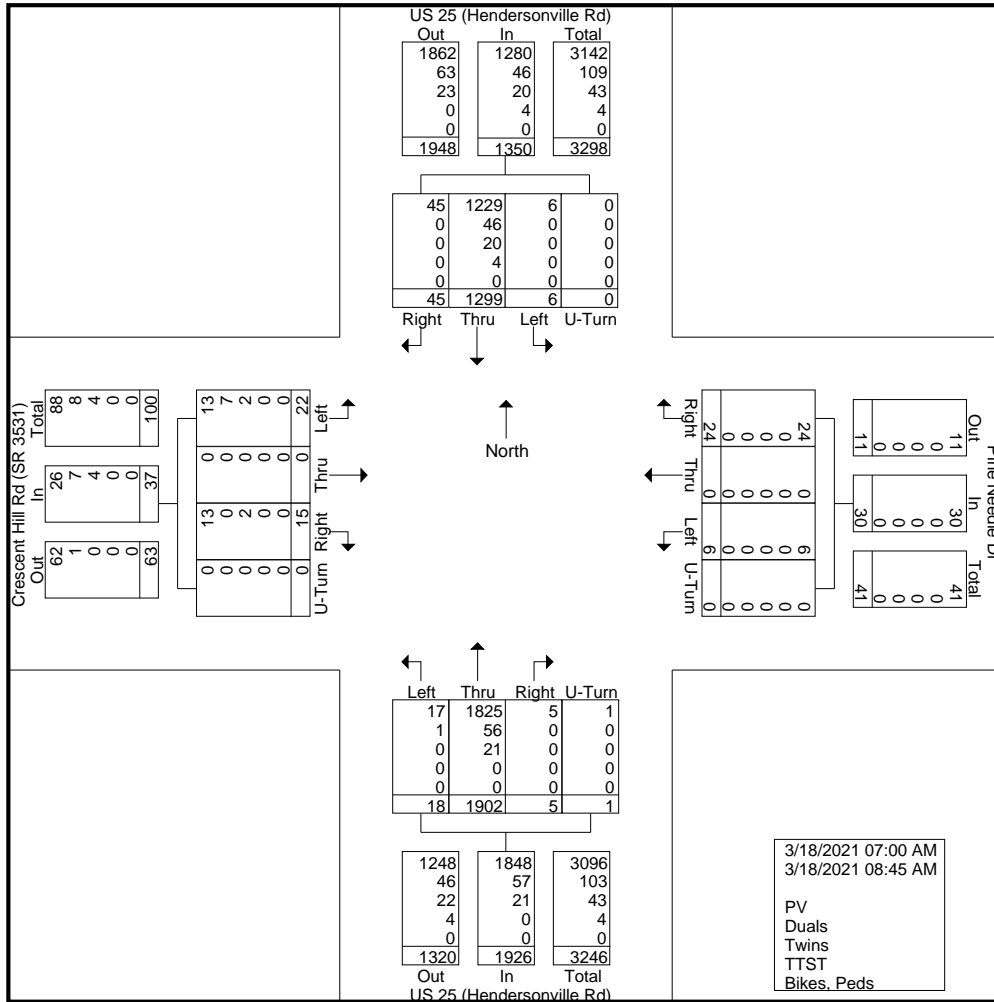
Start Time	US 25 (Hendersonville Rd) Southbound					US 25 Alt (Sweeten Creek Rd) Westbound					US 25 (Hendersonville Rd) Northbound					NC 280 (Airport Rd) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. 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	22	183	89	0	294	75	80	4	0	159	63	158	78	1	300	110	117	60	0	287	1040
04:45 PM	28	173	125	0	326	84	93	3	2	182	58	149	84	1	292	100	124	65	0	289	1089
05:00 PM	23	213	119	0	355	79	77	0	0	156	65	165	97	0	327	92	99	59	3	253	1091
05:15 PM	31	252	103	0	386	94	83	6	0	183	46	135	82	0	263	93	122	76	0	291	1123
Total Volume	104	821	436	0	1361	332	333	13	2	680	232	607	341	2	1182	395	462	260	3	1120	4343
% App. Total	7.6	60.3	32	0		48.8	49	1.9	0.3		19.6	51.4	28.8	0.2		35.3	41.2	23.2	0.3		
PHF	.839	.814	.872	.000	.881	.883	.895	.542	.250	.929	.892	.920	.879	.500	.904	.898	.931	.855	.250	.962	.967
PV	104	805	429	0	1338	326	320	12	0	658	223	589	329	2	1143	390	448	254	3	1095	4234
% PV	100	98.1	98.4	0	98.3	98.2	96.1	92.3	0	96.8	96.1	97.0	96.5	100	96.7	98.7	97.0	97.7	100	97.8	97.5
Duals	0	10	6	0	16	5	11	0	0	16	5	14	10	0	29	5	9	3	0	17	78
% Duals	0	1.2	1.4	0	1.2	1.5	3.3	0	0	2.4	2.2	2.3	2.9	0	2.5	1.3	1.9	1.2	0	1.5	1.8
TTST	0	6	1	0	7	1	2	1	0	4	4	4	2	0	10	0	5	3	0	8	29
% TTST	0	0.7	0.2	0	0.5	0.3	0.6	7.7	0	0.6	1.7	0.7	0.6	0	0.8	0	1.1	1.2	0	0.7	0.7
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
% Bikes, Peds	0	0	0	0	0	0	0	0	100	0.3	0	0	0	0	0	0	0	0	0	0	0.0



File Name : UT to LT - WAYN 1099 - US 25 @ Crescent Hill Dr - Existing AM
Site Code : 1099.2
Start Date : 3/18/2021
Page No : 2



File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Crescent Hill Dr (SR 3531) - Existing AM
 Site Code : 1099.2
 Start Date : 3/18/2021
 Page No : 2

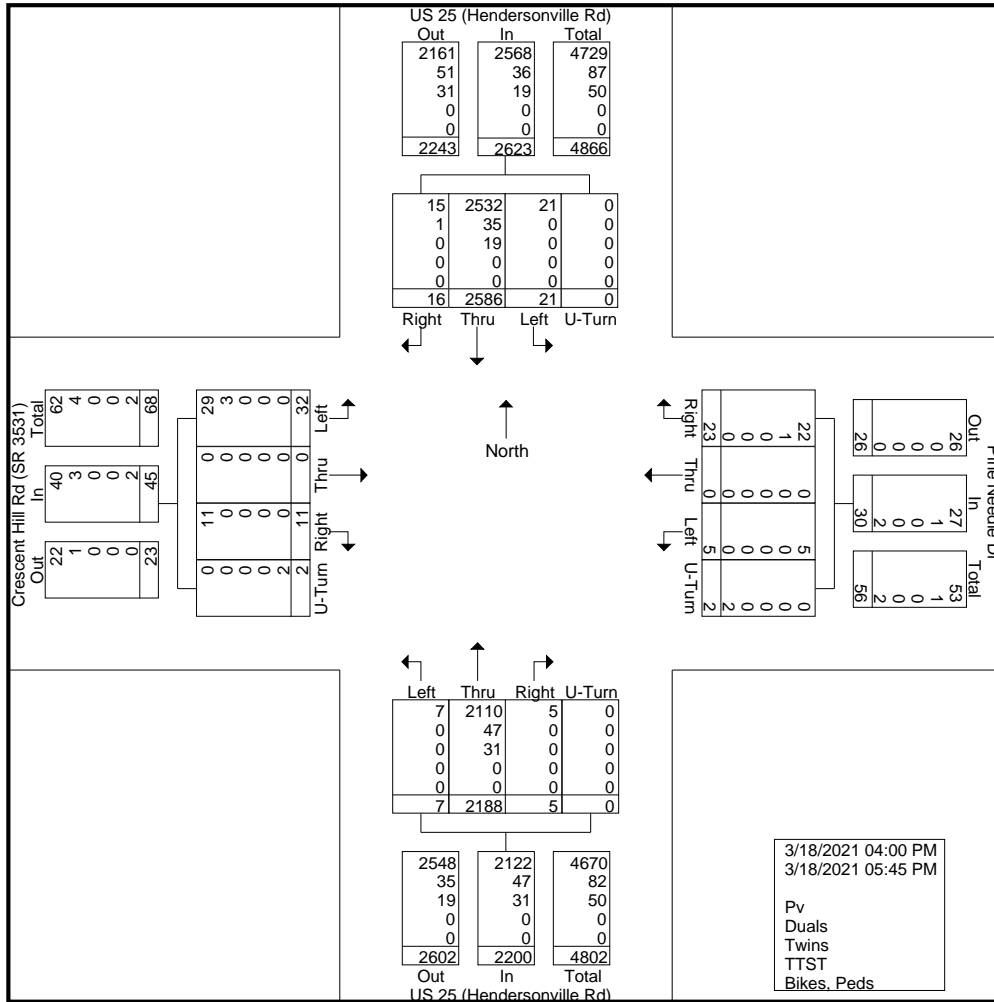


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Crescent Hill Dr (SR 3531) - Existing PM
Site Code : 1099.2
Start Date : 3/18/2021
Page No : 1

Groups Printed- Pv - Duals - Twins - TTST - Bikes, Peds

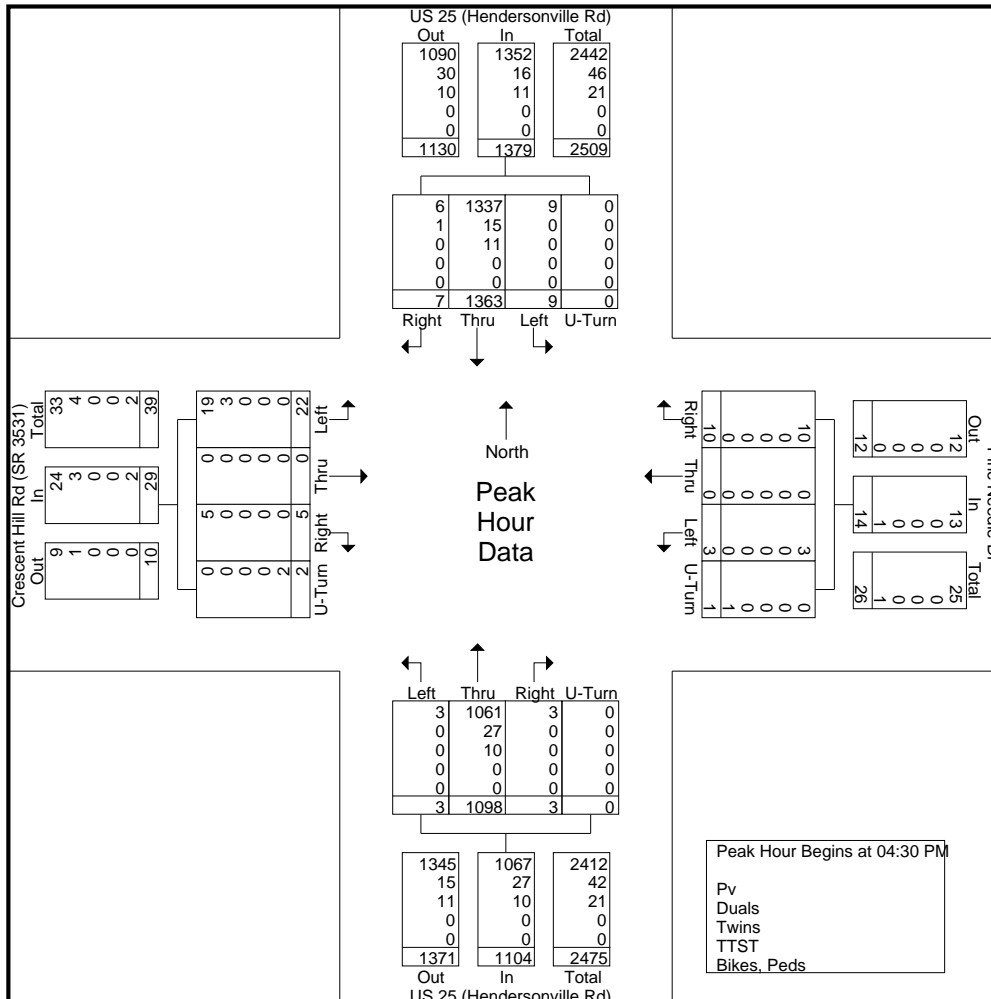
Start Time	US 25 (Hendersonville Rd) Southbound					Pine Needle Dr Westbound					US 25 (Hendersonville Rd) Northbound					Crescent Hill Rd (SR 3531) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
04:00 PM	3	314	2	0	319	0	0	2	0	2	2	272	0	0	274	5	0	1	0	6	601
04:15 PM	2	279	2	0	283	1	0	0	0	1	0	291	0	0	291	4	0	2	0	6	581
04:30 PM	1	314	2	0	317	3	0	1	0	4	1	271	1	0	273	5	0	1	0	6	600
04:45 PM	2	321	3	0	326	0	0	4	0	4	2	289	1	0	292	8	0	2	2	12	634
Total	8	1228	9	0	1245	4	0	7	0	11	5	1123	2	0	1130	22	0	6	2	30	2416
05:00 PM	0	315	2	0	317	0	0	3	0	3	0	297	0	0	297	3	0	1	0	4	621
05:15 PM	6	413	0	0	419	0	0	2	1	3	0	241	1	0	242	6	0	1	0	7	671
05:30 PM	3	318	1	0	322	1	0	7	1	9	1	250	2	0	253	0	0	2	0	2	586
05:45 PM	4	312	4	0	320	0	0	4	0	4	1	277	0	0	278	1	0	1	0	2	604
Total	13	1358	7	0	1378	1	0	16	2	19	2	1065	3	0	1070	10	0	5	0	15	2482
Grand Total	21	2586	16	0	2623	5	0	23	2	30	7	2188	5	0	2200	32	0	11	2	45	4898
Apprch %	0.8	98.6	0.6	0		16.7	0	76.7	6.7		0.3	99.5	0.2	0		71.1	0	24.4	4.4		
Total %	0.4	52.8	0.3	0	53.6	0.1	0	0.5	0	0.6	0.1	44.7	0.1	0	44.9	0.7	0	0.2	0	0.9	
Pv	21	2532	15	0	2568	5	0	22	0	27	7	2110	5	0	2122	29	0	11	0	40	4757
% Pv	100	97.9	93.8	0	97.9	100	0	95.7	0	90	100	96.4	100	0	96.5	90.6	0	100	0	88.9	97.1
Duals	0	35	1	0	36	0	0	1	0	1	0	47	0	0	47	3	0	0	0	3	87
% Duals	0	1.4	6.2	0	1.4	0	0	4.3	0	3.3	0	2.1	0	0	2.1	9.4	0	0	0	6.7	1.8
Twins	0	19	0	0	19	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	50
% Twins	0	0.7	0	0	0.7	0	0	0	0	0	0	1.4	0	0	1.4	0	0	0	0	0	1
TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2	4
% Bikes, Peds	0	0	0	0	0	0	0	0	100	6.7	0	0	0	0	0	0	0	0	100	4.4	0.1

File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Crescent Hill Dr (SR 3531) - Existing PM
 Site Code : 1099.2
 Start Date : 3/18/2021
 Page No : 2

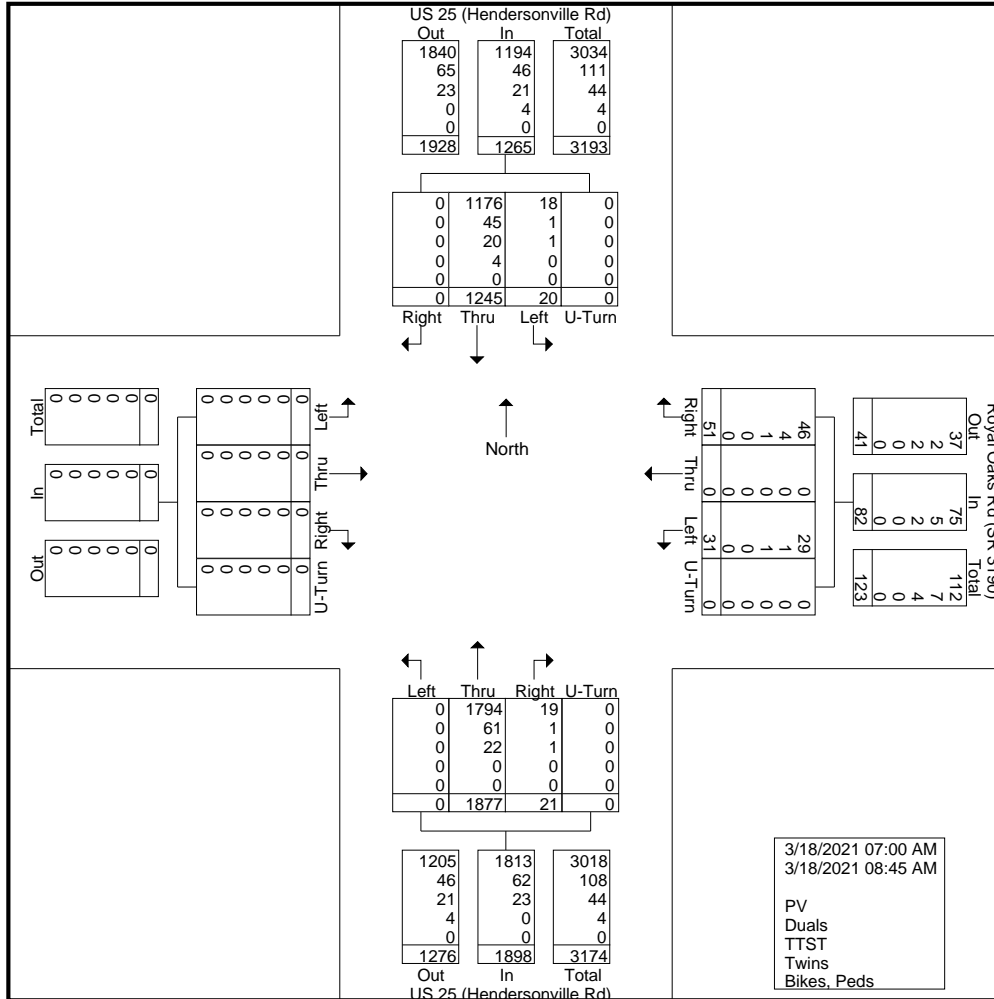


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Crescent Hill Dr (SR 3531) - Existing PM
Site Code : 1099.2
Start Date : 3/18/2021
Page No : 3

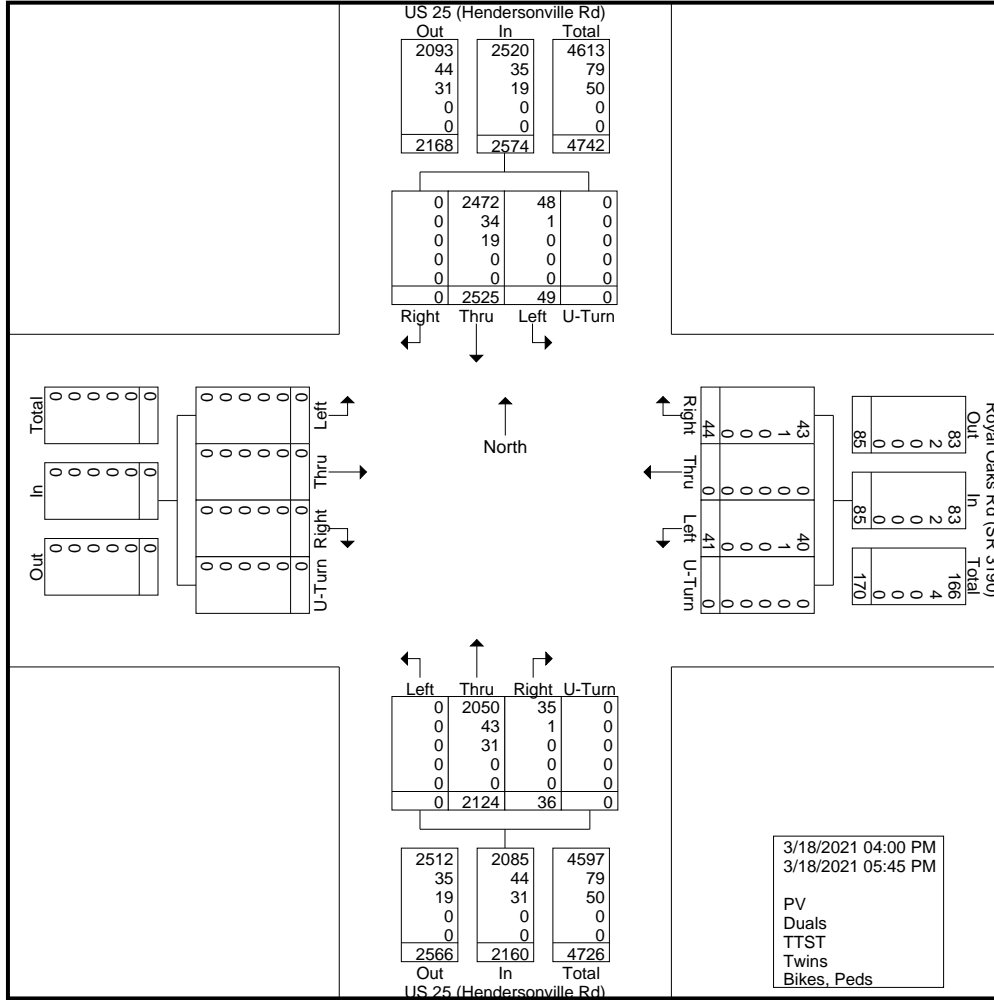
Start Time	US 25 (Hendersonville Rd) Southbound					Pine Needle Dr Westbound					US 25 (Hendersonville Rd) Northbound					Crescent Hill Rd (SR 3531) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. 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	1	314	2	0	317	3	0	1	0	4	1	271	1	0	273	5	0	1	0	6	600
04:45 PM	2	321	3	0	326	0	0	4	0	4	2	289	1	0	292	8	0	2	2	12	634
05:00 PM	0	315	2	0	317	0	0	3	0	3	0	297	0	0	297	3	0	1	0	4	621
05:15 PM	6	413	0	0	419	0	0	2	1	3	0	241	1	0	242	6	0	1	0	7	671
Total Volume	9	1363	7	0	1379	3	0	10	1	14	3	1098	3	0	1104	22	0	5	2	29	2526
% App. Total	0.7	98.8	0.5	0		21.4	0	71.4	7.1		0.3	99.5	0.3	0		75.9	0	17.2	6.9		
PHF	.375	.825	.583	.000	.823	.250	.000	.625	.250	.875	.375	.924	.750	.000	.929	.688	.000	.625	.250	.604	.941
Pv	9	1337	6	0	1352	3	0	10	0	13	3	1061	3	0	1067	19	0	5	0	24	2456
% Pv	100	98.1	85.7	0	98.0	100	0	100	0	92.9	100	96.6	100	0	96.6	86.4	0	100	0	82.8	97.2
Duals	0	15	1	0	16	0	0	0	0	0	0	27	0	0	27	3	0	0	0	3	46
% Duals	0	1.1	14.3	0	1.2	0	0	0	0	0	0	2.5	0	0	2.4	13.6	0	0	0	10.3	1.8
Twins	0	11	0	0	11	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	21
% Twins	0	0.8	0	0	0.8	0	0	0	0	0	0	0.9	0	0	0.9	0	0	0	0	0	0.8
TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2	3
% Bikes, Peds	0	0	0	0	0	0	0	0	100	7.1	0	0	0	0	0	0	0	0	100	6.9	0.1



File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Royal Oaks Rd (SR 3190) - Existing AM
 Site Code : 1099.3
 Start Date : 3/18/2021
 Page No : 2

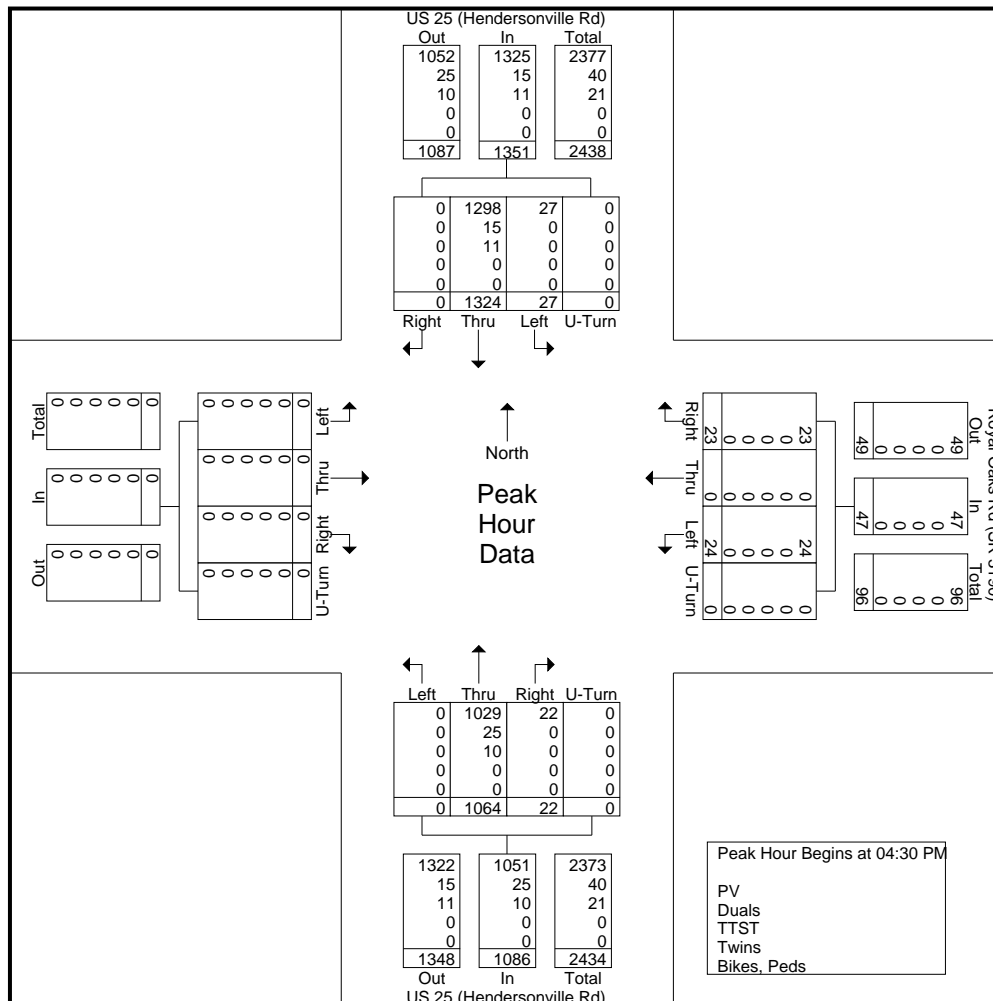


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Royal Oaks Rd (SR 3190) - Existing PM
 Site Code : 1099.3
 Start Date : 3/18/2021
 Page No : 2

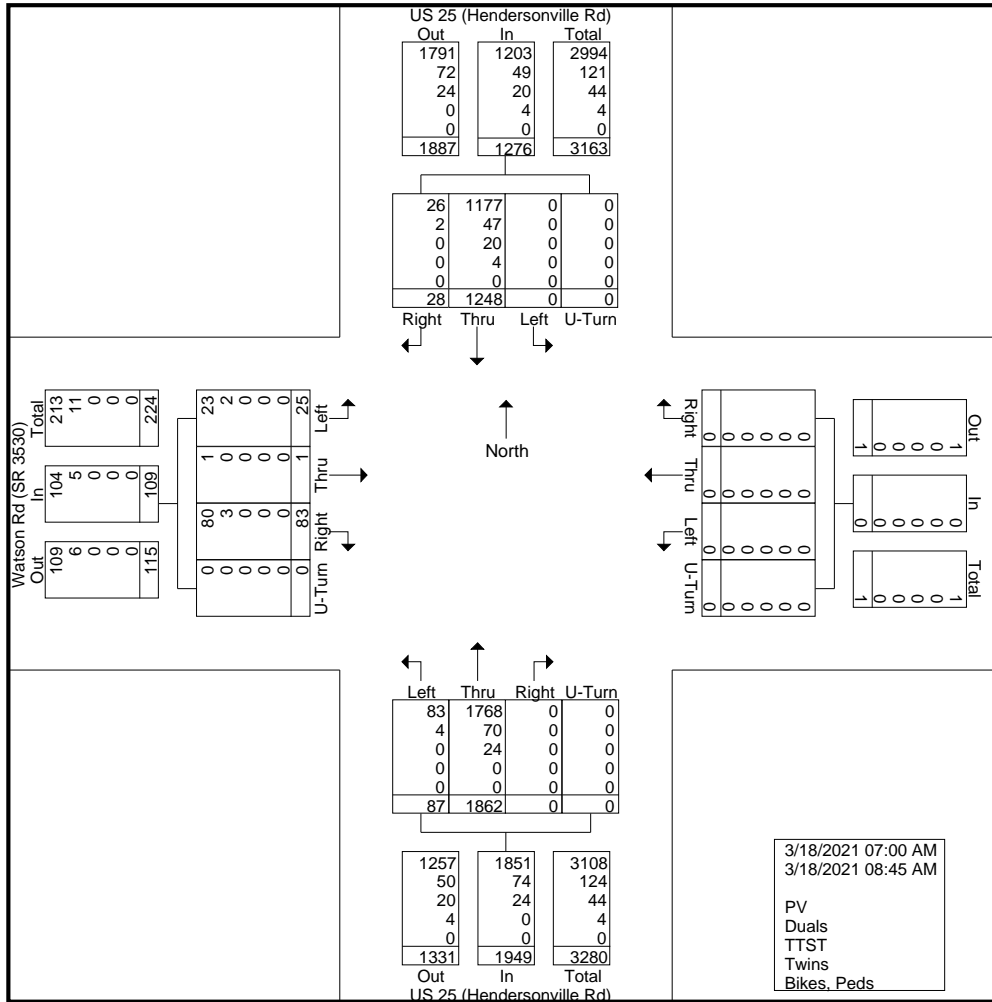


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Royal Oaks Rd (SR 3190) - Existing PM
Site Code : 1099.3
Start Date : 3/18/2021
Page No : 3

Start Time	US 25 (Hendersonville Rd) Southbound					Royal Oaks Rd (SR 3190) Westbound					US 25 (Hendersonville Rd) Northbound					Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. 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	11	307	0	0	318	8	0	9	0	17	0	258	5	0	263	0	0	0	0	0	598
04:45 PM	4	314	0	0	318	4	0	5	0	9	0	284	6	0	290	0	0	0	0	0	617
05:00 PM	3	310	0	0	313	6	0	4	0	10	0	286	4	0	290	0	0	0	0	0	613
05:15 PM	9	393	0	0	402	6	0	5	0	11	0	236	7	0	243	0	0	0	0	0	656
Total Volume	27	1324	0	0	1351	24	0	23	0	47	0	1064	22	0	1086	0	0	0	0	0	2484
% App. Total	2	98	0	0		51.1	0	48.9	0		0	98	2	0		0	0	0	0	0	
PHF	.614	.842	.000	.000	.840	.750	.000	.639	.000	.691	.000	.930	.786	.000	.936	.000	.000	.000	.000	.000	.947
PV	27	1298	0	0	1325	24	0	23	0	47	0	1029	22	0	1051	0	0	0	0	0	2423
% PV	100	98.0	0	0	98.1	100	0	100	0	100	0	96.7	100	0	96.8	0	0	0	0	0	97.5
Duals	0	15	0	0	15	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	40
% Duals	0	1.1	0	0	1.1	0	0	0	0	0	0	2.3	0	0	2.3	0	0	0	0	0	1.6
TTST	0	11	0	0	11	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	21
% TTST	0	0.8	0	0	0.8	0	0	0	0	0	0	0.9	0	0	0.9	0	0	0	0	0	0.8
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Watson Rd (SR 3530) - Existing AM
 Site Code : 1099.4
 Start Date : 3/18/2021
 Page No : 2



Eastbound U-turns
moved to Left turn.

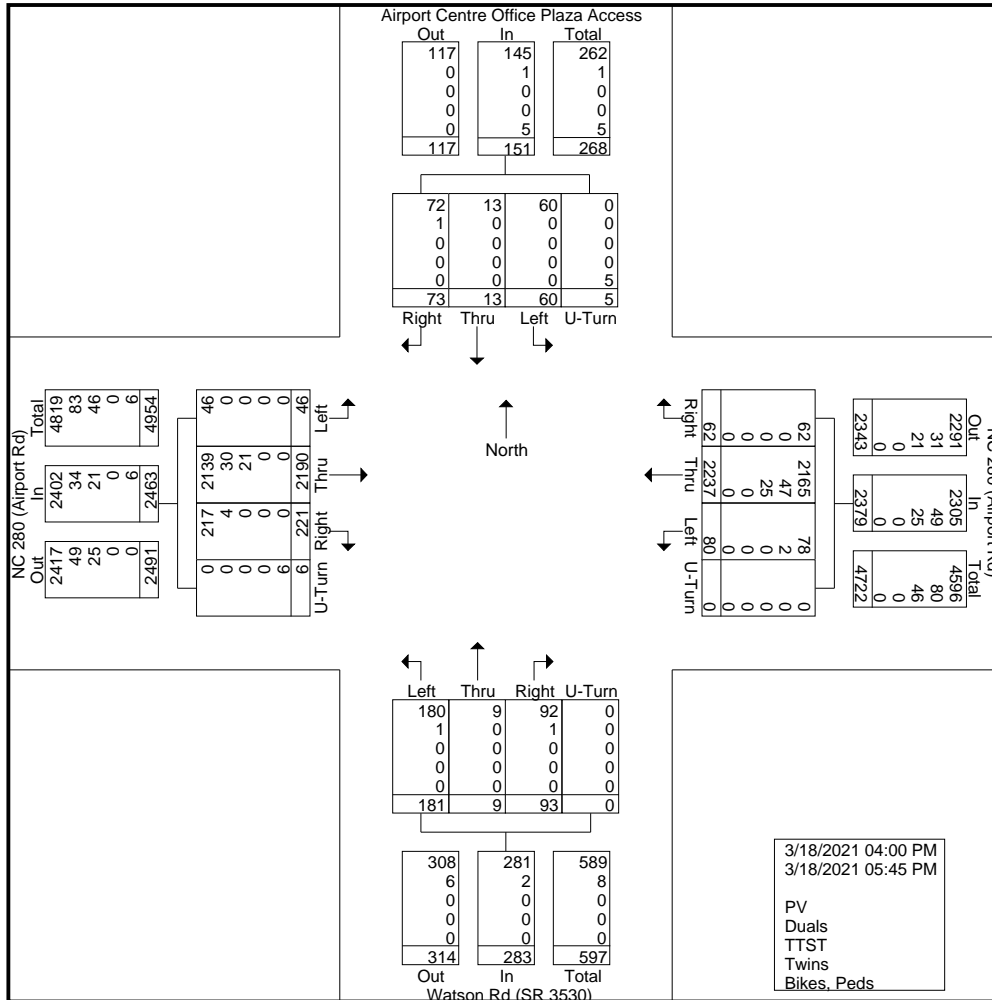
File Name : UT to LT - WAYN 1099 - NC 280 @ Watson Rd - Existing PM
Site Code : 1099.6
Start Date : 3/18/2021
Page No : 1

Groups Printed- PV - Duals - TTST - Twins - Bikes, Peds

Start Time	Airport Centre Office Plaza Access Southbound					NC 280 (Airport Rd) Westbound					Watson Rd (SR 3530) Northbound					NC 280 (Airport Rd) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
04:00 PM	10	1	8	2	21	12	317	8	0	337	16	0	20	0	36	3	255	31	1	290	684
04:15 PM	8	1	9	0	18	4	280	4	0	288	30	1	14	0	45	9	253	28	2	292	643
04:30 PM	5	0	5	0	10	6	244	4	0	254	19	1	9	0	29	2	341	21	0	364	657
04:45 PM	9	5	9	0	23	7	324	9	0	340	23	1	10	0	34	5	235	23	0	263	660
Total	32	7	31	2	72	29	1165	25	0	1219	88	3	53	0	144	19	1084	103	3	1209	2644
05:00 PM	6	1	9	0	16	11	305	8	0	324	24	0	12	0	36	6	298	36	1	341	717
05:15 PM	4	1	17	1	23	13	275	7	0	295	23	3	10	0	36	8	290	27	0	325	679
05:30 PM	9	3	11	0	23	15	277	12	0	304	26	2	11	0	39	9	255	31	0	295	661
05:45 PM	9	1	5	2	17	12	215	10	0	237	20	1	7	0	28	4	263	24	2	293	575
Total	28	6	42	3	79	51	1072	37	0	1160	93	6	40	0	139	27	1106	118	3	1254	2632
Grand Total	60	13	73	5	151	80	2237	62	0	2379	181	9	93	0	283	46	2190	221	6	2463	5276
Apprch %	39.7	8.6	48.3	3.3		3.4	94	2.6	0		64	3.2	32.9	0		1.9	88.9	9	0.2		
Total %	1.1	0.2	1.4	0.1	2.9	1.5	42.4	1.2	0	45.1	3.4	0.2	1.8	0	5.4	0.9	41.5	4.2	0.1	46.7	
PV	60	13	72	0	145	78	2165	62	0	2305	180	9	92	0	281	46	2139	217	0	2402	5133
% PV	100	100	98.6	0	96	97.5	96.8	100	0	96.9	99.4	100	98.9	0	99.3	100	97.7	98.2	0	97.5	97.3
Duals	0	0	1	0	1	2	47	0	0	49	1	0	1	0	2	0	30	4	0	34	86
% Duals	0	0	1.4	0	0.7	2.5	2.1	0	0	2.1	0.6	0	1.1	0	0.7	0	1.4	1.8	0	1.4	1.6
TTST	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	21	0	0	21	46
% TTST	0	0	0	0	0	0	1.1	0	0	1.1	0	0	0	0	0	0	1	0	0	0.9	0.9
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	11
% Bikes, Peds	0	0	0	100	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0.2	0.2

Eastbound U-turns
 moved to Left turn.

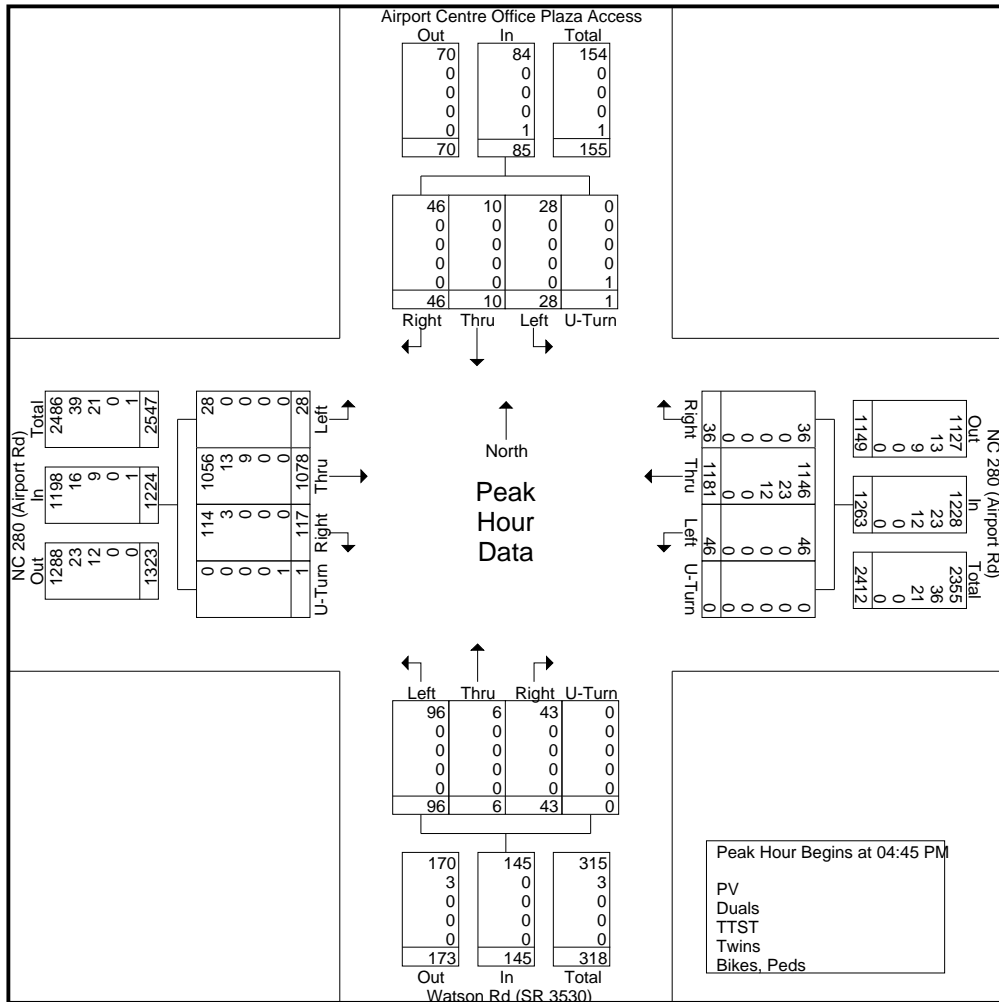
File Name : UT to LT - WAYN 1099 - NC 280 @ Watson Rd - Existing PM
 Site Code : 1099.6
 Start Date : 3/18/2021
 Page No : 2



Eastbound U-turns moved to Left turn.

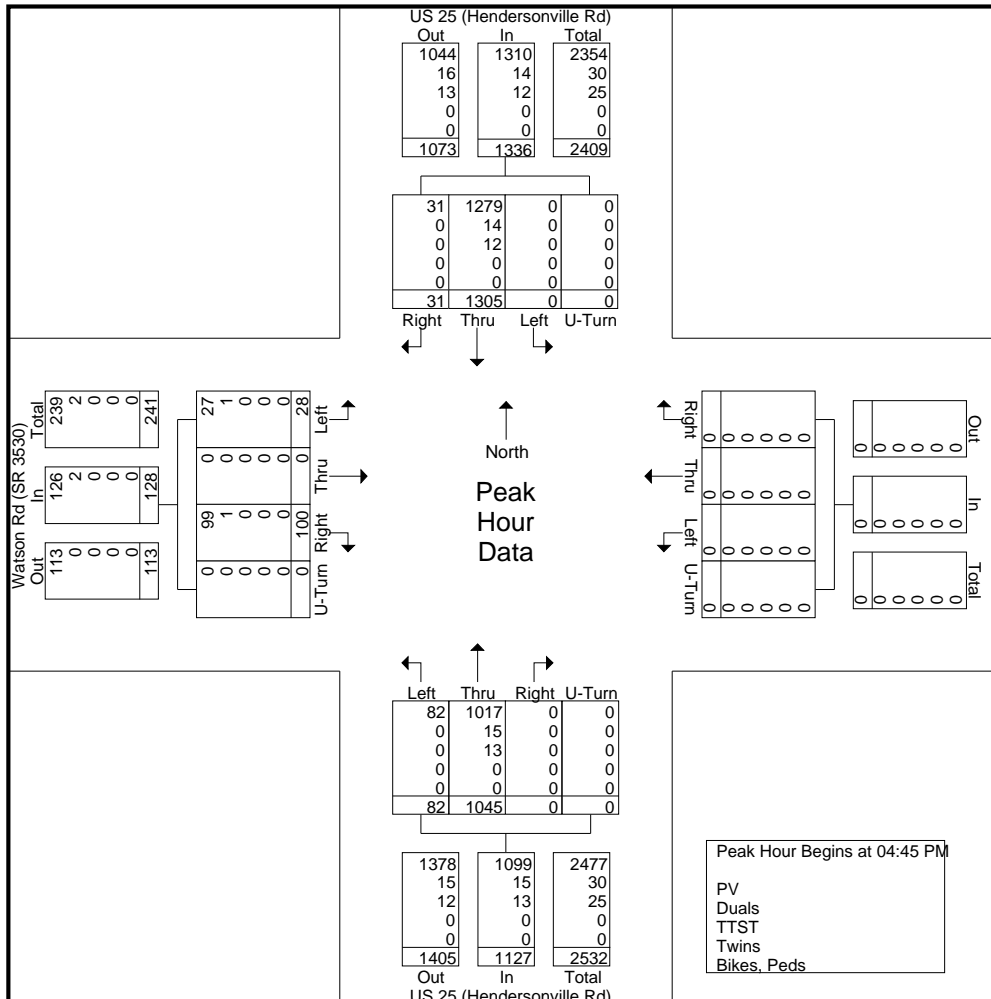
File Name : UT to LT - WAYN 1099 - NC 280 @ Watson Rd - Existing PM
Site Code : 1099.6
Start Date : 3/18/2021
Page No : 3

Start Time	Airport Centre Office Plaza Access Southbound					NC 280 (Airport Rd) Westbound					Watson Rd (SR 3530) Northbound					NC 280 (Airport Rd) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	9	5	9	0	23	7	324	9	0	340	23	1	10	0	34	5	235	23	0	263	660
05:00 PM	6	1	9	0	16	11	305	8	0	324	24	0	12	0	36	6	298	36	1	341	717
05:15 PM	4	1	17	1	23	13	275	7	0	295	23	3	10	0	36	8	290	27	0	325	679
05:30 PM	9	3	11	0	23	15	277	12	0	304	26	2	11	0	39	9	255	31	0	295	661
Total Volume	28	10	46	1	85	46	1181	36	0	1263	96	6	43	0	145	28	1078	117	1	1224	2717
% App. Total	32.9	11.8	54.1	1.2		3.6	93.5	2.9	0		66.2	4.1	29.7	0		2.3	88.1	9.6	0.1		
PHF	.778	.500	.676	.250	.924	.767	.911	.750	.000	.929	.923	.500	.896	.000	.929	.778	.904	.813	.250	.897	.947
PV	28	10	46	0	84	46	1146	36	0	1228	96	6	43	0	145	28	1056	114	0	1198	2655
% PV	100	100	100	0	98.8	100	97.0	100	0	97.2	100	100	100	0	100	100	98.0	97.4	0	97.9	97.7
Duals	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	13	3	0	16	39
% Duals	0	0	0	0	0	0	1.9	0	0	1.8	0	0	0	0	0	0	1.2	2.6	0	1.3	1.4
TTST	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	9	0	0	9	21
% TTST	0	0	0	0	0	0	1.0	0	0	1.0	0	0	0	0	0	0	0.8	0	0	0.7	0.8
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
% Bikes, Peds	0	0	0	100	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0.1	0.1



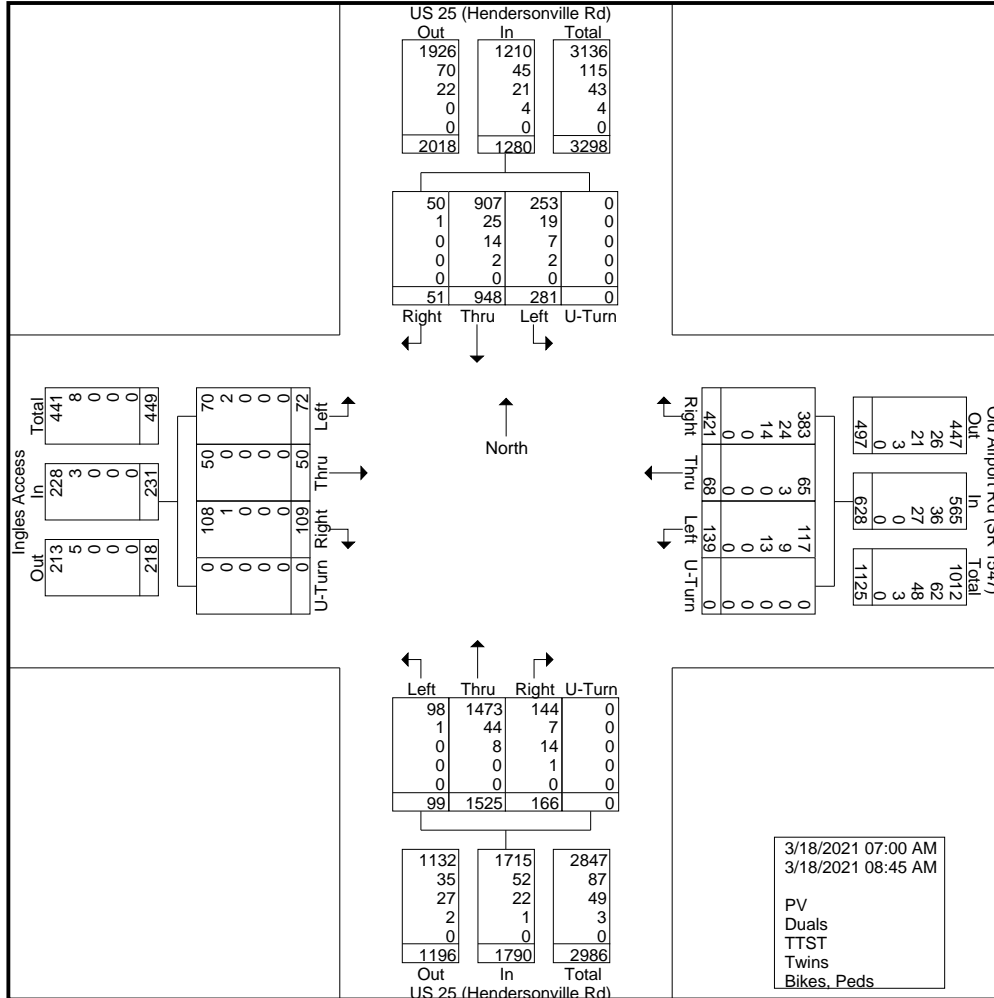
File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Watson Rd (SR 3530) - Existing PM
Site Code : 1099.4
Start Date : 3/18/2021
Page No : 3

Start Time	US 25 (Hendersonville Rd) Southbound					Westbound					US 25 (Hendersonville Rd) Northbound					Watson Rd (SR 3530) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	306	5	0	311	0	0	0	0	0	20	274	0	0	294	6	0	21	0	27	632
05:00 PM	0	306	6	0	312	0	0	0	0	0	22	284	0	0	306	4	0	24	0	28	646
05:15 PM	0	382	10	0	392	0	0	0	0	0	21	240	0	0	261	13	0	26	0	39	692
05:30 PM	0	311	10	0	321	0	0	0	0	0	19	247	0	0	266	5	0	29	0	34	621
Total Volume	0	1305	31	0	1336	0	0	0	0	0	82	1045	0	0	1127	28	0	100	0	128	2591
% App. Total	0	97.7	2.3	0		0	0	0	0		7.3	92.7	0	0		21.9	0	78.1	0		
PHF	.000	.854	.775	.000	.852	.000	.000	.000	.000	.000	.932	.920	.000	.000	.921	.538	.000	.862	.000	.821	.936
PV	0	1279	31	0	1310	0	0	0	0	0	82	1017	0	0	1099	27	0	99	0	126	2535
% PV	0	98.0	100	0	98.1	0	0	0	0	0	100	97.3	0	0	97.5	96.4	0	99.0	0	98.4	97.8
Duals	0	14	0	0	14	0	0	0	0	0	0	15	0	0	15	1	0	1	0	2	31
% Duals	0	1.1	0	0	1.0	0	0	0	0	0	0	1.4	0	0	1.3	3.6	0	1.0	0	1.6	1.2
TTST	0	12	0	0	12	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	25
% TTST	0	0.9	0	0	0.9	0	0	0	0	0	0	1.2	0	0	1.2	0	0	0	0	0	1.0
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Southbound U-turns
 moved to Left turns.

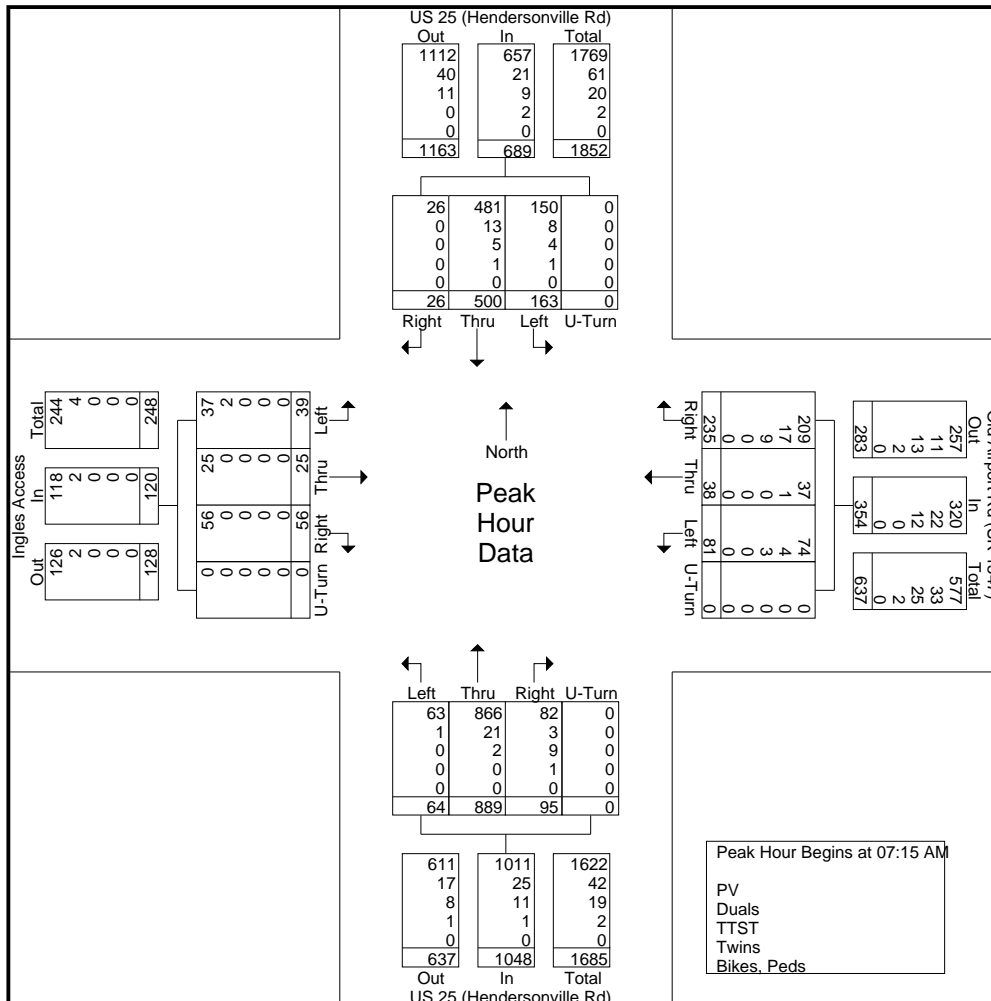
File Name : UT of LT - WAYN 1099 - US 25 @ Old Airport Rd - Existing AM
 Site Code : 1099.5
 Start Date : 3/18/2021
 Page No : 2



Southbound U-turns
moved to Left turns.

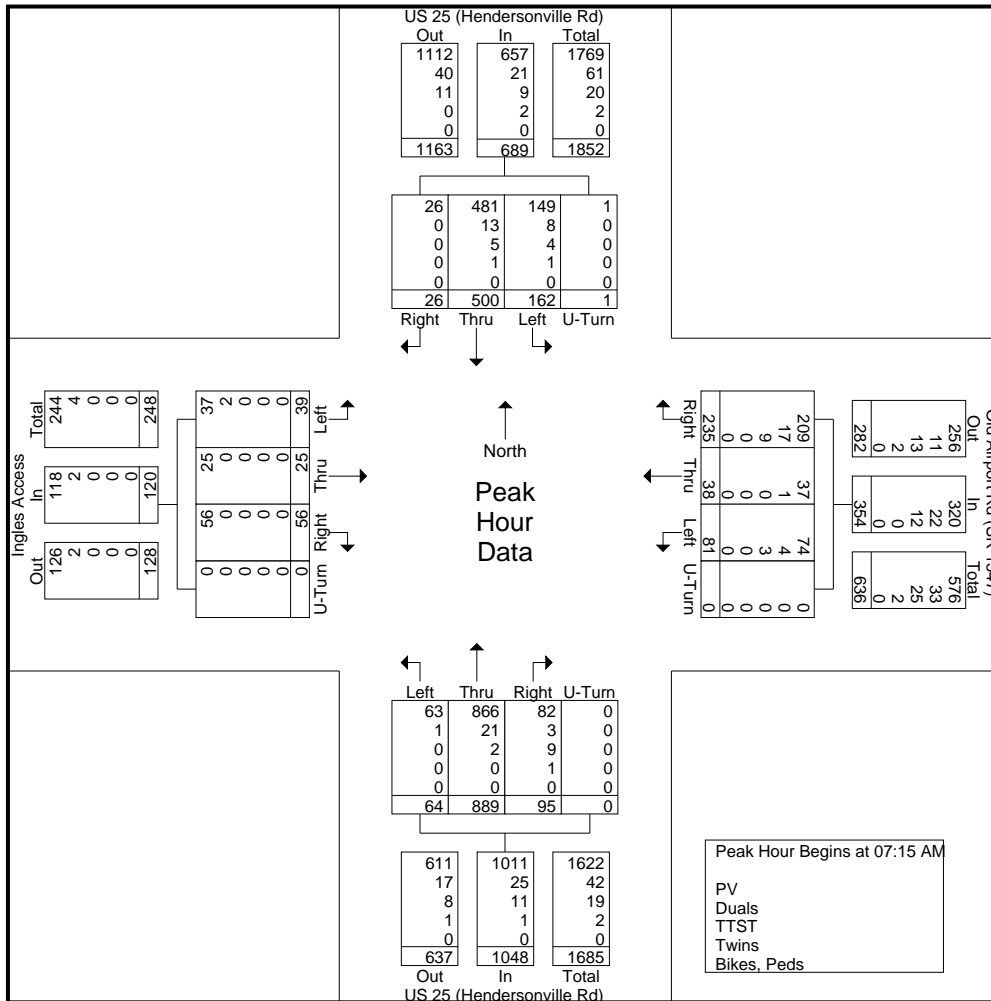
File Name : UT of LT - WAYN 1099 - US 25 @ Old Airport Rd - Existing AM
Site Code : 1099.5
Start Date : 3/18/2021
Page No : 3

Start Time	US 25 (Hendersonville Rd) Southbound					Old Airport Rd (SR 1547) Westbound					US 25 (Hendersonville Rd) Northbound					Ingles Access Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	41	111	7	0	159	16	8	52	0	76	9	178	23	0	210	8	2	12	0	22	467
07:30 AM	46	151	5	0	202	21	10	68	0	99	21	242	16	0	279	6	13	16	0	35	615
07:45 AM	47	121	7	0	175	28	11	68	0	107	19	244	33	0	296	12	7	15	0	34	612
08:00 AM	29	117	7	0	153	16	9	47	0	72	15	225	23	0	263	13	3	13	0	29	517
Total Volume	163	500	26	0	689	81	38	235	0	354	64	889	95	0	1048	39	25	56	0	120	2211
% App. Total	23.7	72.6	3.8	0		22.9	10.7	66.4	0		6.1	84.8	9.1	0		32.5	20.8	46.7	0		
PHF	.867	.828	.929	.000	.853	.723	.864	.864	.000	.827	.762	.911	.720	.000	.885	.750	.481	.875	.000	.857	.899
PV	150	481	26	0	657	74	37	209	0	320	63	866	82	0	1011	37	25	56	0	118	2106
% PV	92.0	96.2	100	0	95.4	91.4	97.4	88.9	0	90.4	98.4	97.4	86.3	0	96.5	94.9	100	100	0	98.3	95.3
Duals	8	13	0	0	21	4	1	17	0	22	1	21	3	0	25	2	0	0	0	2	70
% Duals	4.9	2.6	0	0	3.0	4.9	2.6	7.2	0	6.2	1.6	2.4	3.2	0	2.4	5.1	0	0	0	1.7	3.2
TTST	4	5	0	0	9	3	0	9	0	12	0	2	9	0	11	0	0	0	0	0	32
% TTST	2.5	1.0	0	0	1.3	3.7	0	3.8	0	3.4	0	0.2	9.5	0	1.0	0	0	0	0	0	1.4
Twins	1	1	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
% Twins	0.6	0.2	0	0	0.3	0	0	0	0	0	0	0	1.1	0	0.1	0	0	0	0	0	0.1
Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Old Airport Rd (SR 1547) - Existing AM
Site Code : 1099.5
Start Date : 3/18/2021
Page No : 3

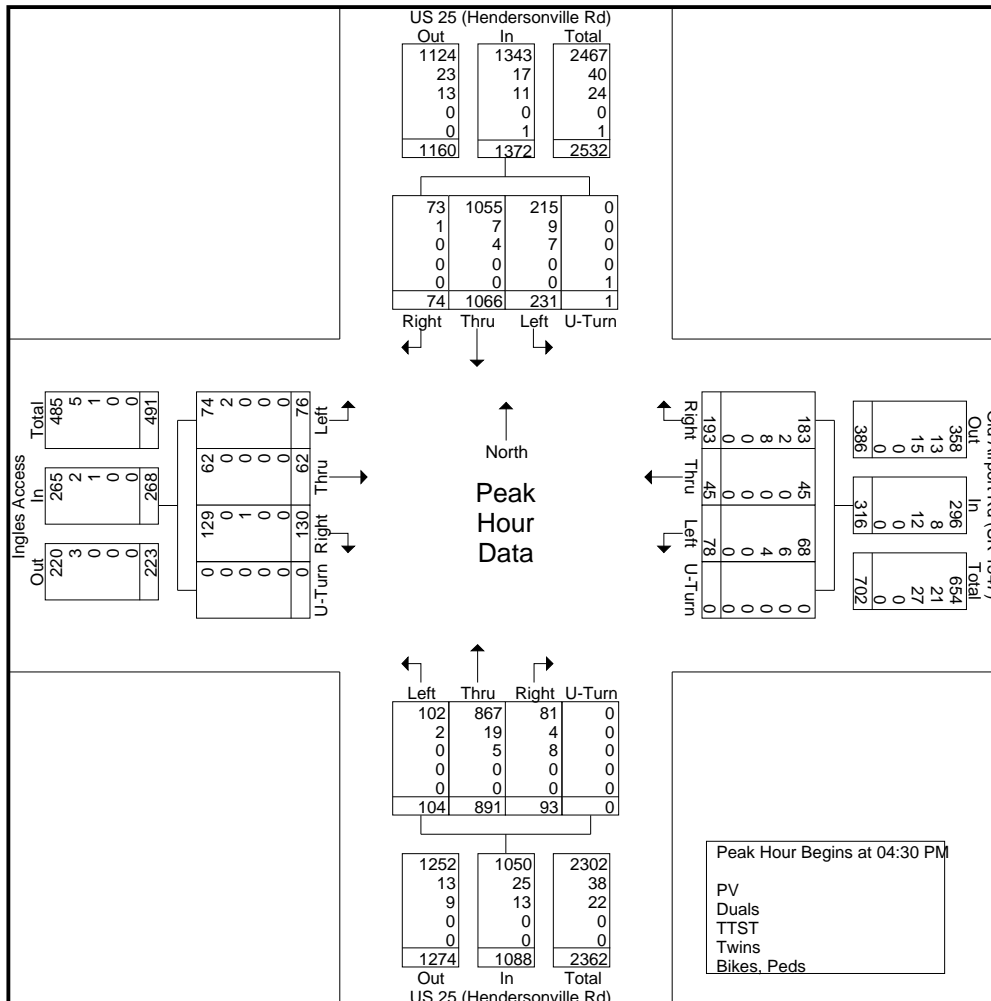
Start Time	US 25 (Hendersonville Rd) Southbound					Old Airport Rd (SR 1547) Westbound					US 25 (Hendersonville Rd) Northbound					Ingles Access Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	40	111	7	1	159	16	8	52	0	76	9	178	23	0	210	8	2	12	0	22	467
07:30 AM	46	151	5	0	202	21	10	68	0	99	21	242	16	0	279	6	13	16	0	35	615
07:45 AM	47	121	7	0	175	28	11	68	0	107	19	244	33	0	296	12	7	15	0	34	612
08:00 AM	29	117	7	0	153	16	9	47	0	72	15	225	23	0	263	13	3	13	0	29	517
Total Volume	162	500	26	1	689	81	38	235	0	354	64	889	95	0	1048	39	25	56	0	120	2211
% App. Total	23.5	72.6	3.8	0.1		22.9	10.7	66.4	0		6.1	84.8	9.1	0		32.5	20.8	46.7	0		
PHF	.862	.828	.929	.250	.853	.723	.864	.864	.000	.827	.762	.911	.720	.000	.885	.750	.481	.875	.000	.857	.899
PV	149	481	26	1	657	74	37	209	0	320	63	866	82	0	1011	37	25	56	0	118	2106
% PV	92.0	96.2	100	100	95.4	91.4	97.4	88.9	0	90.4	98.4	97.4	86.3	0	96.5	94.9	100	100	0	98.3	95.3
Duals	8	13	0	0	21	4	1	17	0	22	1	21	3	0	25	2	0	0	0	2	70
% Duals	4.9	2.6	0	0	3.0	4.9	2.6	7.2	0	6.2	1.6	2.4	3.2	0	2.4	5.1	0	0	0	1.7	3.2
TTST	4	5	0	0	9	3	0	9	0	12	0	2	9	0	11	0	0	0	0	0	32
% TTST	2.5	1.0	0	0	1.3	3.7	0	3.8	0	3.4	0	0.2	9.5	0	1.0	0	0	0	0	0	1.4
Twins	1	1	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
% Twins	0.6	0.2	0	0	0.3	0	0	0	0	0	0	0	1.1	0	0.1	0	0	0	0	0	0.1
Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



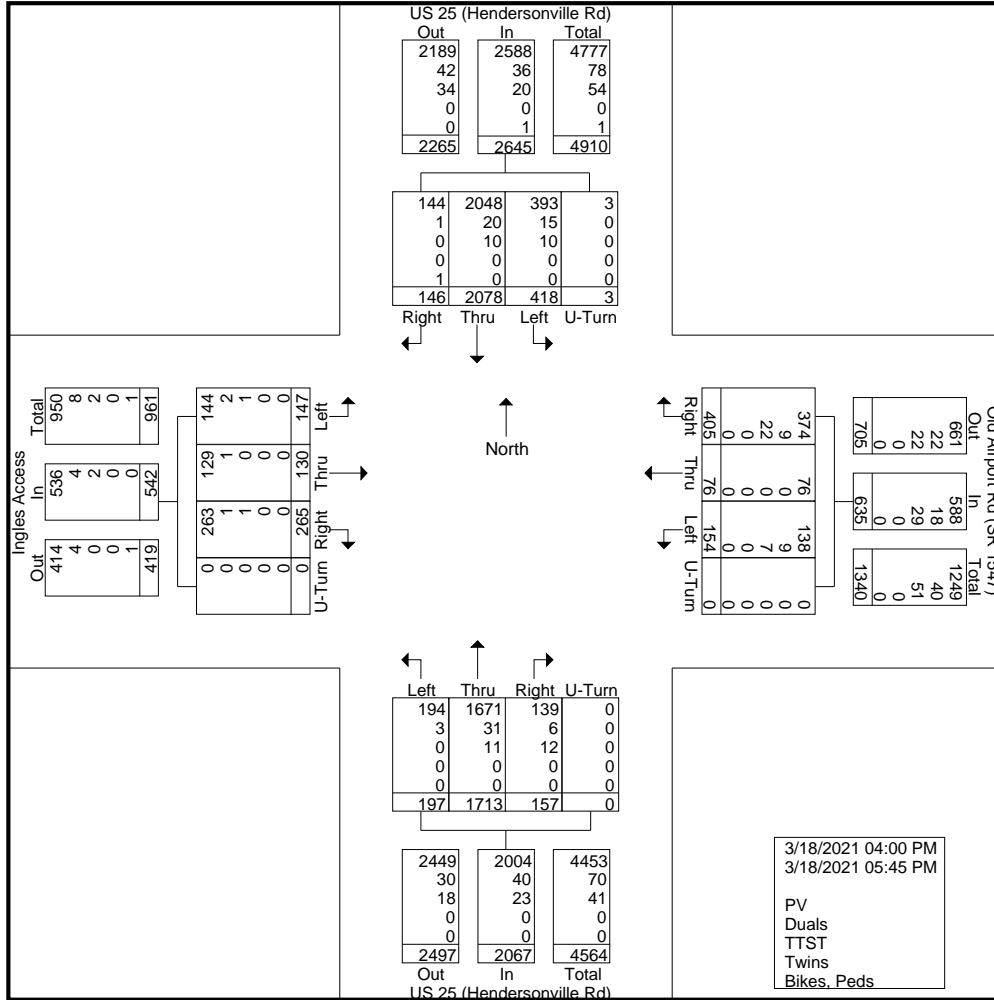
Southbound U-turns
moved to Left turns.

File Name : UT to LT - WAYN 1099 - US 25 @ Old Airport Rd - Existing PM
Site Code : 1099.5
Start Date : 3/18/2021
Page No : 3

Start Time	US 25 (Hendersonville Rd) Southbound					Old Airport Rd (SR 1547) Westbound					US 25 (Hendersonville Rd) Northbound					Ingles Access Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. 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	50	251	20	0	321	22	14	46	0	82	28	209	22	0	259	22	19	34	0	75	737
04:45 PM	57	239	27	0	323	19	10	60	0	89	28	213	30	0	271	16	14	28	0	58	741
05:00 PM	49	258	9	0	316	28	12	53	0	93	26	244	19	0	289	24	12	42	0	78	776
05:15 PM	75	318	18	1	412	9	9	34	0	52	22	225	22	0	269	14	17	26	0	57	790
Total Volume	231	1066	74	1	1372	78	45	193	0	316	104	891	93	0	1088	76	62	130	0	268	3044
% App. Total	16.8	77.7	5.4	0.1		24.7	14.2	61.1	0		9.6	81.9	8.5	0		28.4	23.1	48.5	0		
PHF	.770	.838	.685	.250	.833	.696	.804	.804	.000	.849	.929	.913	.775	.000	.941	.792	.816	.774	.000	.859	.963
PV	215	1055	73	0	1343	68	45	183	0	296	102	867	81	0	1050	74	62	129	0	265	2954
% PV	93.1	99.0	98.6	0	97.9	87.2	100	94.8	0	93.7	98.1	97.3	87.1	0	96.5	97.4	100	99.2	0	98.9	97.0
Duals	9	7	1	0	17	6	0	2	0	8	2	19	4	0	25	2	0	0	0	2	52
% Duals	3.9	0.7	1.4	0	1.2	7.7	0	1.0	0	2.5	1.9	2.1	4.3	0	2.3	2.6	0	0	0	0.7	1.7
TTST	7	4	0	0	11	4	0	8	0	12	0	5	8	0	13	0	0	1	0	1	37
% TTST	3.0	0.4	0	0	0.8	5.1	0	4.1	0	3.8	0	0.6	8.6	0	1.2	0	0	0.8	0	0.4	1.2
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bikes, Peds	0	0	0	100	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0

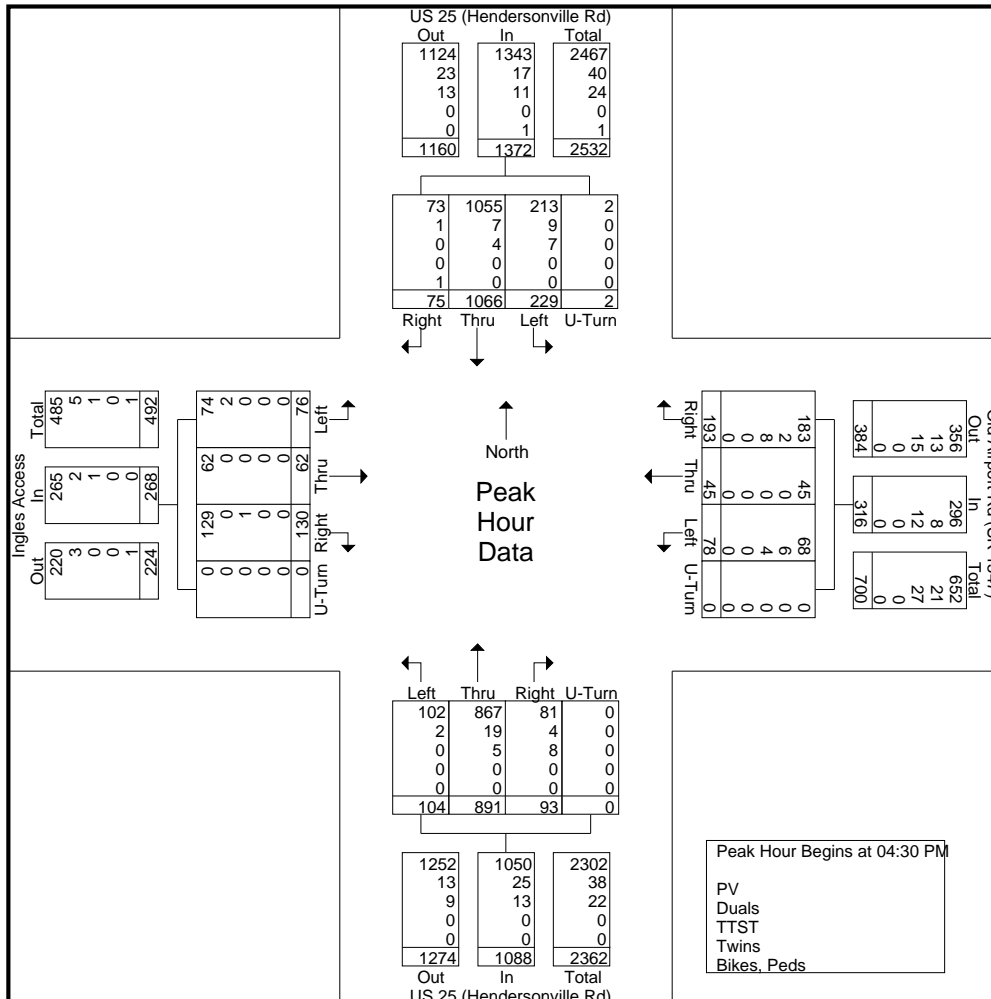


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Old Airport Rd (SR 1547) - Existing PM
 Site Code : 1099.5
 Start Date : 3/18/2021
 Page No : 2

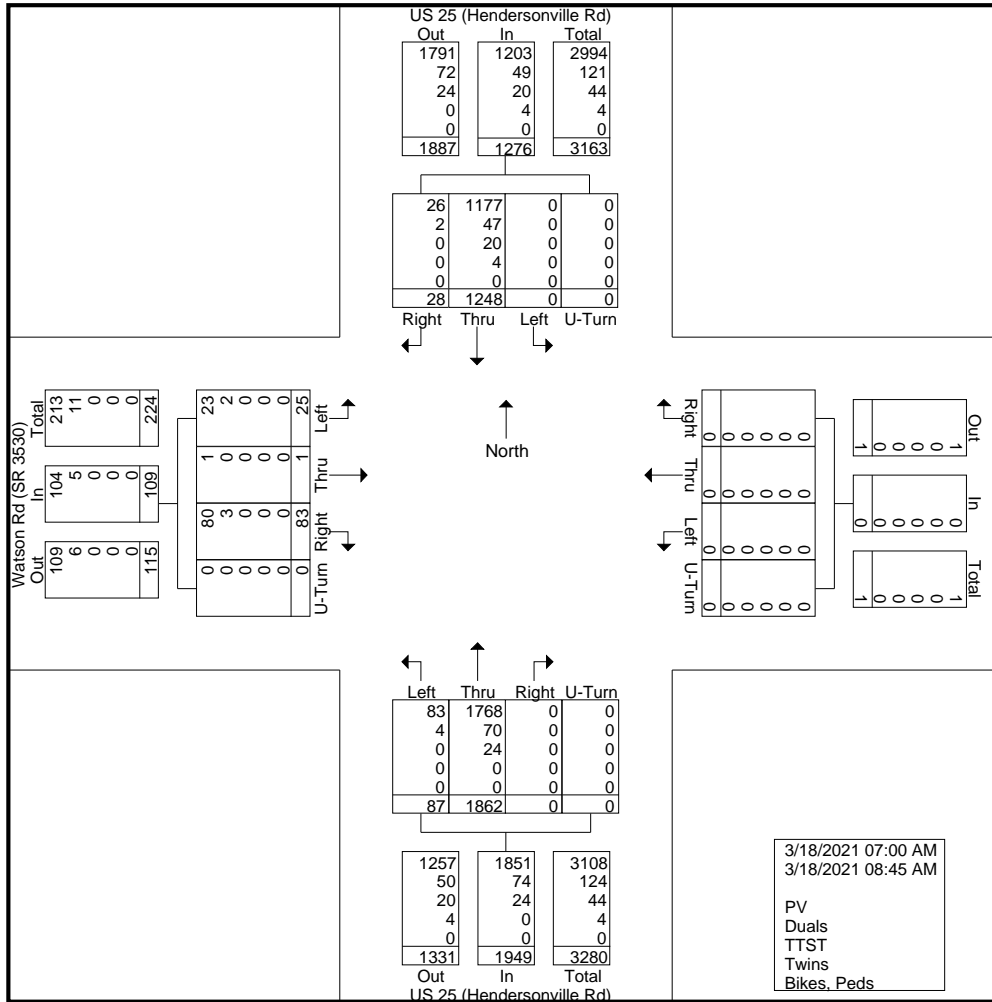


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Old Airport Rd (SR 1547) - Existing PM
Site Code : 1099.5
Start Date : 3/18/2021
Page No : 3

Start Time	US 25 (Hendersonville Rd) Southbound					Old Airport Rd (SR 1547) Westbound					US 25 (Hendersonville Rd) Northbound					Ingles Access Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. 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	50	251	20	0	321	22	14	46	0	82	28	209	22	0	259	22	19	34	0	75	737
04:45 PM	57	239	27	0	323	19	10	60	0	89	28	213	30	0	271	16	14	28	0	58	741
05:00 PM	47	258	9	2	316	28	12	53	0	93	26	244	19	0	289	24	12	42	0	78	776
05:15 PM	75	318	19	0	412	9	9	34	0	52	22	225	22	0	269	14	17	26	0	57	790
Total Volume	229	1066	75	2	1372	78	45	193	0	316	104	891	93	0	1088	76	62	130	0	268	3044
% App. Total	16.7	77.7	5.5	0.1		24.7	14.2	61.1	0		9.6	81.9	8.5	0		28.4	23.1	48.5	0		
PHF	.763	.838	.694	.250	.833	.696	.804	.804	.000	.849	.929	.913	.775	.000	.941	.792	.816	.774	.000	.859	.963
PV	213	1055	73	2	1343	68	45	183	0	296	102	867	81	0	1050	74	62	129	0	265	2954
% PV	93.0	99.0	97.3	100	97.9	87.2	100	94.8	0	93.7	98.1	97.3	87.1	0	96.5	97.4	100	99.2	0	98.9	97.0
Duals	9	7	1	0	17	6	0	2	0	8	2	19	4	0	25	2	0	0	0	2	52
% Duals	3.9	0.7	1.3	0	1.2	7.7	0	1.0	0	2.5	1.9	2.1	4.3	0	2.3	2.6	0	0	0	0.7	1.7
TTST	7	4	0	0	11	4	0	8	0	12	0	5	8	0	13	0	0	1	0	1	37
% TTST	3.1	0.4	0	0	0.8	5.1	0	4.1	0	3.8	0	0.6	8.6	0	1.2	0	0	0.8	0	0.4	1.2
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bikes, Peds	0	0	1.3	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0

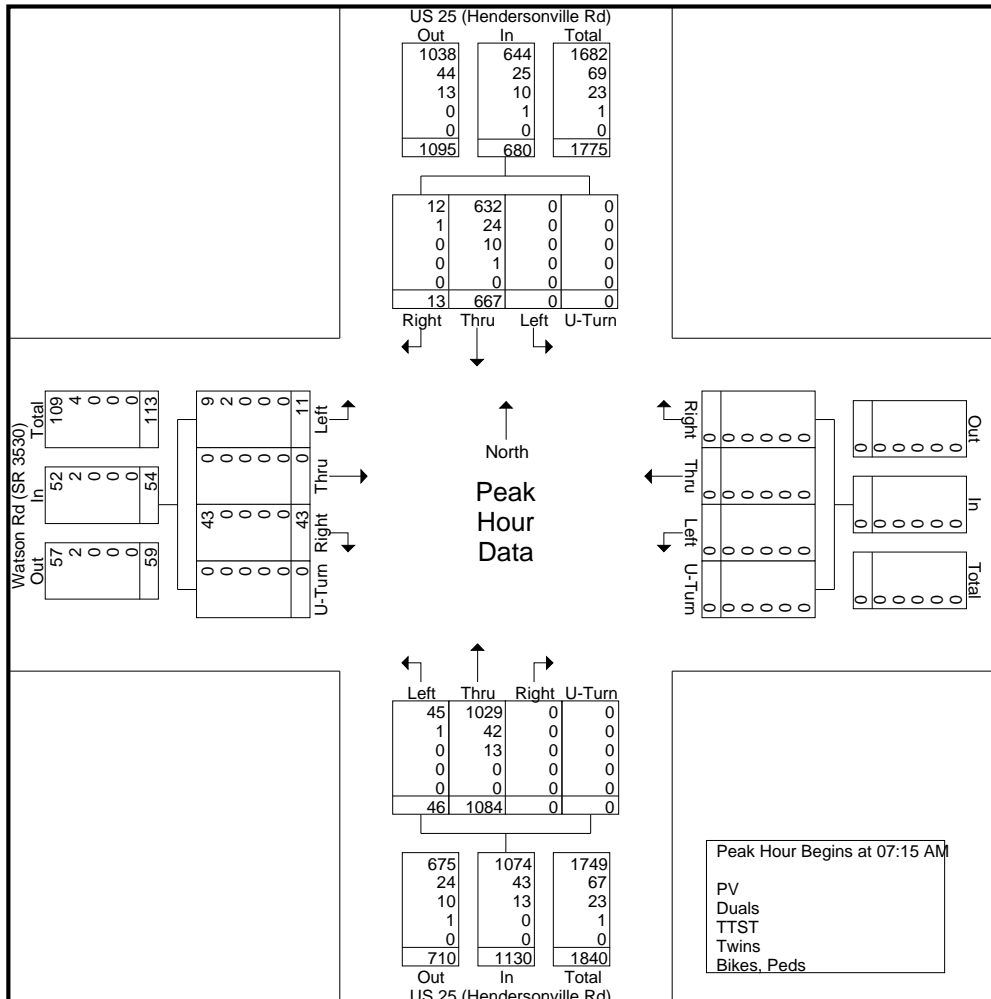


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Watson Rd (SR 3530) - Existing AM
 Site Code : 1099.4
 Start Date : 3/18/2021
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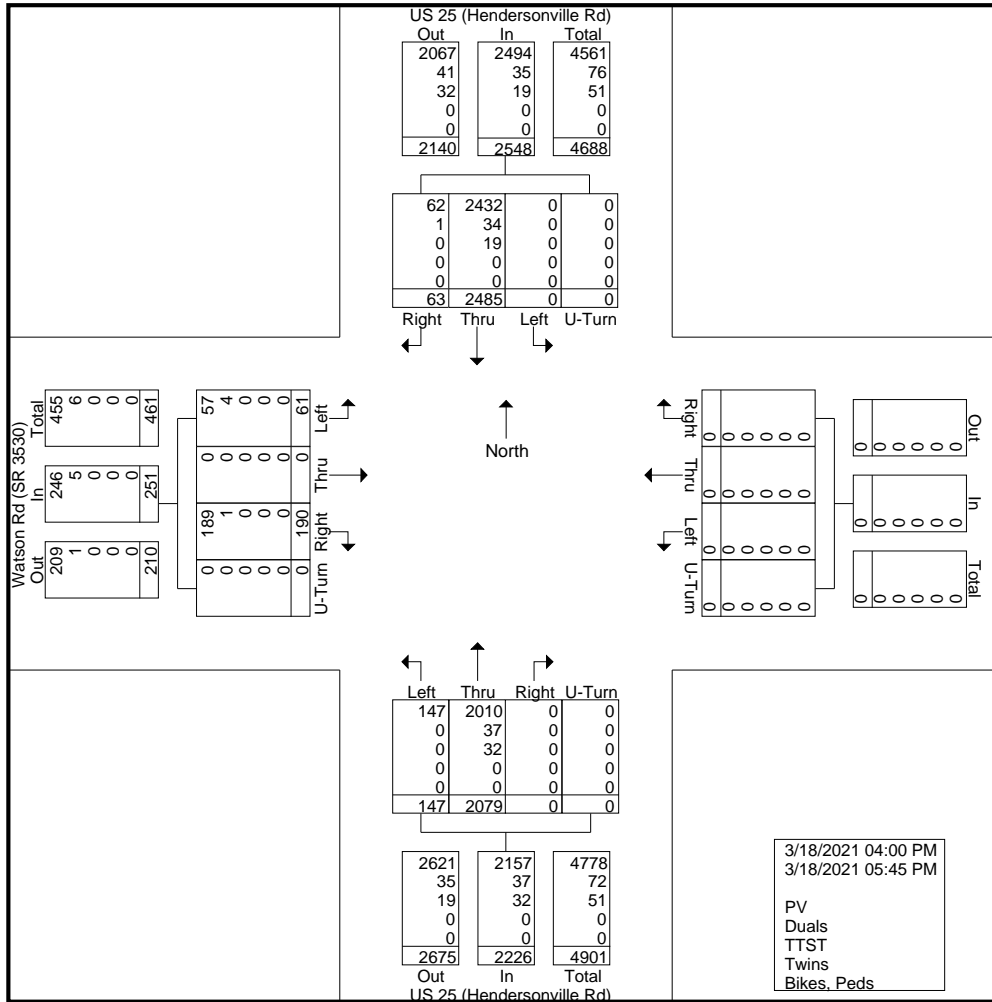


File Name : WAYN 1099 - US 25 (Hendersonville Rd) @ Watson Rd (SR 3530) - Existing AM
Site Code : 1099.4
Start Date : 3/18/2021
Page No : 3

Start Time	US 25 (Hendersonville Rd) Southbound					Westbound					US 25 (Hendersonville Rd) Northbound					Watson Rd (SR 3530) Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	150	1	0	151	0	0	0	0	0	14	229	0	0	243	1	0	12	0	13	407
07:30 AM	0	191	2	0	193	0	0	0	0	0	12	293	0	0	305	5	0	14	0	19	517
07:45 AM	0	169	5	0	174	0	0	0	0	0	16	307	0	0	323	3	0	10	0	13	510
08:00 AM	0	157	5	0	162	0	0	0	0	0	4	255	0	0	259	2	0	7	0	9	430
Total Volume	0	667	13	0	680	0	0	0	0	0	46	1084	0	0	1130	11	0	43	0	54	1864
% App. Total	0	98.1	1.9	0		0	0	0	0		4.1	95.9	0	0		20.4	0	79.6	0		
PHF	.000	.873	.650	.000	.881	.000	.000	.000	.000	.000	.719	.883	.000	.000	.875	.550	.000	.768	.000	.711	.901
PV	0	632	12	0	644	0	0	0	0	0	45	1029	0	0	1074	9	0	43	0	52	1770
% PV	0	94.8	92.3	0	94.7	0	0	0	0	0	97.8	94.9	0	0	95.0	81.8	0	100	0	96.3	95.0
Duals	0	24	1	0	25	0	0	0	0	0	1	42	0	0	43	2	0	0	0	2	70
% Duals	0	3.6	7.7	0	3.7	0	0	0	0	0	2.2	3.9	0	0	3.8	18.2	0	0	0	3.7	3.8
TTST	0	10	0	0	10	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	23
% TTST	0	1.5	0	0	1.5	0	0	0	0	0	0	1.2	0	0	1.2	0	0	0	0	0	1.2
Twins	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Twins	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

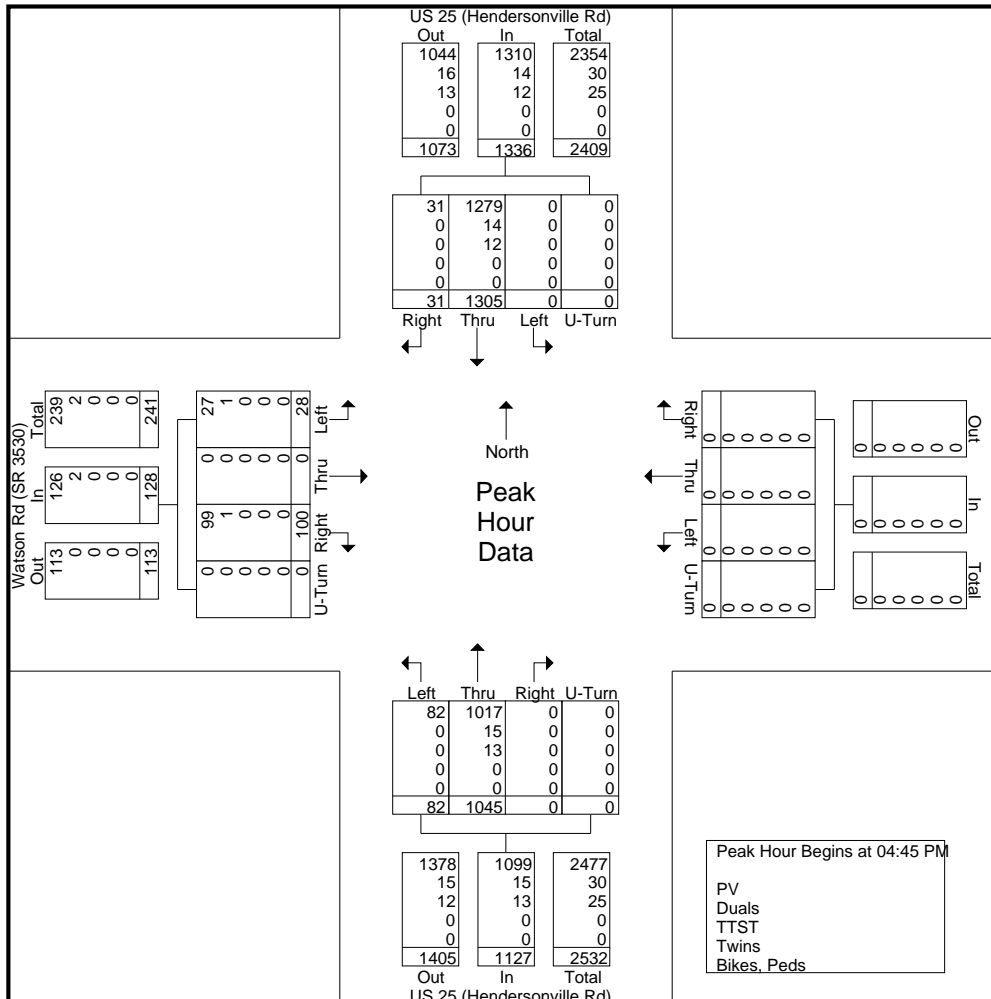


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Site Code : 1099.4
Start Date : 3/18/2021
Page No : 2



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Site Code : 1099.4
Start Date : 3/18/2021
Page No : 3

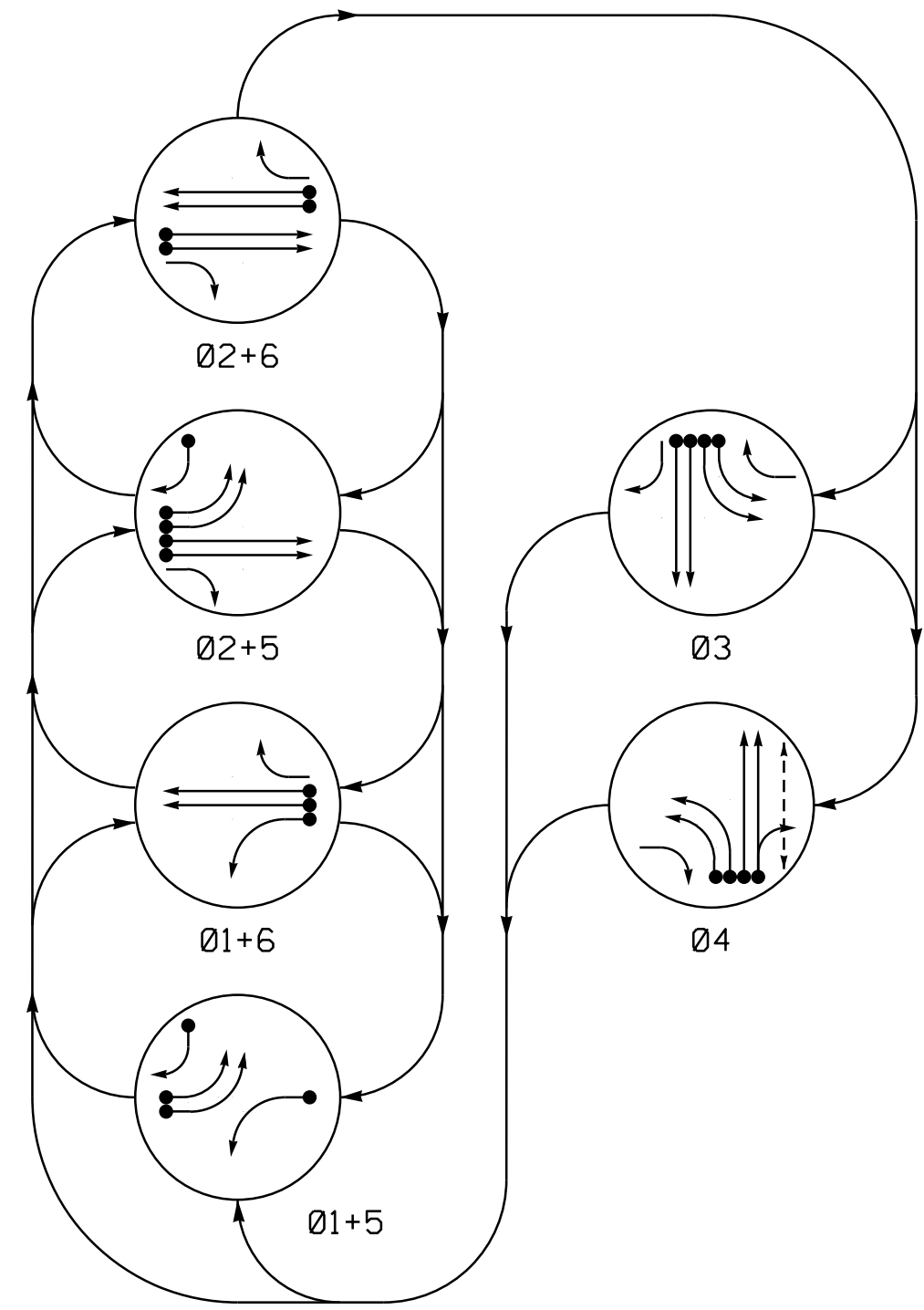
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	306	5	0	311	0	0	0	0	0	20	274	0	0	294	6	0	21	0	27	632
05:00 PM	0	306	6	0	312	0	0	0	0	0	22	284	0	0	306	4	0	24	0	28	646
05:15 PM	0	382	10	0	392	0	0	0	0	0	21	240	0	0	261	13	0	26	0	39	692
05:30 PM	0	311	10	0	321	0	0	0	0	0	19	247	0	0	266	5	0	29	0	34	621
Total Volume	0	1305	31	0	1336	0	0	0	0	0	82	1045	0	0	1127	28	0	100	0	128	2591
% App. Total	0	97.7	2.3	0		0	0	0	0	0	7.3	92.7	0	0		21.9	0	78.1	0		
PHF	.000	.854	.775	.000	.852	.000	.000	.000	.000	.000	.932	.920	.000	.000	.921	.538	.000	.862	.000	.821	.936
PV	0	1279	31	0	1310	0	0	0	0	0	82	1017	0	0	1099	27	0	99	0	126	2535
% PV	0	98.0	100	0	98.1	0	0	0	0	0	100	97.3	0	0	97.5	96.4	0	99.0	0	98.4	97.8
Duals	0	14	0	0	14	0	0	0	0	0	0	15	0	0	15	1	0	1	0	2	31
% Duals	0	1.1	0	0	1.0	0	0	0	0	0	0	1.4	0	0	1.3	3.6	0	1.0	0	1.6	1.2
TTST	0	12	0	0	12	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	25
% TTST	0	0.9	0	0	0.9	0	0	0	0	0	0	1.2	0	0	1.2	0	0	0	0	0	1.0
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Appendix D

Traffic Signal Plans

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- ←● DETECTED MOVEMENT
- ← UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ←→ PEDESTRIAN MOVEMENT

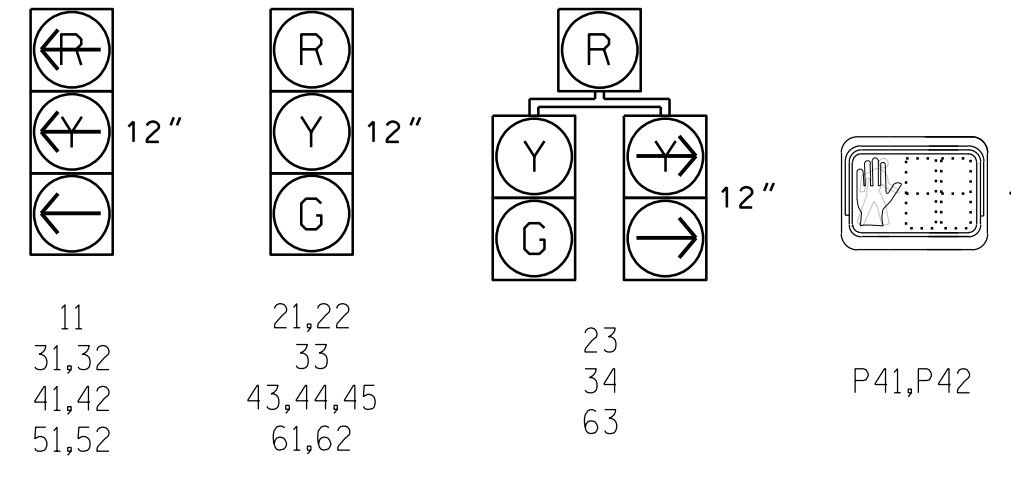
TABLE OF OPERATION

SIGNAL FACE	PHASE					
	Ø 1+5	Ø 1+6	Ø 2+5	Ø 2+6	Ø 3	Ø 4
11	←	←	←	←	←	←
21,22	R	R	G	G	R	Y
23	R	R	G	G	R	Y
31,32	←	←	←	←	←	←
33	R	R	R	R	G	R
34	R	R	R	R	G	R
41,42	←	←	←	←	←	←
43,44,45	R	R	R	R	G	R
51,52	←	←	←	←	←	←
61,62	R	G	R	G	R	Y
63	R	G	R	G	R	Y
P41,P42	DW	DW	DW	DW	DW	DRK
SIGN B	*	*	*	*	*	OFF
SIGN C	*	*	*	*	*	OFF

* Changeable Trailblazer Signs controlled remotely

SIGNAL FACE I.D.

All Heads L.E.D.



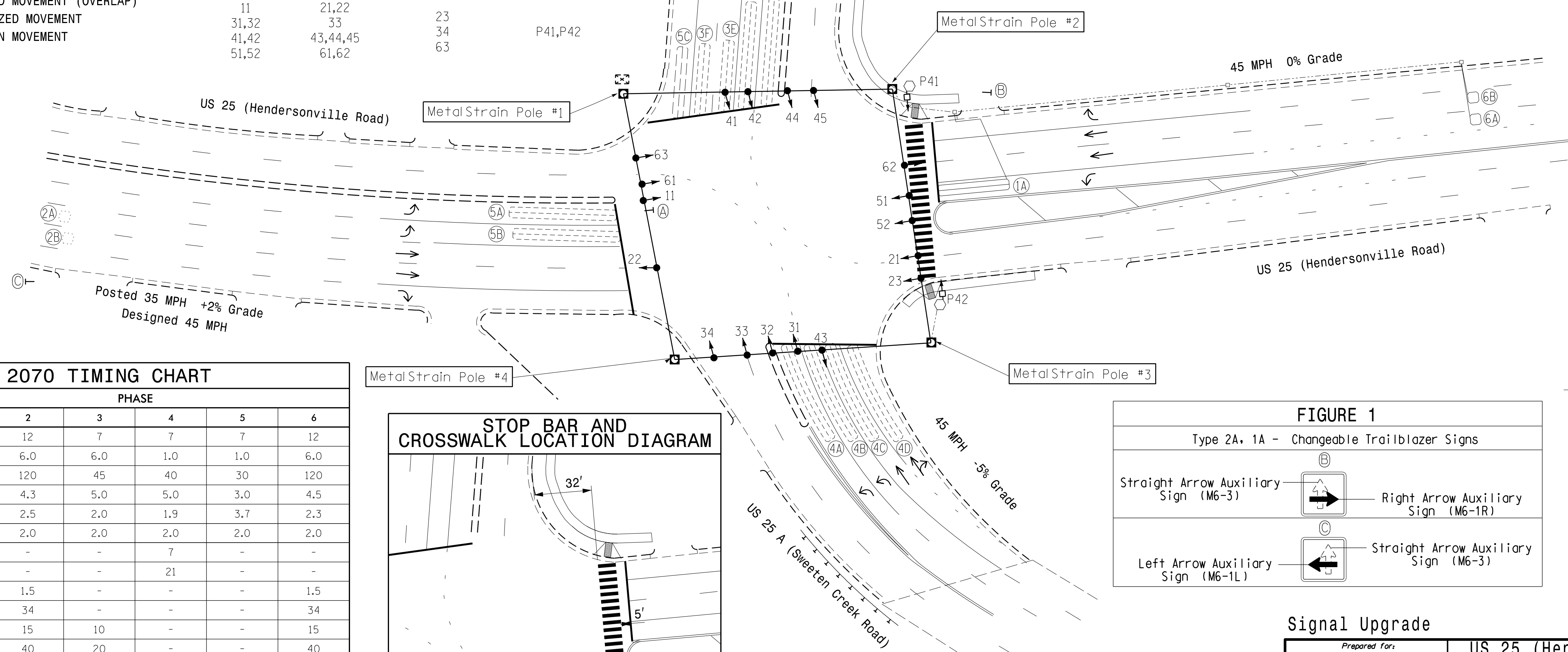
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD
					PHASE	CALLING	EXTENSION	FULL TIME DELAY		
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	-
2A	6X6	300	4	-	2	Y	Y	-	-	-
2B	6X6	300	4	-	2	Y	Y	-	-	-
3A	6X6	300	4	-	3	-	Y	-	-	-
3B	6X6	300	4	-	3	-	Y	-	-	-
3C	6X60	0	2-4-2	-	3	Y	Y	-	-	-
3D	6X60	0	2-4-2	-	3	Y	Y	-	-	-
3E	6X40	0	2-4-2	-	3	Y	Y	2.0	5	-
3F	6X40	0	2-4-2	-	3	Y	Y	2.0	5	-
4A	6X60	0	2-4-2	-	4	Y	Y	-	-	-
4B	6X60	0	2-4-2	-	4	Y	Y	-	-	-
4C	6X60	0	2-4-2	-	4	Y	Y	-	-	-
4D	6X60	0	2-4-2	-	4	Y	Y	-	-	-
5A	6X60	0	2-4-2	-	5	Y	Y	-	-	-
5B	6X60	0	2-4-2	-	5	Y	Y	-	-	-
5C	6X60	0	2-4-2	-	5	Y	Y	-	15	-
6A	6X6	300	5	Y	6	Y	Y	-	-	-
6B	6X6	300	5	Y	6	Y	Y	-	-	-

6 Phase Fully Actuated (Asheville Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: <http://connect.ncdot.gov/resources/safety/pages/its-and-signals.aspx>
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.

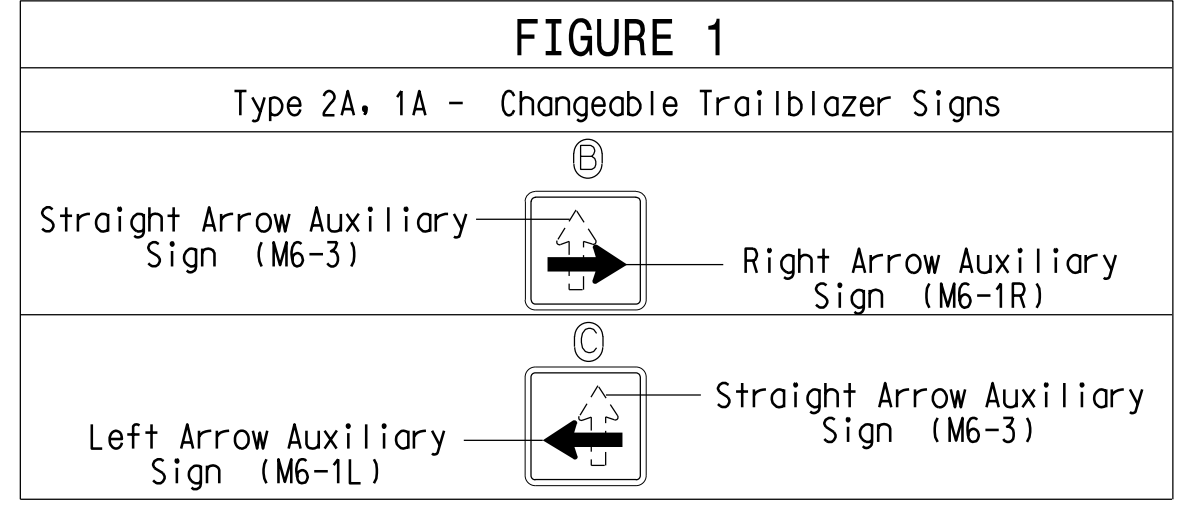
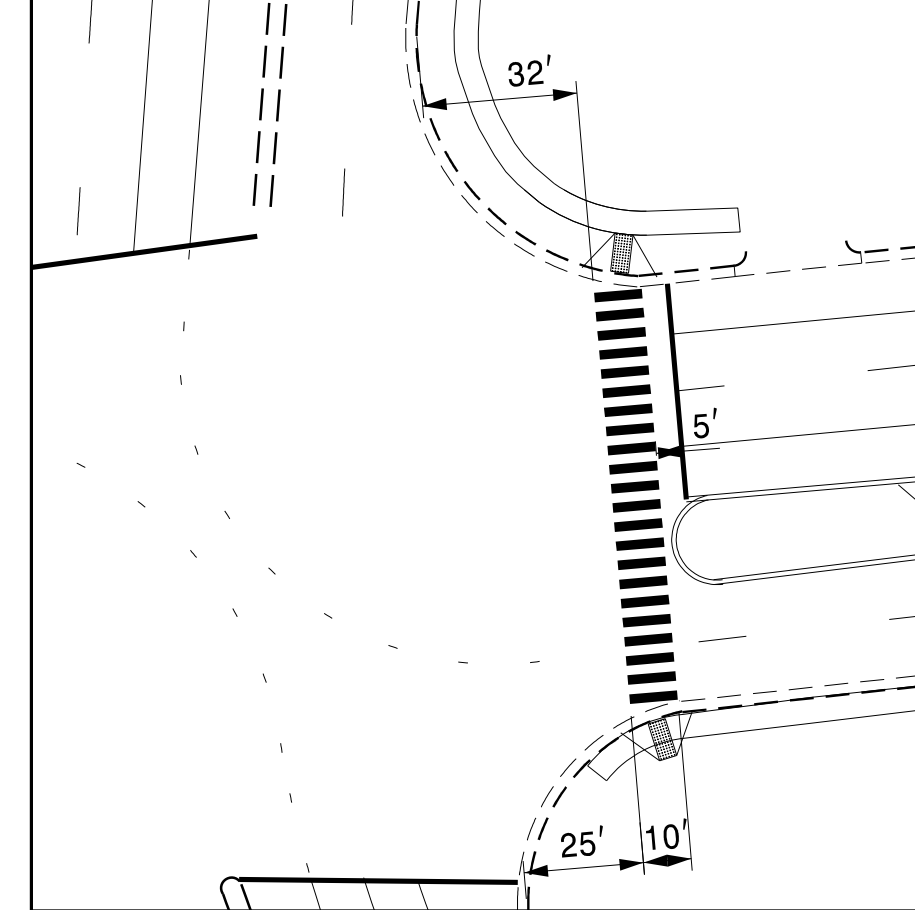


OASIS 2070 TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	6.0	1.0	1.0	6.0
Max Green 1 *	20	120	45	40	30	120
Yellow Clearance	3.0	4.3	5.0	5.0	3.0	4.5
Red Clearance	3.7	2.5	2.0	1.9	3.7	2.3
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	7	-	-
Don't Walk 1	-	-	-	21	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5
Max Variable Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	10	-	-	15
Time To Reduce *	-	40	20	-	-	40
Minimum Gap	-	3.0	3.0	-	-	3.0
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON

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

STOP BAR AND CROSSWALK LOCATION DIAGRAM



LEGEND

PROPOSED	EXISTING
○ Traffic Signal Head	● N/A
○ Modified Signal Head	○ N/A
⊥ Sign	⊥
⊥ Pedestrian Signal Head With Push Button & Sign	⊥
⊥ Signal Pole with Guy	⊥
⊥ Signal Pole with Sidewalk Guy	⊥
⊥ Inductive Loop Detector	⊥
⊥ Controller & Cabinet	⊥
⊥ Junction Box	⊥
⊥ 2-in Underground Conduit	⊥
→ N/A Right of Way	→
→ N/A Directional Arrow	→
→ N/A Guardrail	→
○ Metal Strain Pole	○
○ Type II Signal Pedestal	○
⊙ Left Arrow "ONLY" Sign (R3-5L)	⊙
⊙ Type 2A Changeable Trailblazer sign (See Figure 1)	⊙
⊙ Type 1A Changeable Trailblazer sign (See Figure 1)	⊙

NC Dept of Transportation
Division of Highways
Final Drawing Date: 7/14/2020
Documented by: R. N. Zinner
ITS & Signals Unit



Signal Upgrade

Prepared For: Transportation Mobility and Safety Division
Prepared By: TS Popelka
RKA PROJ. NO: 18318 (040)
750 N. Greenfield Pkwy, Garner, NC 27529
3808 Farrington Place Raleigh, North Carolina 27609
Phone: 919-872-5115 | www.ramkemp.com | NC License No. C-9910

US 25 (Hendersonville Road) at US 25A (Sweeten Creek Road) / SR 3526 (Airport Road)

Division 13 Buncombe County Asheville

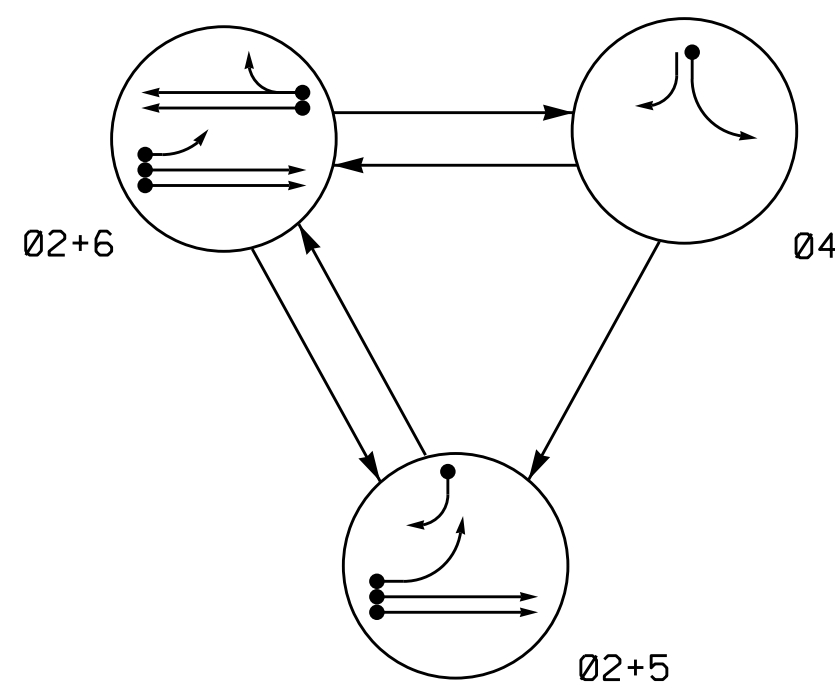
PLAN DATE: July 2020 REVIEWED BY: WJ Hamilton
PREPARED BY: TS Popelka RKA PROJ. NO: 18318 (040)

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
WILLIAM J. HAMILTON
32396
7/3/2020
DATE
SIGNATURE
SIG. INVENTORY NO. 13-0285

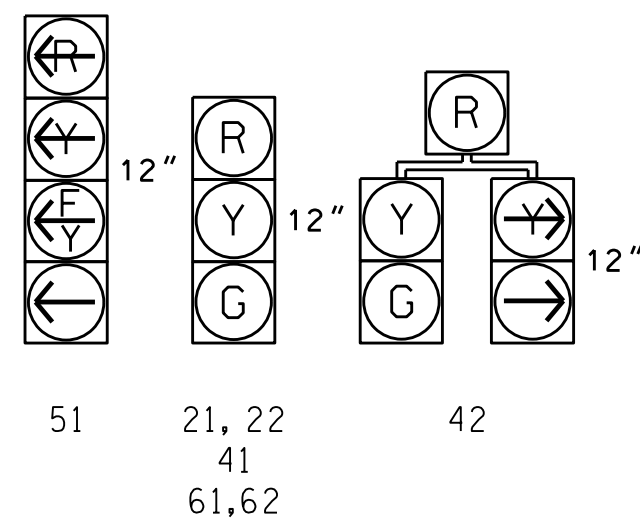
PHASING DIAGRAM



SIGNAL FACE	PHASE			
	02+5	02+6	04	02+6
21, 22	G	G	R	Y
41	R	R	G	R
42	R	R	G	R
51	-	F	R	Y
61, 62	R	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING					SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME			DELAY TIME
2A	6X6	300	4	-	2	Y	Y	-	-	-	-	Y
2B	6X6	300	4	-	2	Y	Y	-	-	-	-	Y
4A	6X60	0	2-4-2	-	4	Y	Y	-	-	3	-	Y
5A	6X60	0	2-4-2	-	5	Y	Y	-	-	15	-	Y
5B	6X60	+5	2-4-2	-	5	Y	Y	-	-	15	-	Y
6A	6X6	300	4	-	6	Y	Y	-	-	-	-	Y
6B	6X6	300	4	-	6	Y	Y	-	-	-	-	Y

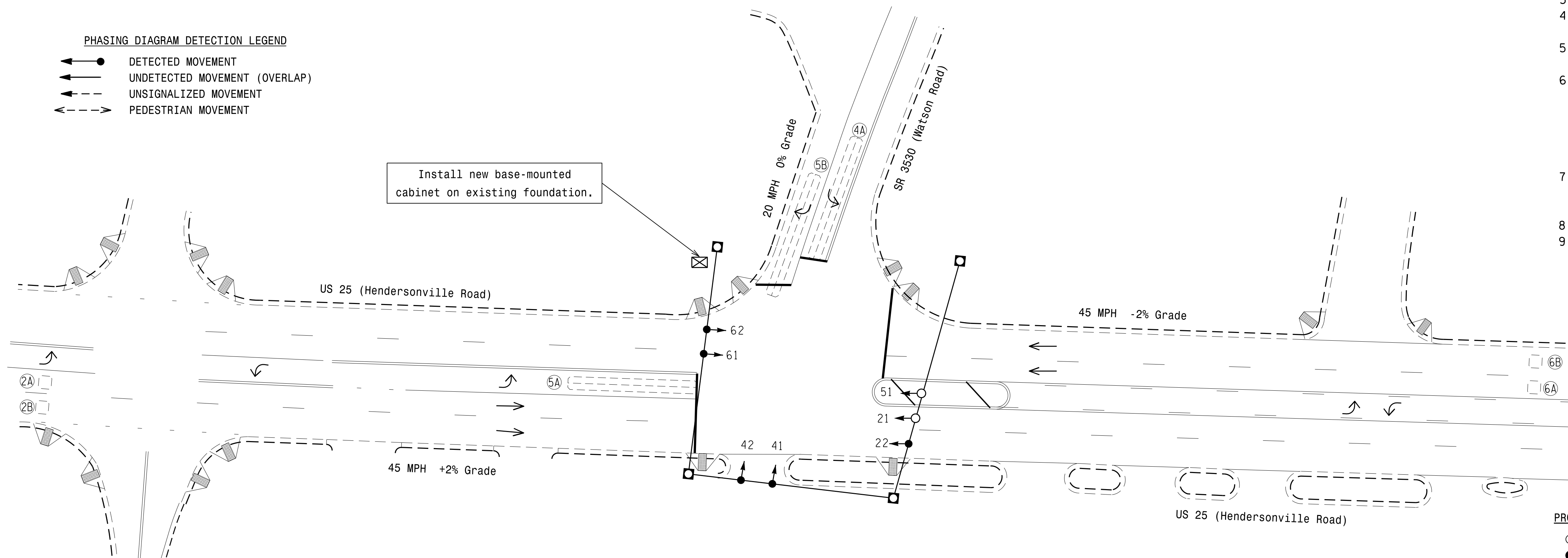
3 Phase Fully Actuated Asheville Signal System

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Reposition existing signal head numbered 22.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

- ◄●► DETECTED MOVEMENT
- ◄◄◄ UNDETECTED MOVEMENT (OVERLAP)
- ◄- - - UNSIGNALIZED MOVEMENT
- ◄- - - PEDESTRIAN MOVEMENT



OASIS 2070 TIMING CHART				
FEATURE	PHASE			
	2	4	5	6
Min Green 1 *	12	5	5	12
Extension 1 *	6.0	1.0	1.0	6.0
Max Green 1 *	100	20	15	100
Yellow Clearance	4.7	3.0	3.0	4.7
Red Clearance	1.3	2.4	2.6	1.3
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	1.5	-	-	1.5
Max Variable Initial *	34	-	-	34
Time Before Reduction *	15	-	-	15
Time To Reduce *	30	-	-	30
Minimum Gap	3.0	-	-	3.0
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

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

LEGEND

- | PROPOSED | EXISTING |
|--|--|
| ○→ Traffic Signal Head | ●→ Traffic Signal Head |
| ◐→ Modified Signal Head | N/A |
| ⊥ Sign | ⊥ Sign |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ Pedestrian Signal Head With Push Button & Sign |
| ○→ Signal Pole with Guy | ●→ Signal Pole with Guy |
| ○→ Signal Pole with Sidewalk Guy | ●→ Signal Pole with Sidewalk Guy |
| ▭ Inductive Loop Detector | ▭ Inductive Loop Detector |
| ⊠ Controller & Cabinet | ⊠ Controller & Cabinet |
| □ Junction Box | □ Junction Box |
| - - - 2-in Underground Conduit | - - - 2-in Underground Conduit |
| N/A Right of Way | - - - Right of Way |
| → Directional Arrow | → Directional Arrow |
| ⊠ Metal Strain Pole | ⊠ Metal Strain Pole |
| N/A Wheelchair Ramp | ⏏ Wheelchair Ramp |

Signal Upgrade

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

US 25 (Hendersonville Road) at SR 3530 (Watson Road)

Division 13 Buncombe County North of Fletcher

PLAN DATE: January 2016 REVIEWED BY: P.L. Alexander

PREPARED BY: M. Mahbooba REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

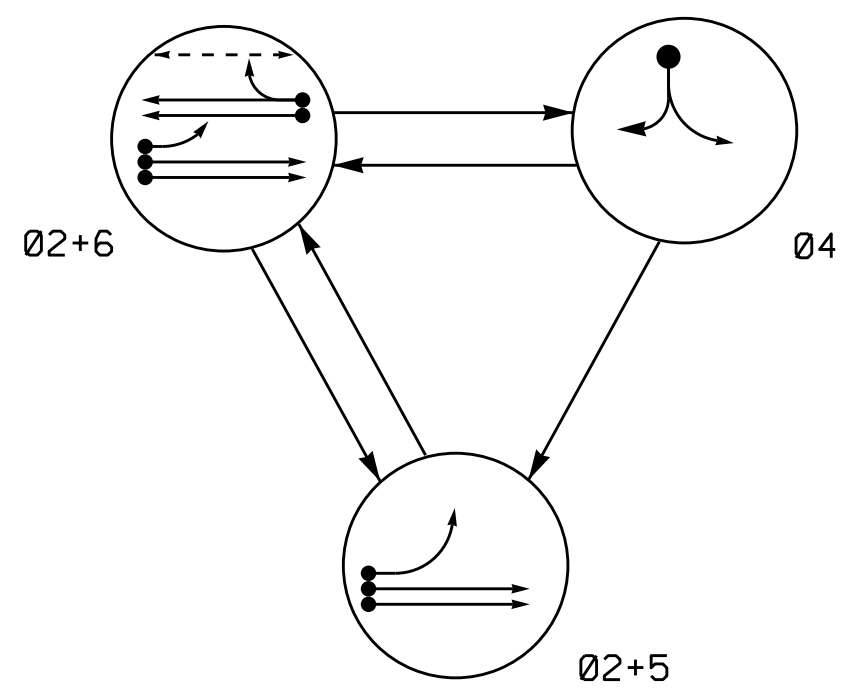
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J. Williams 8/18/2016

SIG. INVENTORY NO. 13-0561

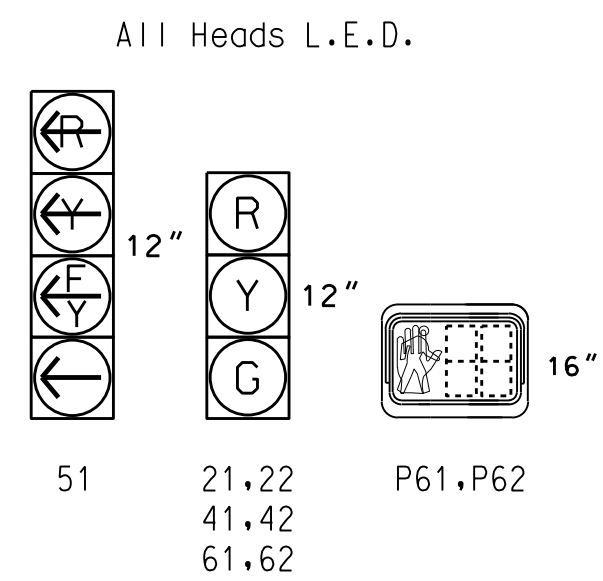
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PHASING DIAGRAM



SIGNAL FACE	PHASE			
	Ø2+5	Ø2+6	Ø4	F L
21,22	G	G	R	Y
41,42	R	R	G	R
51	-	F	R	Y
61,62	R	G	R	Y
P61,P62	DW	W	DW	DRK

SIGNAL FACE I.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

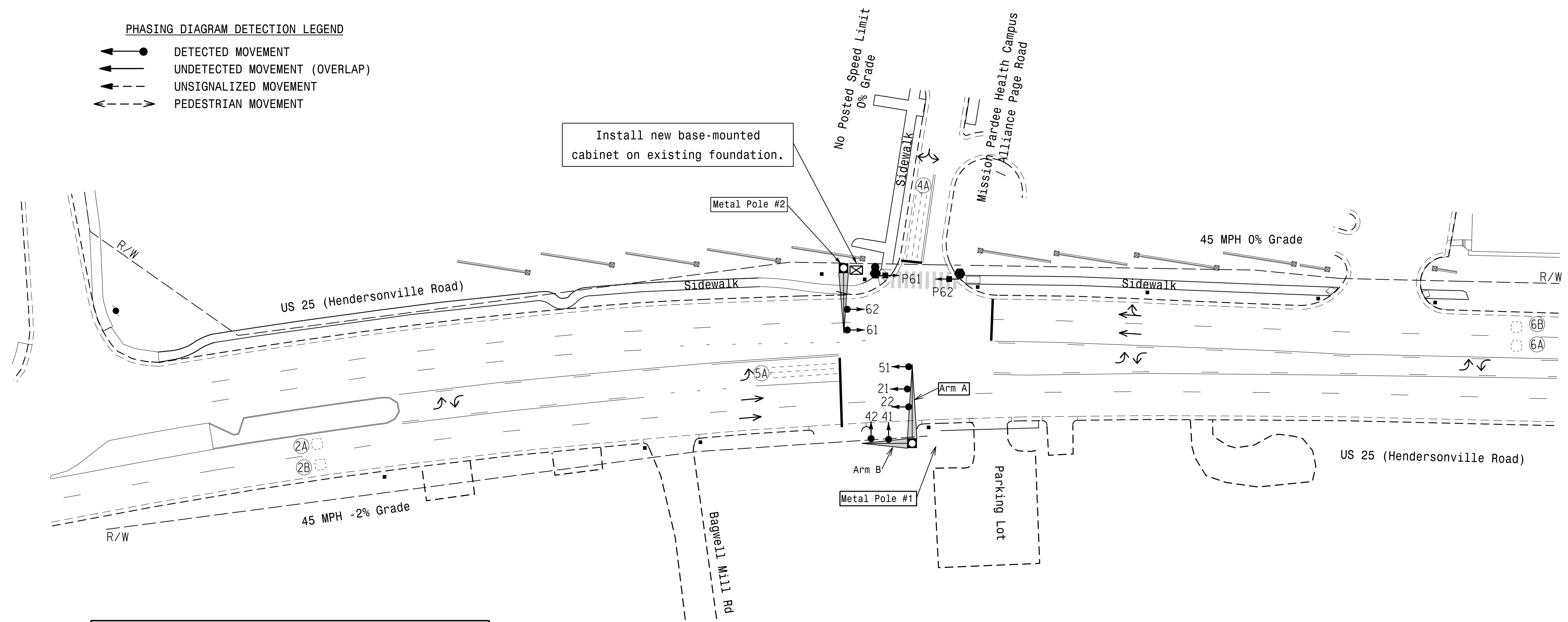
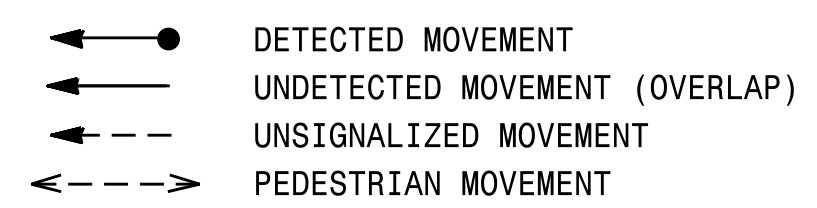
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING								
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD	
2A	6X6	300	4	-	2	Y	Y	-	-	-	-	-	Y
2B	6X6	300	4	-	2	Y	Y	-	-	-	-	-	Y
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	5	-	-	Y
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	-	Y
6A	6X6	300	4	-	6	Y	Y	-	-	-	-	-	Y
6B	6X6	300	4	-	6	Y	Y	-	-	-	-	-	Y

3 Phase Fully Actuated Asheville Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pavement markings are existing.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

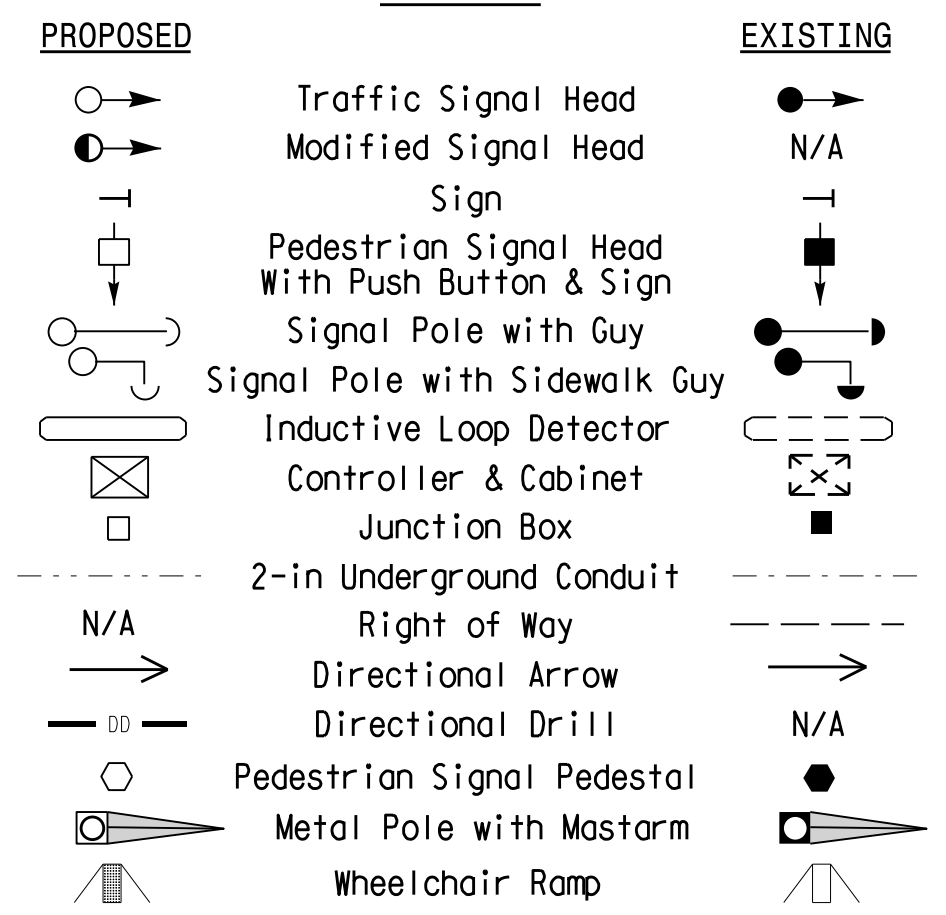
PHASING DIAGRAM DETECTION LEGEND



FEATURE	PHASE			
	2	4	5	6
Min Green 1 *	12	7	7	12
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	90	20	15	90
Yellow Clearance	4.7	3.0	3.0	4.7
Red Clearance	1.2	2.6	2.4	1.2
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	7
Don't Walk 1	-	-	-	7
Seconds Per Actuation *	1.5	-	-	1.5
Max Variable Initial *	34	-	-	34
Time Before Reduction *	15	-	-	15
Time To Reduce *	30	-	-	30
Minimum Gap	3.0	-	-	3.0
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

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

LEGEND



09-0106-2016_0718 S:\Projects\2016\15_Sig\Signal\Signal\Region04\15_Sig\Signal\System\Signal_Design\116_Sig\Signal_System\2016\madd-dgn

Signal Upgrade

750 N. Greenfield Pkwy, Garner, NC 27529

US 25 (Hendersonville Road) at Mission Pardee Health Campus / Alliance Page Road

Division 14 Henderson County Fletcher

PLAN DATE: May 2016 REVIEWED BY: T. Williams

PREPARED BY: M. Mahbooba REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSign by: S. J. Williams 8/9/2016

SIG. INVENTORY NO. 14-1278

SCALE 0 40 1"=40'

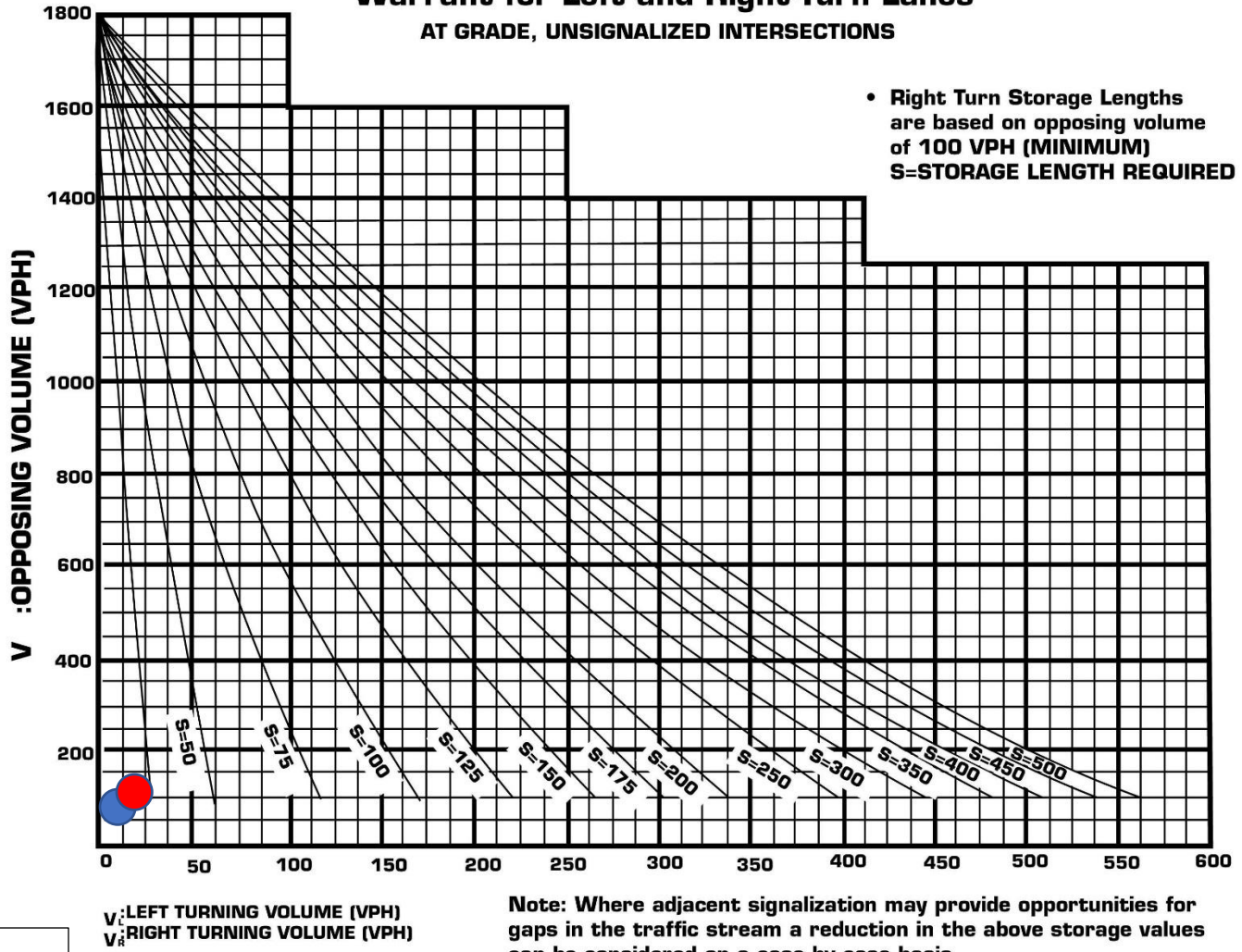
REVISIONS	INIT.	DATE

Appendix E

Turn Lane Warrant Analysis

Watson Rd (SR 3530) and Crescent Hill Access Drive 1 (Eastbound Left-Turn)

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS



Page 80

July 2003

Policy On Street And Driveway Access to North Carolina Highways

AM PEAK VOLUMES FOR 5 LEFT TURN VEHICLES WITH 60 OPPOSING THROUGH VEHICLES.

PM PEAK VOLUMES FOR 17 LEFT TURN VEHICLES WITH 116 OPPOSING THROUGH VEHICLES.