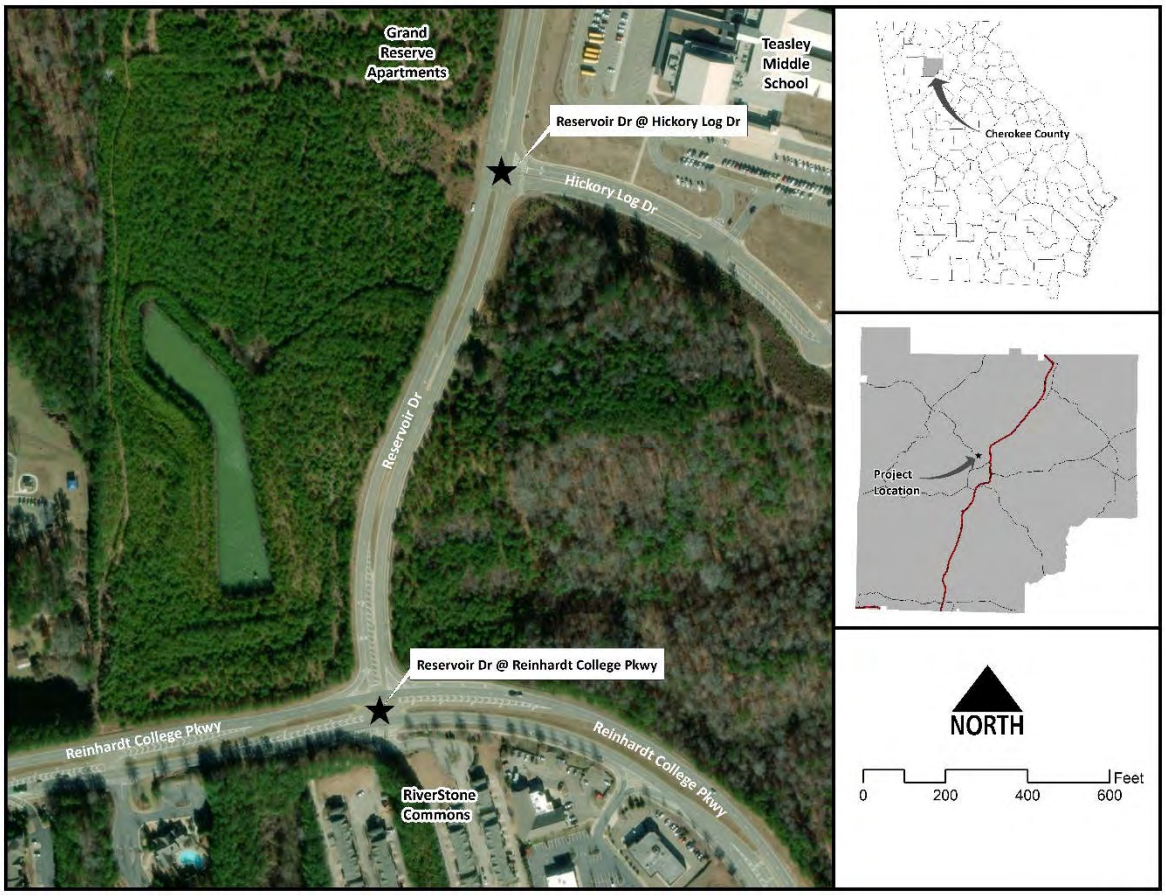
City of Canton

RESERVOIR DRIVE PLANNING STUDY

Traffic Engineering Study Report

August 2021



PRIMARY ROUTE: Reinhardt College Parkway (SR 5 Conn)

SECONDARY ROUTE(s): Reservoir Drive (CR 805) and Hickory Log Drive

GDOT DISTRICT: 6

CONGRESSIONAL DISTRICT: 11

COUNTY: Cherokee

CITY: Canton

PREPARED BY: ATKINS

Member of the SNC-Lavalin Group

TABLE OF CONTENTS

FIGURES

TABLES

PROJECT JUSTIFICATION STATEMENT

The City of Canton is in the preliminary phase of planning improvements to address safety and congestion concerns along Reservoir Drive (CR 805) at Reinhardt College Parkway (SR 5 Conn) and Hickory Log Drive.

INTRODUCTION

The following evaluation provides a study for highway safety improvement projects that are intended to increase safety performance by minimizing or eliminating risk to roadway users. Existing and future traffic conditions along Reservoir Drive at two identified intersections have been examined to include any interim and long-term developments within the general vicinity. The intersections in this evaluation occur along Reservoir Drive at:

- Reinhardt College Parkway
- Hickory Log Drive

In order to improve safety, mobility, and non-motorized road user connectivity, the City of Canton commissioned Atkins to complete this traffic engineering study, which will identify any issues associated with traffic control, roadway geometry, turn lanes or sight distance.

Project Location

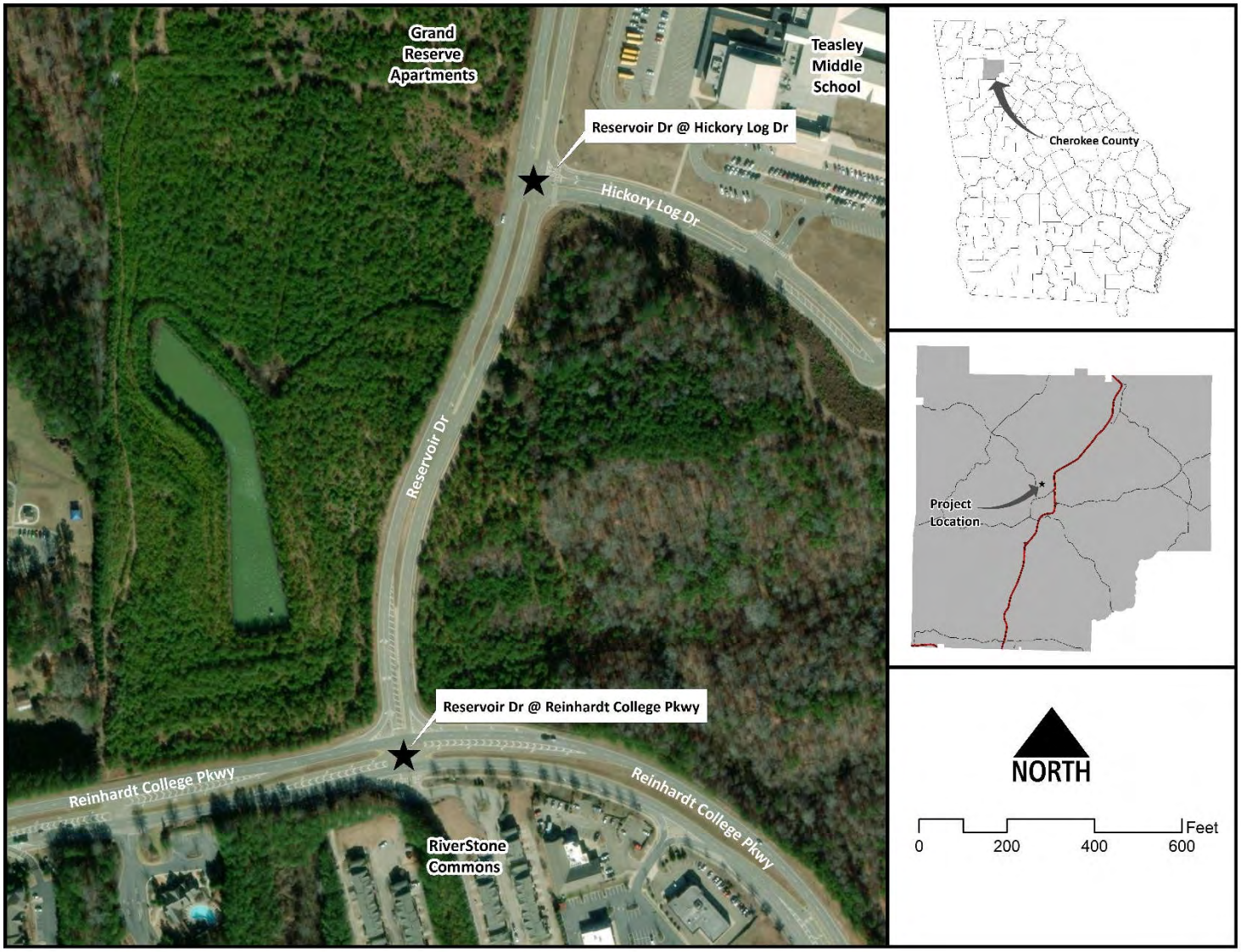
The identified intersections along Reservoir Drive are in the City of Canton between two heavily traveled commuting corridors, Interstate 575 (I-575) and Waleska Road (SR 140), which are critical for the driving public. Reservoir Drive primarily serves residential land uses in Canton that include both single-family detached and multi-family attached residential units. Teasley Middle School is located along the east side of Reservoir Drive at Hickory Log Drive, approximately ¼ of a mile north of Reinhardt College Parkway. First Baptist Church of Canton is located on Reservoir Drive further to the north at Mission Point. At Reservoir Drive's intersection with Mission Point/Amos Road the road transitions from a four-lane divided cross-section to a two-lane undivided roadway.

The locations of these intersections are illustrated on **Figure 1**.

Reason for Investigation

The City of Canton requested a traffic engineering study to examine any increase in traffic volumes and to facilitate safe and efficient travel for the general driving public. Highway safety improvements at the identified intersections should seek to minimize delay for pedestrians and vehicles, reduce crash conflicts and maximize capacity for each intersection approach.

Figure 1. Project Location



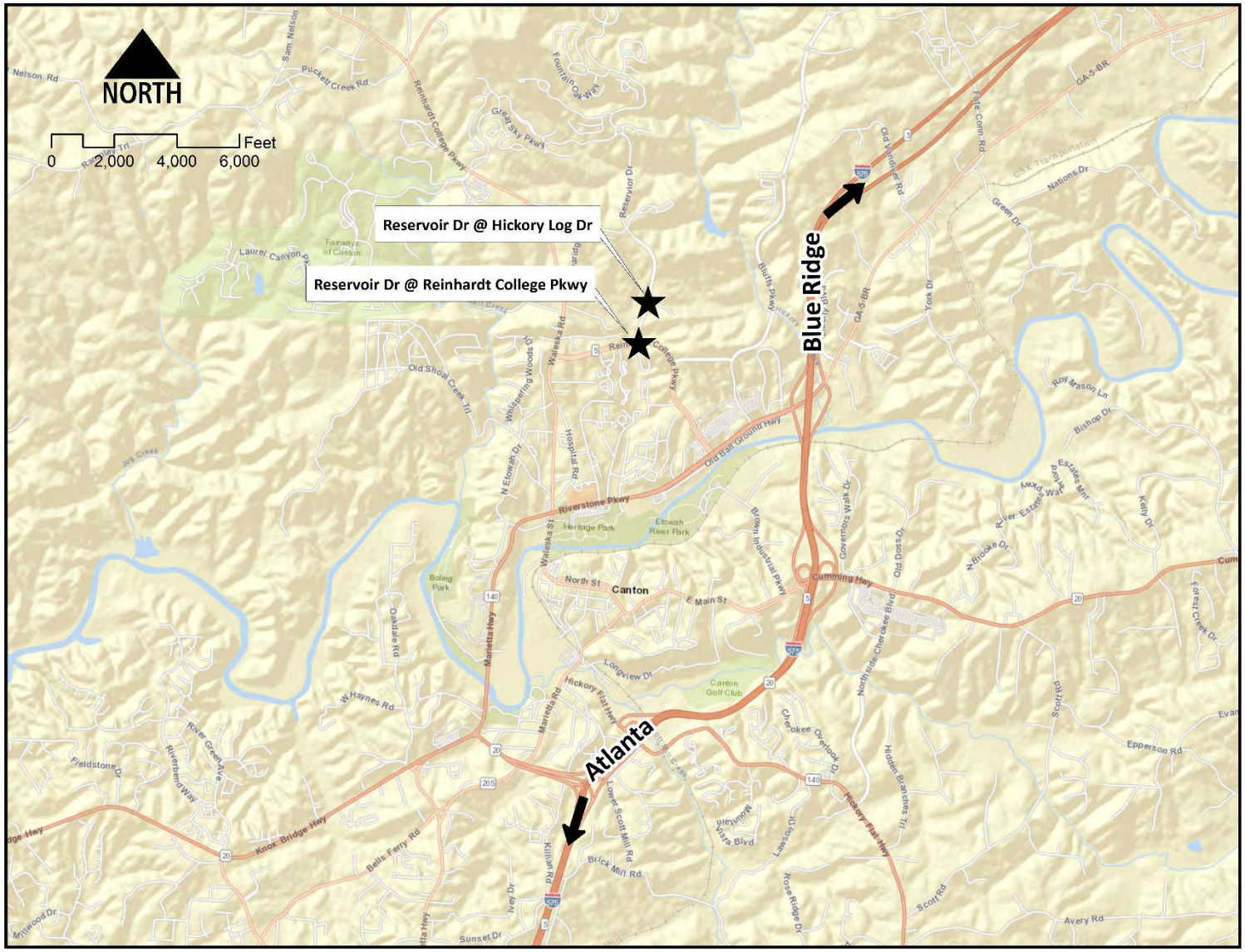
LOCATION DESCRIPTION

As previously indicated, the project area consists of two intersections on Reservoir Drive, situated in the north portion of Canton. These intersections are near I-575, which travels north towards Blue Ridge and south towards Atlanta, which may influence traffic on Reservoir Drive. The vicinity of these intersections to the interstate is illustrated on **Figure 2**. Reservoir Drive is a four-lane divided roadway with a posted speed limit of 45 mph that transitions into a two-lane, undivided roadway with a posted speed limit of 35 mph at its intersection with Mission Point/Amos Road.

Reinhardt College Parkway at its intersection with Reservoir Drive is classified as an urban, minor arterial that connects Waleska Road (SR 140) to Riverstone Parkway (SR 5 Business). Reinhardt College Parkway at Reservoir Drive consists of two through lanes along with right and left-turn lanes for both the east and westbound approaches. This roadway facility has a posted speed limit of 45 mph. Reservoir Drive is classified as a local roadway facility with a posted speed limit of 45 mph at its intersection with Reinhardt College Parkway. At this intersection, Reservoir Drive is a four-lane divided road and consists of a southbound right-turn lane and a shared through/left-turn lane and is directly aligned with Riverstone Commons Circle. Riverstone Commons Circle is also a local roadway facility providing access for a gated residential community. Riverstone Commons Circle has a posted speed limit of 10 mph and has no outlet.

The intersection along Reservoir Drive at Hickory Log Drive essentially serves as access to Teasley Middle School, east of Reservoir Drive, and to the Grand Reserve Apartments, west of Reservoir Drive. At this intersection, Reservoir Drive consists of two divided travel lanes in each direction for the northbound and southbound approaches, along with a southbound left-turn lane into Teasley Middle School. Hickory Log Drive is a four-lane divided, local roadway facility with a posted speed limit of 25 mph. The westbound approach along Hickory Log Drive consists of a right-turn lane and a shared through/left-turn lane directly aligned with the south driveway for the Grand Reserve Apartments. Lastly, the Grand Reserve Apartments driveway is a two-lane divided access that consists of southbound and eastbound channelized right-turns.

Figure 2. Project Vicinity



EXISTING CONDITIONS/FIELD VISIT

Atkins collected a variety of traffic engineering data specific to the project location, including historical traffic and crash data, current traffic counts, as well as geometric and other roadway characteristics. Atkins also conducted a field visit on February 10th, 2021, to collect site condition data and observe each intersection in operation. Detailed site visit checklists are provided in **Appendix N**.

Existing Traffic Control

The intersection of Reinhardt College Parkway at Reservoir Drive is a minor, stop-controlled intersection with Reservoir Drive and Riverstone Commons Circle as the minor-streets. At this four-leg intersection, the major-street approach, Reinhardt College Parkway, consists of two travel lanes in each direction with right and left-turn lanes for both the eastbound and westbound approaches. Reservoir Drive, the southbound minor-street approach, consists of a right-turn lane and a shared through/left-turn lane. The northbound minor-street approach, Riverstone Commons Circle, consists of single shared thru/turn lanes. See **Figure 3** for a detailed intersection layout.

The intersection of Reservoir Drive at Hickory Log Drive is also a minor, stop-controlled intersection with Hickory Log Drive and the driveway to the Grand Reserve Apartments as the minor-streets. At this four-leg intersection, the major-street approach, Reservoir Drive, consists of two travel lanes in each direction with a southbound left-turn lane into Teasley Middle School. Hickory Log Drive, the westbound minor-street approach, consists of a right-turn lane and a shared through/left-turn lane. The eastbound minor-street approach, Grand Reserve Apartments, consists of single shared left/thru lanes with a channelized right-turn. See **Figure 4** for a detailed intersection layout.

Adjacent Signalized Intersections

There is a signalized intersection on Reinhardt College Parkway at Waleska Road (SR 140) approximately 0.50 miles west of Reservoir Drive. Another signalized intersection on Reinhardt College Parkway is at Dr. Martin Luther King Jr. Boulevard, approximately 0.25 miles east of Reservoir Drive. There are no existing traffic signals along Reservoir Drive, north of Reinhardt College Parkway.

Vehicular Speeds

Reservoir Drive and Reinhardt College Parkway each have posted speed limits of 45 mph. As previously mentioned, Reservoir Drive transitions into a two-lane, undivided roadway facility with a posted speed limit of 35 mph, north of Amos Road/Mission Point.

Riverstone Commons Circle has a posted speed limit of 10 mph and Hickory Log Drive has a posted speed limit of 25 mph.

Figure 3. Reservoir Drive at Reinhardt College Parkway

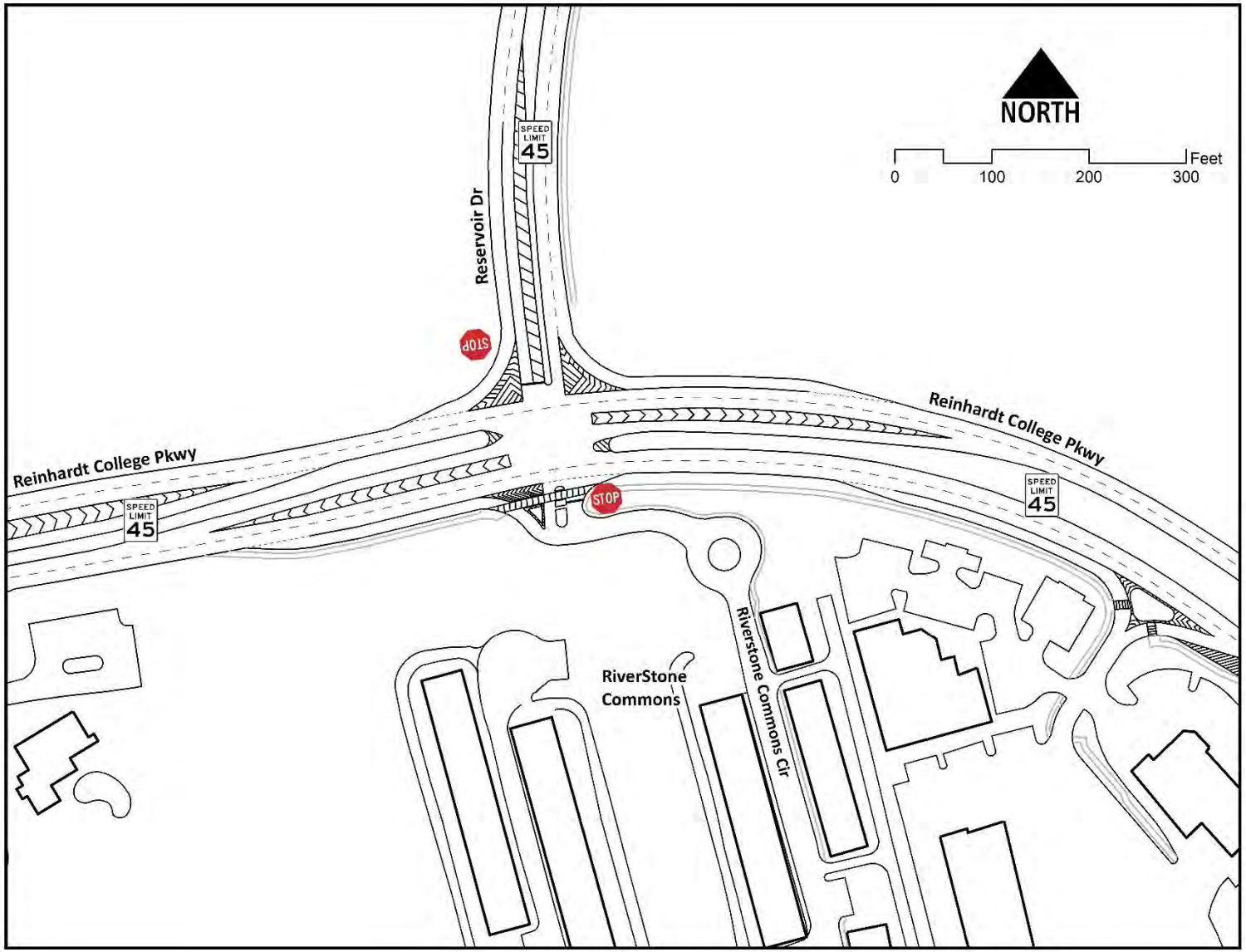
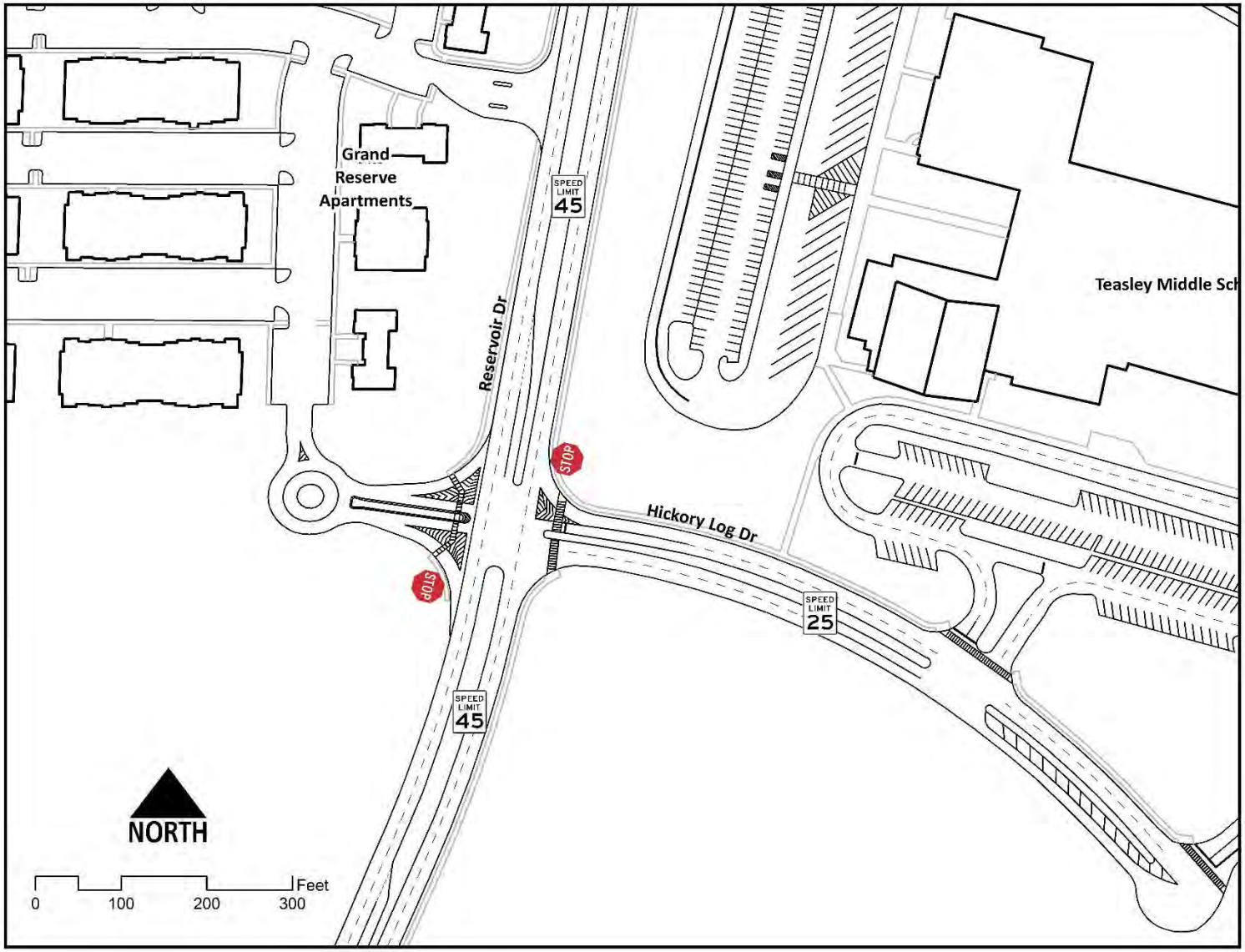


Figure 4. Reservoir Drive at Hickory Log Drive



Sight Distance

According to the American Association of State Highway and Transportation Officials (AASHTO), the required sight distance for a stop-controlled minor approach should be considered for three situations:

- Left-turns from the minor-road; and
- Right-turns from the minor-road; and
- Crossing the major-road from a minor-road approach.

Sight distances are calculated based on gaps in major-road traffic accepted by drivers turning onto the major-road with sufficient time for the minor-road vehicle to accelerate from a stop and complete a maneuver without unduly interfering with major-road traffic operations. A time gap of 7.5 seconds is used for left turns crossing one lane of traffic and an additional 0.5 seconds per lane is used to adjust the time gap on multi-lane highways. A time gap of 6.5 seconds is used for right-turns, as drivers generally accept gaps that are slightly shorter than those accepted in making left-turns. The time gap for right-turns is decreased by 1.0 seconds. In most cases, the sight distances for left and right-turns onto the major road will also provide adequate sight distance for minor-road vehicles to cross the major road.[1] Intersection sight distance is calculated using the formula below, where:

$ISD =$ intersection sight distance (length of the leg of sight triangle along the major road) (ft)

$V_{major=}$ design speed of major road (mph)

$t_{g=}$ time gap for minor-road vehicle to enter the major-road (s)

$$ISD = 1.47 V_{major} t_g$$

The required sight distance for the minor-road, left-turn movement at Reinhardt College Parkway and Reservoir Drive is 665 feet, while the distance required for right-turns is 430 feet. Along Reinhardt College Parkway, there is insufficient sight distance for the movements from the south leg (Riverstone Commons Circle). There is only 280 feet of sight distance on Reinhardt College Parkway looking left from Riverstone Commons Circle and only 240 feet looking right. Additionally, the southwest corner of this intersection is heavily wooded. Removing vegetation from the southwest corner would benefit left-turning vehicles from Riverstone Commons Circle; however, it would not provide the required sight distance. There is sufficient sight distance for the north leg (Reservoir Drive) with 1,010 feet looking left from Reservoir Drive and 1,610 feet looking right.

The required sight distance for the minor-road, left-turn movement at Reservoir Drive and Hickory Log Drive is 600 feet, while the distance required for right-turns is 430 feet. Along Reservoir Drive, there is sufficient sight distance for the movements from the east leg (Hickory Log Drive) and the west leg (Grand Reserve Apartments). Looking left from Hickory Log Drive, east of Reservoir Drive, there is 685 feet of sight distance and 1,365 feet looking right. There is vegetation that begins to obstruct views looking left from Hickory Log Drive. Looking left from the Grand Reserve Apartments, west of Reservoir Drive, there is 949 feet of sight distance and 765 feet looking right.

[1] *A Policy on Geometric Design of Highways and Streets.* American Association of State Highway and Transportation Officials, 2018. Section 9.5.3.2, Pages 9-42 thru 9-50.

Horizontal/Vertical Concerns

There were no noted changes of horizontal or vertical curvature that were of concern.

Intersection Queueing

There are significant left-turn volumes at the minor-street approaches on each of the identified intersections, Reinhardt College Parkway at Reservoir Drive and Reservoir Drive at Hickory Log Drive. It appears that the peak-hours at each intersection correlate with the hours of operation for Teasley Middle School, which are from 7:30 am to 8:30 am in the morning and from 3:30 pm to 4:30 pm in the afternoon. Current year (2021) operational analyses indicate significant delay and queue formation on the southbound approach at Reservoir Drive and Reinhardt College Parkway in the AM and PM peak-hours. The 95th percentile southbound queue vehicles for the current year AM and PM peaks along Reservoir Drive and Reinhardt College Parkway are 23.4 vehicles and 20.5 vehicles, respectively. Significant delay and queue formation also occur on the westbound approach at Reservoir Drive and Hickory Log Drive in the AM and PM peak-hours. The 95th percentile westbound queue vehicles for the current year AM and PM peaks along Reservoir Drive and Hickory Log Drive are 13.4 vehicles and 7.9 vehicles, respectively.

Pedestrian Movements

Pedestrian movements were observed at each of the identified intersections on January 26th, 2021, while collecting 12-hour intersection turning movement counts (TMCs) between the hours of 6:00 AM and 6:00 PM. Two pedestrian crossings were observed at the intersection of Reservoir Drive and Reinhardt College Parkway and 25 pedestrian crossings were observed at the intersection of Reservoir Drive and Hickory Log Drive. These pedestrian crossings are further summarized in **Table 1**.

Table 1. Pedestrian Crossings

	Pedestrian Crossings	
Hour	**Reservoir Dr and Reinhardt College Pkwy**	**Reservoir Dr and Hickory Log Dr**
6:00 AM to 7:00 AM	0	0
7:00 AM to 8:00 AM	0	0
8:00 AM to 9:00 AM	1	1
9:00 AM to 10:00 AM	0	1
10:00 AM to 11:00 AM	1	2
11:00 AM to 12:00 PM	0	0
12:00 PM to 1:00 PM	0	6
1:00 PM to 2:00 PM	0	1
2:00 PM to 3:00 PM	0	2
3:00 PM to 4:00 PM	0	7
4:00 PM to 5:00 PM	0	1
5:00 PM to 6:00 PM	0	4

Other Modes of Transportation Present

While there is not a transit route specific to Reservoir Drive, the Cherokee Area Transportation System (CATS) provides for fixed bus route trips. CATS Route 100 travels along Reinhardt College Parkway and provides for multiple bus stops from 8:00 am to 4:00 pm. The CATS bus routes do not operate on the weekends or on select holidays. There is a bus stop for Route 100 on Reinhardt College Parkway at River Ridge Apartments and Heritage

Apartments approximately 0.20 miles west of Reservoir Drive. An additional stop is located at approximately 0.50 miles east of Reservoir Drive at Riverstone Medical. There are no bus routes noted along Reservoir Drive.

Planned Transportation Improvements

The Atlanta Regional Commission's *Regional Transportation Plan* (RTP) and *Transportation Improvement Program* (TIP) were reviewed to identify any transportation improvement projects that would impact either of the identified intersections. The RTP is the transportation element of the Atlanta Region's Plan. Transportation projects seeking federal funding must be included in the RTP. The TIP is the short-term portion of the RTP, covering a six-year period that allocates federal funds for the region's highest priority transportation projects. No transportation improvements projects are planned to occur in the study area.

Parking

There is no on-street parking available at or near either of the identified intersections. Reservoir Drive at Reinhardt College Parkway primarily consists of medium-density residential developments in the southeast and southwest quadrants and retail establishments in the southeast quadrant, which has parking available. The northern quadrants are currently undeveloped.

Reservoir Drive at Hickory Log Drive also consists of medium-density residential development in the northwest quadrant and Teasley Middle School is in the northeast quadrant, each of which have available parking. The southern quadrants at this intersection are currently undeveloped.

Lighting

At the intersection of Reinhardt College Parkway and Reservoir Drive there are luminaire light poles on the southeast and southwest corners of the intersection. There are no luminaire light poles at the intersection of Reservoir Drive and Hickory Log Drive; however, there are luminaire light poles along Hickory Log Drive. **Appendix M** shows the potential Utility Risks near the intersection.

Potential Environmental Impacts

There were no observed potential environmental impacts at either of the identified intersections along Reservoir Drive at Reinhardt College Parkway or Hickory Log Drive. An intermittent stream flowing in a north/south direction is located west of Reservoir Drive at Reinhardt College Parkway. There is also a school, Teasley Middle School, located in the northeast quadrant of the intersection at Reservoir Drive and Hickory Log Drive. The environmental screening is summarized in **Appendix L**.

Existing Safety Measures

The City of Canton has implemented safety measures to improve safety performance along Reservoir Drive, that includes:

- School Speed Limit Assembly (Symbol) sign (S5-1) on Reservoir Drive to alert motorists of approaching school zone as shown in **Figure 5** and **Figure 6**.
- School Zone (Symbol) sign (S1-1) with optional School (Symbol) sign (S4-3P) and Begin Higher Fines Zone (Symbol) sign (R2-10) on Reservoir Drive to alert motorists of approaching school zone as shown in **Figure 7**.[2]

Figure 5. School Zone (Symbol) sign (S5-1) on Reservoir Drive Northbound

[2] https://mutcd.fhwa.dot.gov/htm/2009/part7/part7b.htm#figure7B01

Figure 6. School Zone (Symbol) sign (S5-1) on Reservoir Drive Southbound

Figure 7. School Zone (Symbol) sign (S1-1, S4-3P, R2-10) on Reservoir Drive Southbound

CRASH HISTORY

Summary

Atkins collected historical traffic crash data from the most recent five-year period (2016-2020) from the Georgia Electronic Accident Reporting System (GEARS) to perform a comprehensive safety analysis of the identified intersections. **Table 2** provides a summary of the historical traffic crash data, including fatal (K), severe injury (A), visible injury (B), complaint of injury (C), and property damage only (PDO) crashes, specific to each of the identified intersections on Reservoir Drive. Entering traffic volumes were calculated based upon actual traffic counts collected by Atkins and crash rates are provided in crashes per one million entering vehicles.

Table 2. Summary of Traffic Crash Data

Reinhardt College Pkwy at Reservoir Dr

Location	Entering Traffic Volumes			Traffic Crashes					
	Major	Minor	Total	K	A	B	C	O	Total
Reinhardt College Pkwy at Reservoir Dr/ Riverstone Commons Cir	12,800	3,500	16,300	0	1	4	2	10	17
Location	Entering Traffic Volumes			Traffic Crash Rates*					
	Major	Minor	Total	K	A	B	C	O	Total
Reinhardt College Pkwy at Reservoir Dr/ Riverstone Commons Cir	12,800	3,500	16,300	0.00	0.03	0.13	0.07	0.34	0.57

Reservoir Dr at Hickory Log Dr

Location	Entering Traffic Volumes			Traffic Crashes					
	Major	Minor	Total	K	A	B	C	O	Total
Reinhardt College Pkwy at Reservoir Dr/ Riverstone Commons Cir	5,650	1,300	6,950	0	0	0	0	1	1
Location	Entering Traffic Volumes			Traffic Crash Rates*					
	Major	Minor	Total	K	A	B	C	O	Total
Reinhardt College Pkwy at Reservoir Dr/ Riverstone Commons Cir	5,650	1,300	6,950	0.00	0.00	0.00	0.00	0.08	0.08

*Traffic crash rates in crashes per 1M entering vehicles

In total, 18 crashes occurred at the identified intersections during the five-year period that included seven injury crashes and zero fatalities. Seventeen of these crashes occurred along Reservoir Drive at Reinhardt College Parkway, with only one crash occurring at its intersection with Hickory Log Drive. The crash along Reservoir Drive at Hickory Log Drive occurred in the southbound lanes and was a sideswipe crash resulting in property damage only. **Figure 8** illustrates the crashes that occurred at Reinhardt College Parkway and Reservoir Drive, while **Figure 9** illustrates the crash that occurred at Reservoir Drive and Hickory Log Drive.

Figure 8. Location of Traffic Crashes, Reinhardt College Pkwy at Reservoir Dr

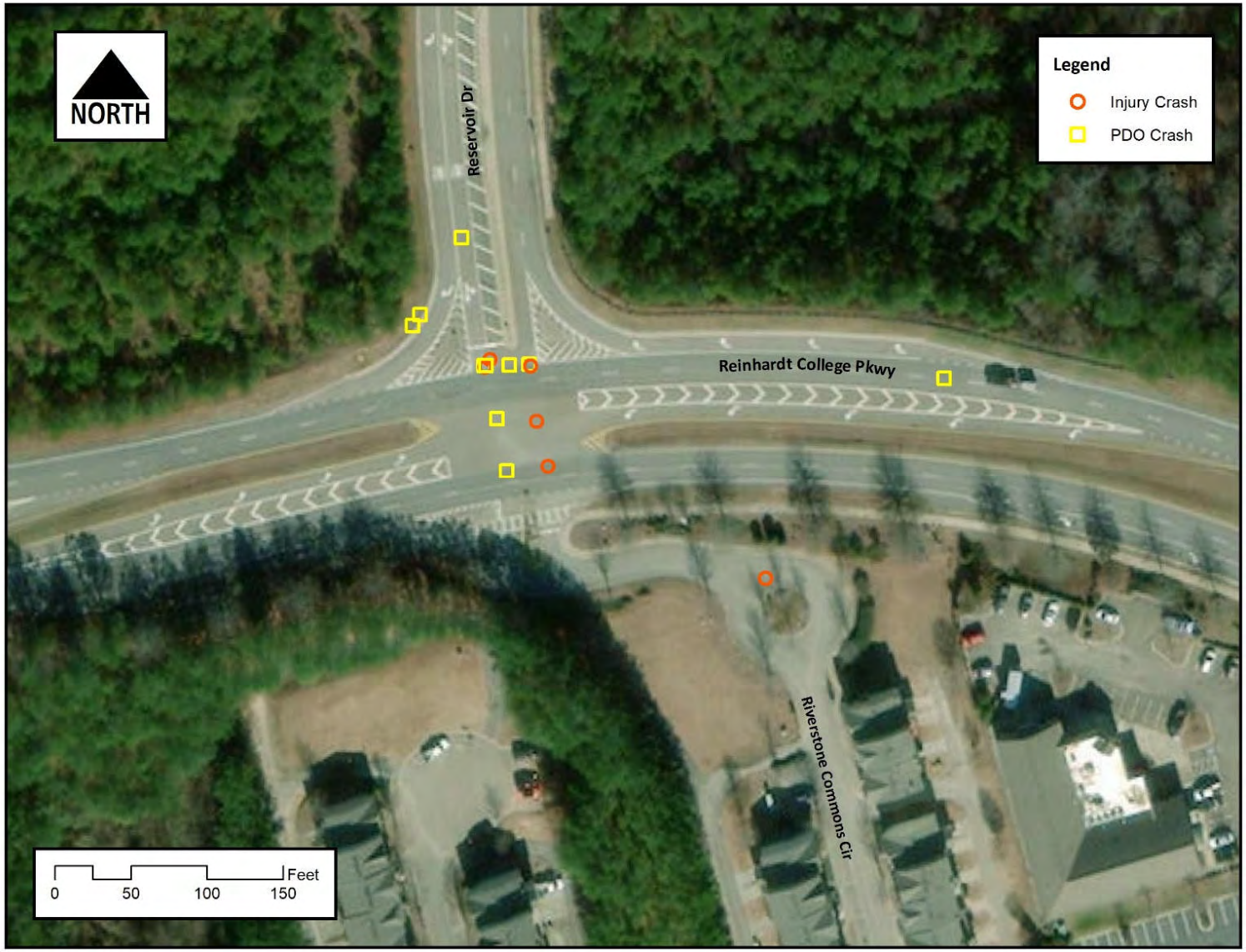


Figure 9. Location of Traffic Crashes, Reservoir Dr at Hickory Log Dr

The primary crash type at Reinhardt College Parkway and Reservoir Drive was angle crashes making up 52.9% (9 of the 17) of the intersection's total crashes. It should be noted that left-turning vehicles from each approach collided with through movements from the opposing approaches. The second most common crash type was rear end collisions making up 23.5% (4 of the 17) of the intersection's total crashes. Sideswipe crashes amounted to 17.6% (3 of the 17) of all crashes at this intersection and the remaining 5.9% of crashes were single vehicle crashes. **Figure 10** summarizes the percentages of crashes by type at Reinhardt College Parkway and Reservoir Drive, while **Table 3** summarizes the crash types and severities at the intersection. These same crashes have been further illustrated by direction of travel in a Collision Diagram on **Figure 11**. As previously mentioned, there was only one crash that occurred on Reservoir Drive at Hickory Log Drive, which was a sideswipe crash. A Collision Diagram for Reservoir Drive at Hickory Log Drive is provided on **Figure 12**. **Appendix A** provides details of the collision diagrams.

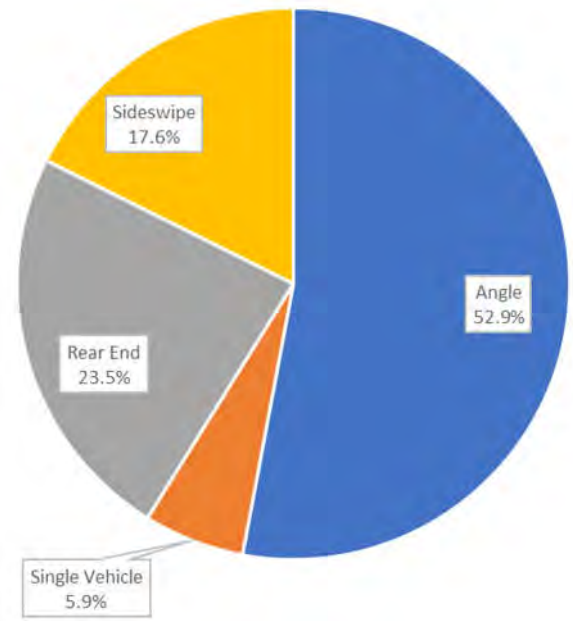


Figure 10. Distribution of Crash Types (Reinhardt College Pkwy at Reservoir Dr)

Table 3. Reinhardt College Pkwy at Reservoir Dr Crashes by Type

	Crash Type	K	A	B	C	O	Total	Percentage
Reinhardt College Pkwy at Reservoir Dr	Angle	0	1	3	1	4	9	52.9%
	Head On	0	0	0	0	0	0	0.0%
	Single Vehicle	0	0	0	0	1	1	5.9%
	Rear End	0	0	0	1	3	4	23.5%
	Sideswipe	0	0	1	0	2	3	17.6%
	Total	0	1	4	2	10	17	100%

Figure 11. Reinhardt College Pkwy at Reservoir Dr Collision Diagram

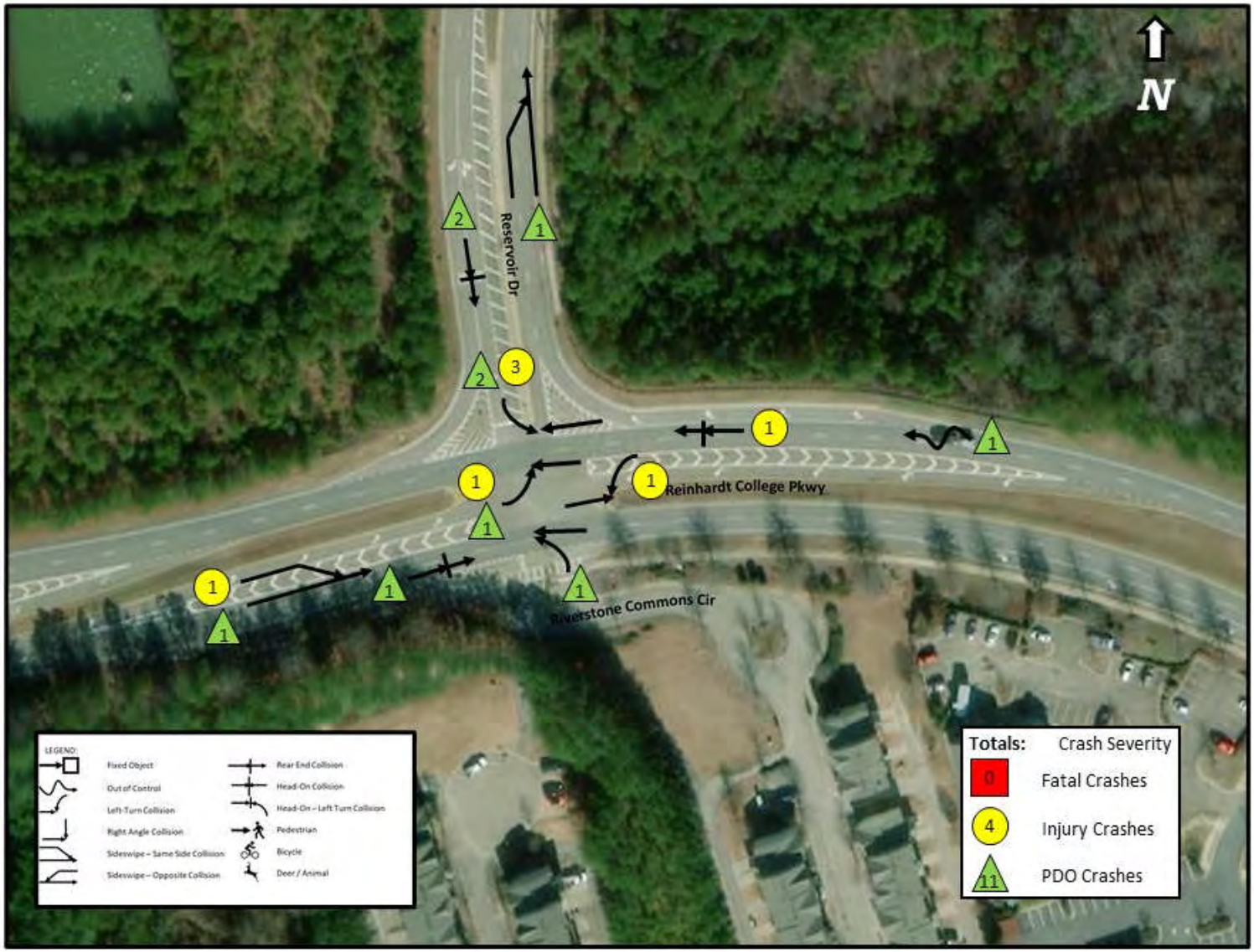


Figure 12. Reservoir Dr at Hickory Log Dr Collision Diagram

SAFETY ISSUES

To develop appropriate engineering countermeasures and recommendations for safety improvements, Atkins identified specific safety issues present at each location based upon the analysis of historical crash data and a field visit. Background related to the typical safety risk matrix is provided in **Appendix B**.

Safety Issue 1: Lack of Adequate Gaps for Movements from the Minor Approaches

There are 32 conflict points (8 merging, 8 diverging and 16 crossing) associated with each of the conventional, four-legged intersections. These conflicts points do not represent the cause of any crash; however, they do represent the opportunity for one to occur. As the number of conflict points increase, the amount of gap required to overcome them also increases. Especially during the peak-hours at each of the identified intersections, the higher traffic volumes on the major-street approaches result in minimal gaps for vehicles trying to enter from the minor-street approaches. Combined with the higher speeds on the major-street approaches, inadequate gaps and conflict points create hazardous conditions for maneuvers from the minor-streets.

Expected Crash Types: Angle
Expected Frequency: Occasional
Expected Severity: Moderate
Risk: C

Safety Issue 2: Relatively High Travel Speeds on all approaches

The posted speed limits on Reinhardt College Parkway and Reservoir Drive are 45 MPH and significantly less on the minor-street approaches (Hickory Log Drive, Riverstone Commons Circle, and the driveway to the Grand Reserve Apartments). Actual speeds may be higher, which would make it difficult for motorists to find safe gaps while making through or left turn maneuvers from the minor approaches. The nine (9) angle crashes at Reinhardt College Parkway and Reservoir Drive emphasize this issue. There were also four (4) rear end crashes at this intersection in five years. The stop-controlled minor-street approach vehicles must stop to make any maneuver, and the left turning vehicles from each of the major streets must yield for the opposing through traffic. When motorists misjudge the travel speed of the motorist in front of them, it tends to cause rear end crash.

Expected Crash Types: Angle, Rear-end, Sideswipe – Same Direction
Expected Frequency: Occasional
Expected Severity: Moderate
Risk: C

Safety Issue 3: Inadequate Sight Distance on the South Leg at Reinhardt College Pkwy and Reservoir Dr

There is only 280 feet of sight distance on Reinhardt College Parkway looking left from the south leg (Riverstone Commons Circle) which does not meet the required 665 feet of sight distance. **Figure 13** illustrates the heavily wooded southwest quadrant of the intersection that further hinders the sight distance issue. Additionally, there is only 240 feet of sight distance on Reinhardt College Parkway looking right from the south leg, which does not meet the required 430 feet of sight distance. The limited sight distance looking right from Riverstone Commons Circle can be attributed to the curvature of the east leg (Reinhardt College Parkway). The sight distance issue can be a contributing factor for any crashes involving northbound traffic.

Expected Crash Types: Angle, Rear-end, Sideswipe – Same Direction
Expected Frequency: Occasional
Expected Severity: Moderate
Risk: C

Figure 13. Heavily Wooded Southwest Quadrant

TRAFFIC IMPACT ANALYSIS

Existing Traffic Volumes

12-hour (6:00 AM to 6:00 PM) intersection turning movement counts (TMC) were taken along Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive on Tuesday, January 26th, 2021. 48-hour, bi-directional vehicle classification counts were also collected at each leg of the identified intersections on January 26th and January 27th, 2021. In compliance with the GDOT Design Traffic Forecasting Manual, these days are representative of normal conditions in the area. Counts were taken at fifteen-minute intervals for each movement on all approaches. Current year (2021) annual average daily traffic volumes and truck percentages are summarized in **Table 4**. The high percentage of trucks on Hickory Log Drive, east of Reservoir Drive, indicates school bus traffic.

Table 4. AADT Volumes and Truck Percentages

Reinhardt College Pkwy at Reservoir Dr							
Reservoir Dr (north of Reinhardt College Pkwy)		**Reinhardt College Pkwy (east of Reservoir Dr)**		**Riverstone Commons Cir (south of Reinhardt College Pkwy)**		**Reinhardt College Pkwy (west of Reservoir Dr)**	
AADT	Percent Trucks	AADT	Percent Trucks	AADT	Percent Trucks	AADT	Percent Trucks
6,400	4.5%	14,250	2.5%	600	1.5%	11,350	3.0%
Reservoir Dr at Hickory Log Dr							
Reservoir Dr (north of Hickory Log Dr)		**Hickory Log Dr (east of Reservoir Dr)**		**Reservoir Dr (south of Hickory Log Dr)**		**Grand Reserve Apt (west of Reservoir Dr)**	
AADT	Percent Trucks	AADT	Percent Trucks	AADT	Percent Trucks	AADT	Percent Trucks
4,850	2.5%	1,850	14.5%	6,450	4.5%	750	0.0%

The TMCs were used to prepare the current year (2021) Design Hourly Volumes (DHV), which were used to perform the detailed operational analyses for existing conditions. **Table 5** summarizes the traffic entering each of the intersections in the morning (AM) and evening (PM) peak-hours. Detailed traffic count worksheets are provided in **Appendix C**.

Table 5. Total Entering Volumes - January 2021

Reinhardt College Pkwy at Reservoir Dr							
Time Period	Major Route (Reinhardt College Pkwy)			Minor Route (Reservoir Dr)			Entering Intersection Total
	EB	WB	Total	NB	SB	Total	
AM Peak Hour (7:30 to 8:30)	585	420	1,005	30	505	535	1,540
PM Peak Hour (3:30 to 4:30)	390	695	1,085	10	415	425	1,510
Reservoir Dr at Hickory Log Dr							
Time Period	Major Route (Reservoir Dr)			Minor Route (Hickory Log Dr)			Entering Intersection Total
	NB	SB	Total	EB	WB	Total	
AM Peak Hour (7:30 to 8:30)	455	340	795	35	455	490	1,285
PM Peak Hour (3:30 to 4:30)	285	195	480	25	310	335	815

Existing Traffic Conditions

A Synchro analysis was performed for the Existing Conditions using HCM 6th Edition methods for calculating level of service (LOS). Synchro provided the LOS determination for each of the identified two-way stop-controlled intersections. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements.[3] The results of the Existing Conditions analyses are summarized in **Table 6** and more detailed results are provided in **Appendix F**.

The analysis for each of the identified intersections assumes that a LOS D or better will be considered adequate (or acceptable) for the roadways being evaluated, which is common when completing traffic analysis for a project within an urban area. Levels of service worse than a LOS D would indicate that an intersection or approach is nearing capacity and cannot accommodate substantial increases in traffic without increases in congestion and delay. **Table 6** reveals that the southbound approach on Reservoir Drive operates at LOS F for both the morning and evening peak-hours at Reinhardt College Parkway and the westbound approach on Hickory Log Drive operates at LOS F during the morning peak-hour and at LOS E during the evening peak-hour. The excessive delays traveling southbound on Reservoir Drive at Reinhardt College Parkway and traveling westbound on Hickory Log Drive at Reservoir Drive indicate that transportation improvements are necessary for the future year, 2025.

Table 6. Existing (2021) Intersection Level of Service Summary

Analysis Year	Peak Period	Reinhardt College Pkwy at Reservoir Dr and Riverstone Commons Cir										Max V/C Ratio
		EB		WB		NB		SB		Intersection		
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	
2021	AM	2.6	(A)	0.3	(A)	9.9	(A)	225.3	(F)	90.4	(F)	>1.00
	PM	1.5	(A)	0.3	(A)	9.5	(A)	223.6	(F)	72.6	(F)	>1.00
Analysis Year	Peak Period	Reservoir Dr at Hickory Log Dr										Max V/C Ratio
		EB		WB		NB		SB		Intersection		
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	
2021	AM	9.3	(A)	109.5	(F)	0.2	(A)	2.5	(A)	33.2	(D)	>1.00
	PM	9.2	(A)	39.4	(E)	0.8	(A)	0.4	(A)	15.6	(C)	>1.00

Future Traffic Volumes

To accurately assess the traffic impacts of any planned developments, Base Conditions that represent traffic without the construction of any future development were prepared. These Base Conditions include the traffic that is projected for the future years, 2025 and 2045, without the construction of any additional developments. There were no scheduled roadway improvements identified at either of the intersections; therefore, none were

[3] *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

included in either of the Base Conditions. Then the number of trips that would be generated by any planned developments was determined and added to the Base Conditions.

Base Condition Traffic

To forecast future year volumes, a growth rate was calculated using available data in the surrounding area that represents the general growth in background traffic. **Table 7** provides the range of data sources used for growth rate development, along with their availability.

Table 7. Summary of Available Data

Data Source	Availability	Data Year	Obtained From
GDOT Traffic Analysis and Data Application (TADA)	✓	2008 - 2020	Internet Website[4]
Cherokee County Population Projections	✓	2021, 2025, 2045	Governor's Office of Planning and Budget (OPB)[5] and 2020 US Census[6]
ARC Travel Demand Model	✓	2015 and 2050	Atlanta Regional Commission (ARC)

The growth rate for the identified intersections was calculated using historical annual volume statistics from GDOT, Cherokee County population data and Atlanta Regional Commission travel demand model (TDM) data. An annual compound growth rate can be calculated using the following equation:

$$Annual\ Growth\ Rate = (\frac{End\ Count}{Begin\ Count})exp^{\frac{1}{End\ Year - Begin\ Year}} - 1$$

The historical annual volume traffic count stations from GDOT that were used are:

1. Count Station: 057-0102 – Waleska Rd, between Vandiver Rd and Ferguson Dr
2. Count Station: 057-0115 – Reinhardt College Pkwy, east of Reservoir Dr
3. Count Station: 057-0104 – Waleska Rd, between N Etowah Dr and Old Donaldson Rd
4. Count Station: 057-0028 – Riverstone Pkwy, east of Canton Mill Dr
5. Count Station: 057-8001 – Shoal Creek Rd, west of Waleska Rd

Since Cherokee County is part of the Atlanta Region Metropolitan Planning Organization (MPO), ARC's TDM were used. The growth rate calculation for the GDOT historical traffic count data, the County's population projections and ARC's TDM data utilize the annual growth rate equation. Note, the GDOT historical traffic count data provides historic growth rates, whereas the County's population data and ARC's TDM data provide projected growth rates.

The calculated growth rates for the GDOT historical traffic count data, Cherokee County population estimates, and ARC's TDM data were 1.4%, 1.5% and 1.1%, respectively. Averaging these growth rates results in an annual average rate of 1.4%. This rate was further refined, as high growth rates may lead to unrealistic transportation improvements or improvements that are not required, placing undue burdens on local jurisdictions. Therefore, for the purpose of this analysis, an average annual growth rate was determined relying more heavily on the growth rate from ARC's TDM data. The final annual compounded growth rate for the identified intersections was calculated by taking a weighted average of the three growth rates previously mentioned, which yielded a

[4] https://gdottrafficdata.drakewell.com/publicmultinodemap.asp
[5] https://opb.georgia.gov/population-projections
[6] https://www.census.gov/quickfacts/cherokeecountygeorgia

value of 1.2%. Detailed GDOT historical traffic count data, County population data and ARC's TDM data used in the growth rate analysis are provided in **Appendix D**. Base Condition traffic volumes for the years 2025 and 2045 are illustrated on **Figure 14** and **Figure 15**, respectively.

Planned Developments

After preparing traffic for each Base Condition, the next step was to determine the number of trips entering and exiting the highway network that would be generated by any planned developments. Traffic operations were then analyzed with the project-generated trips added to each of the Base Conditions.

Three planned developments have been identified in the City of Canton that may impact traffic operations on Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive. The locations of these planned developments are illustrated on **Figure 16**. The planned developments would be constructing both residential and non-residential land uses in this portion of the City that are expected to be completed by the year 2025. There are 299 town homes planned north of Teasley Middle School that will access both Reservoir Drive and Bluffs Parkway. A high school is planned for construction adjacent to the existing middle school on Reservoir Drive and is expected to access Hickory Log Drive and Dr. Martin Luther King Jr. Boulevard. Lastly, commercial land uses are planned for construction in the northwest quadrant of Reinhardt College Parkway's intersection with Reservoir Drive, accessing both Reinhardt College Parkway and Reservoir Drive. These developments are summarized in **Table 8**.

Table 8. Development Summary

Land Use	Quantity
Townhomes/Condos	299 units
High School	2,768 students
Convenience Market	6,075 sqft
Retail	10,260 sqft
Retail	16,750 sqft

Project-Generated Traffic

The number of trips that can be expected to occur at each of the identified intersections due to planned development was determined using the **ITE Trip Generation Manual, 10th edition**[7]. To account for the planned land uses, **ITE Trip Generation** codes 220, 530, 820 and 853 were utilized. The gross project-generated trips were further refined to account for pass-by trips associated with the retail portion of the planned developments. Pass-by trips are trips diverted from traffic already on the roadways and varies by the type and size of the land use. For this analysis, 50% of the traffic generated by the planned townhomes/condos and the high school was not assumed to impact the identified intersections, since each of these planned developments will access other roadway facilities. Traffic analysis of the Future Condition incorporates the project-generated traffic, which is distributed and assigned to the identified intersections, using the existing traffic patterns. The project-generated traffic volumes for each planned development were added to each of the Base Conditions using the distribution percentages illustrated on **Figure 17**.

[7] ITETripGen Web-based App

Figure 14. Future (2025) Base Condition Traffic

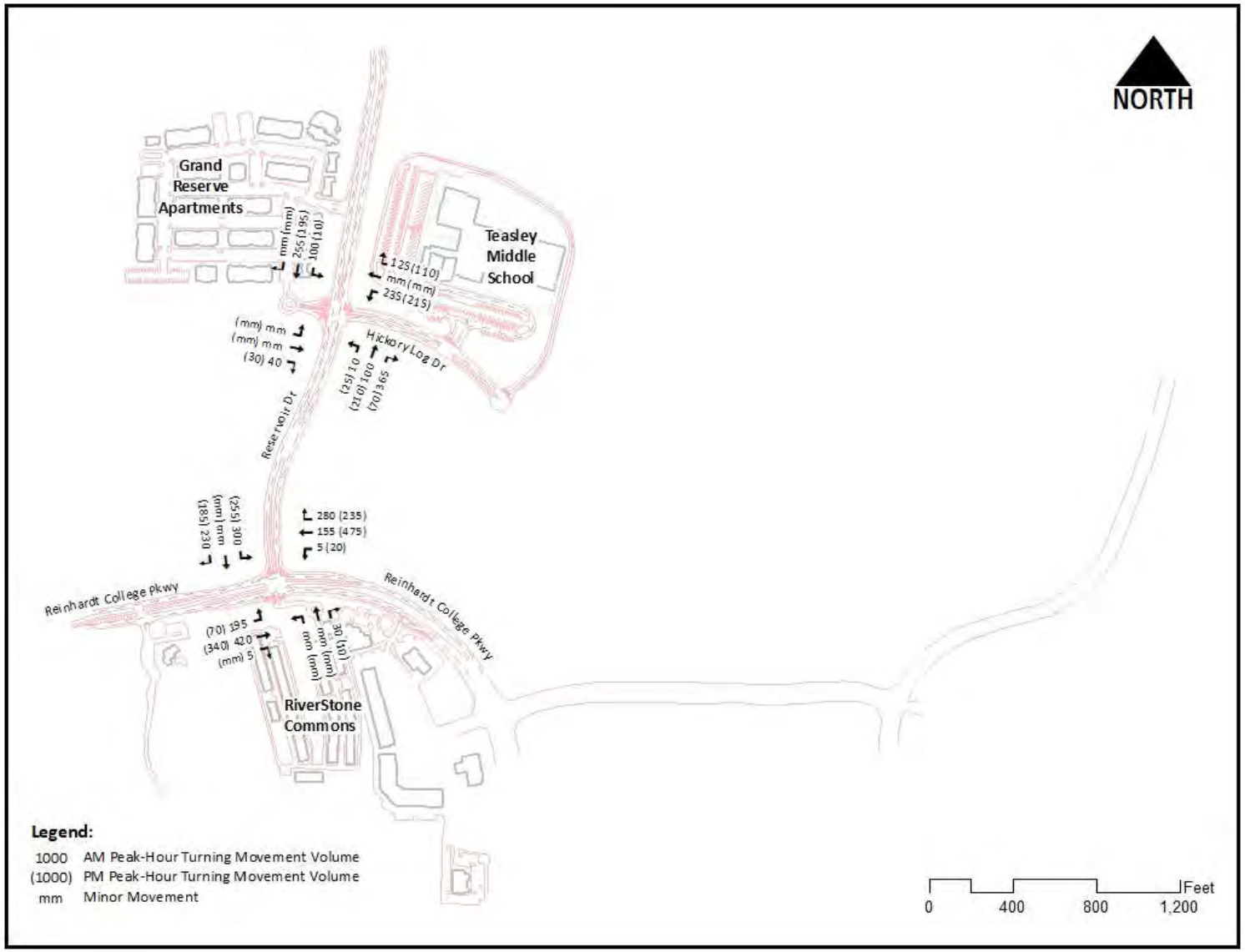


Figure 15. Future (2045) Base Condition Traffic

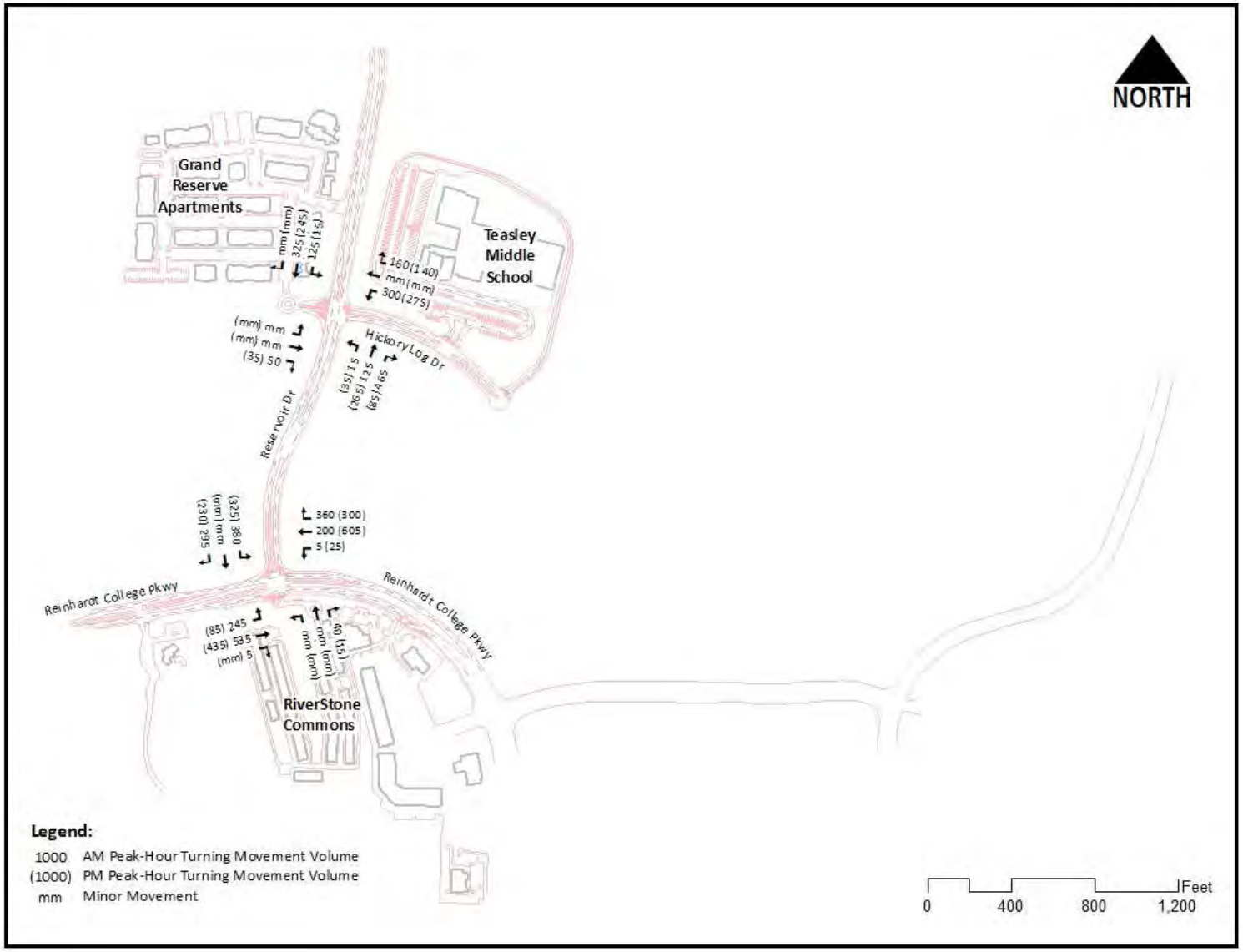


Figure 16. Planned Developments

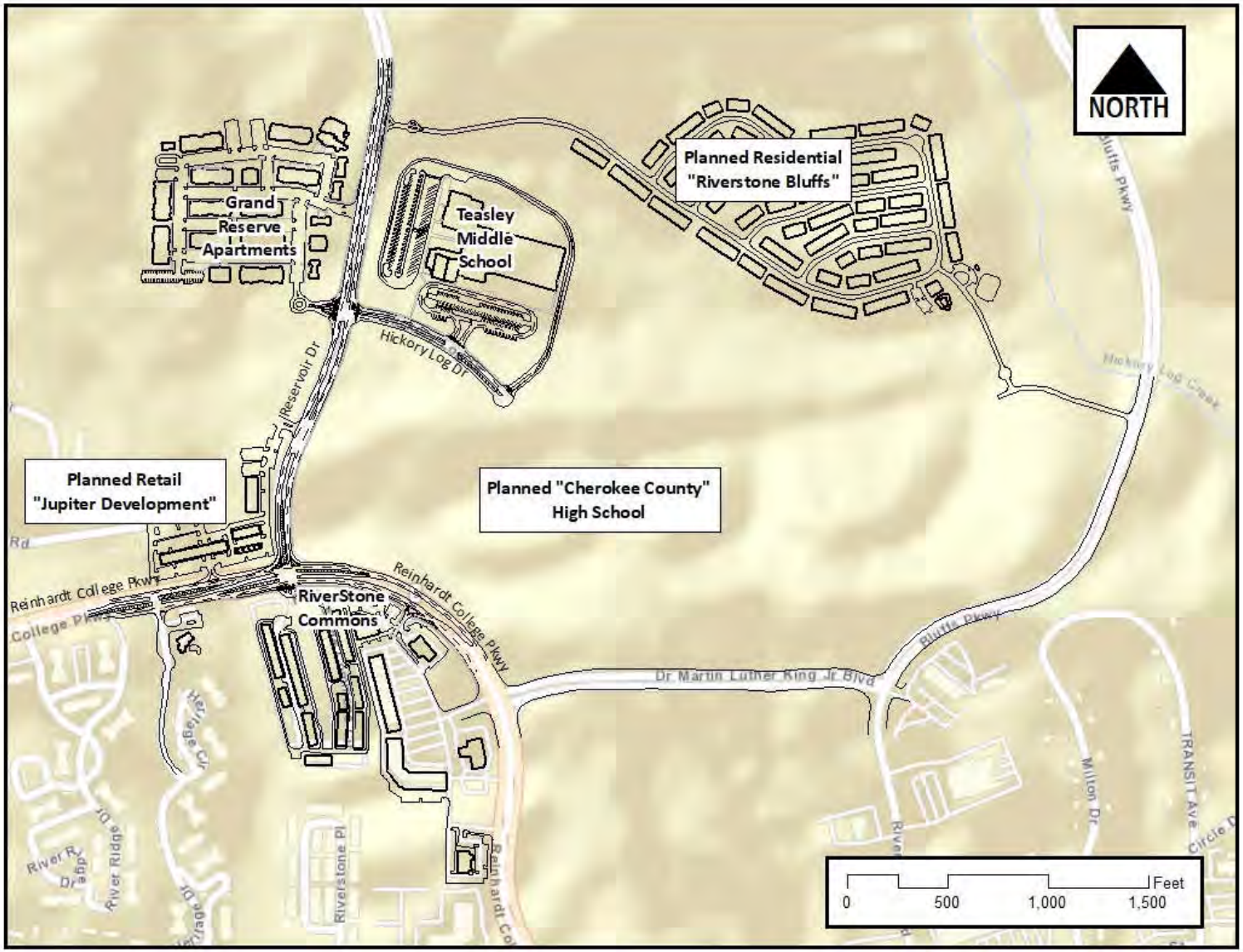
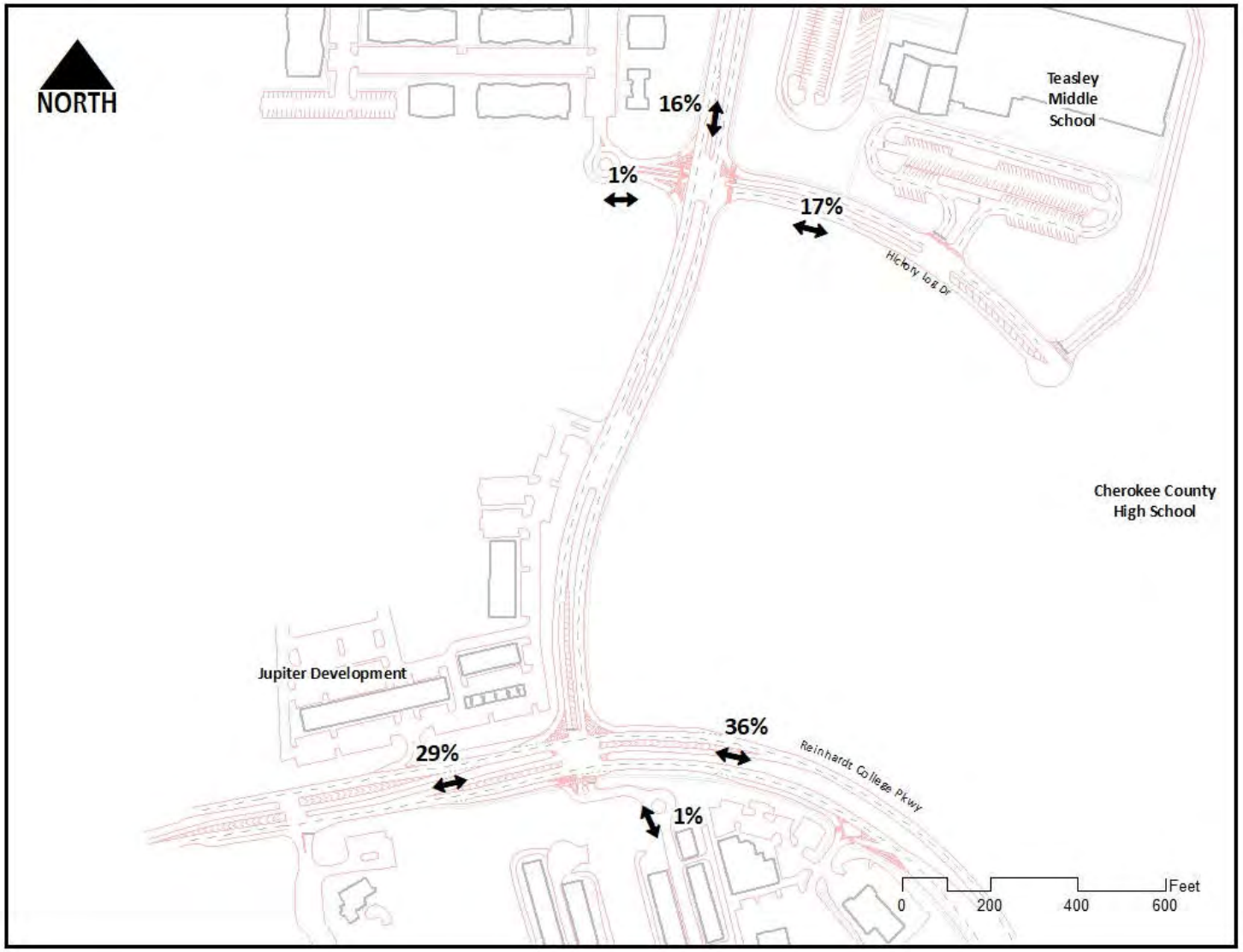


Figure 17. Project Traffic Distribution



The total (net) trips generated and analyzed are listed in **Table 9** and more detailed results are provided in **Appendix E**. The project-generated traffic for this analysis indicates that there will be 8,670 additional vehicle trips per day generated by the planned developments.

Table 9. Trip Generation Analysis

Reduction Type	Daily Trips	AM Enter	AM Exit	PM Enter	PM Exit
Gross Trip Generation	10,385	818	534	411	408
(-) Mixed-Use Reductions	0	0	0	0	0
(-) Alternative Modes	0	0	0	0	0
(-) Pass-by Trips	-1,714	-71	-71	-68	-68
Net Trips:	**8,670**	**747**	**463**	**343**	**340**

The project-generated traffic volumes for each planned development are illustrated on **Figure 18** through **Figure 20**. The Future Condition traffic volumes for the years 2025 and 2045, respectively, are illustrated on **Figure 21** and **Figure 22**.

Future Traffic Conditions

The future peak-hour traffic volumes were analyzed for both the AM and PM peak-hours using the Future Condition traffic volumes. As previously discussed, the traffic operations software Synchro was used to evaluate the operating conditions of Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive. Detailed analysis reports for the Future Conditions are provided in **Appendix F**. Currently, the minor-street approaches at each of the identified intersections operate at a LOS worse than D during each of the peak-hours and these conditions are expected to deteriorate with the Future Condition traffic volumes for the future years 2025 and 2045 resulting additional delay.

No-Build Delay

The existing intersections are minor stop-controlled intersections. The intersection delay represents the worst performing stop-controlled or yield movement delay from the Highway Capacity Manual (HCM) 6th Edition two-way stop-controlled (TWSC) reports generated by SYNCHRO. The analysis for each of the identified intersections assumes that a level-of-service (LOS) D or better will be considered adequate (or acceptable). LOS worse than D would indicate that an intersection or approach is nearing unacceptable levels of operation and would be unable to accommodate increases in traffic without significant increases in congestion and delay. **Table 10** summarizes these results from the Synchro model. The Synchro analyses reports for the future years are provided in **Appendix F**.

The stop-controlled approaches along the minor streets at each of the intersections are expected to experience significant delay and operate at LOS F during both the morning and evening peak-hours for the future years 2025 and 2045. These delays are a result of heavy left-turn movements from each of the minor streets and the inability to find gaps in traffic on the major streets.

Figure 18. Project-Generated Traffic for Jupiter Development

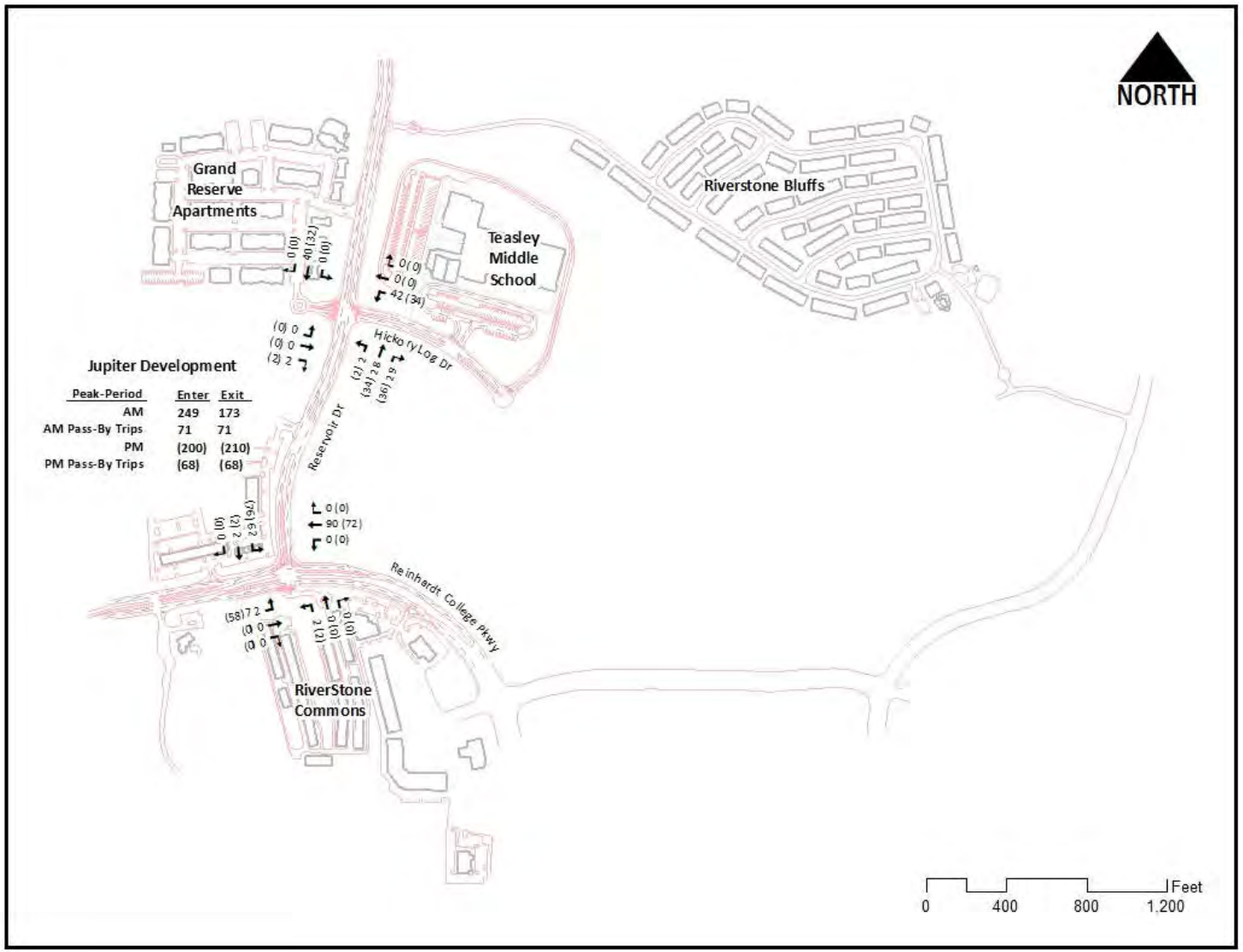


Figure 19. Project Generated Traffic for High School

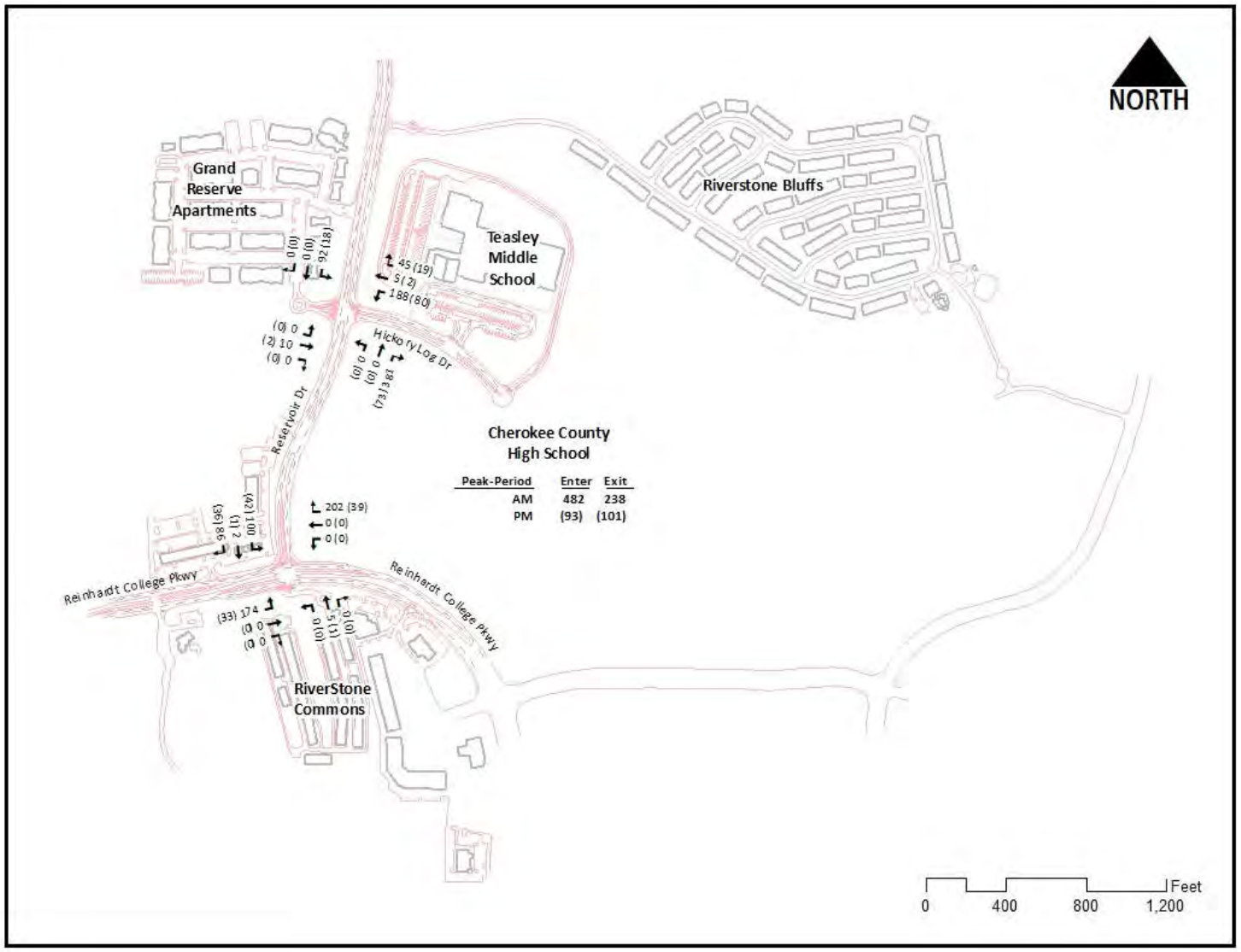


Figure 20. Project-Generated Traffic for Riverstone Bluffs

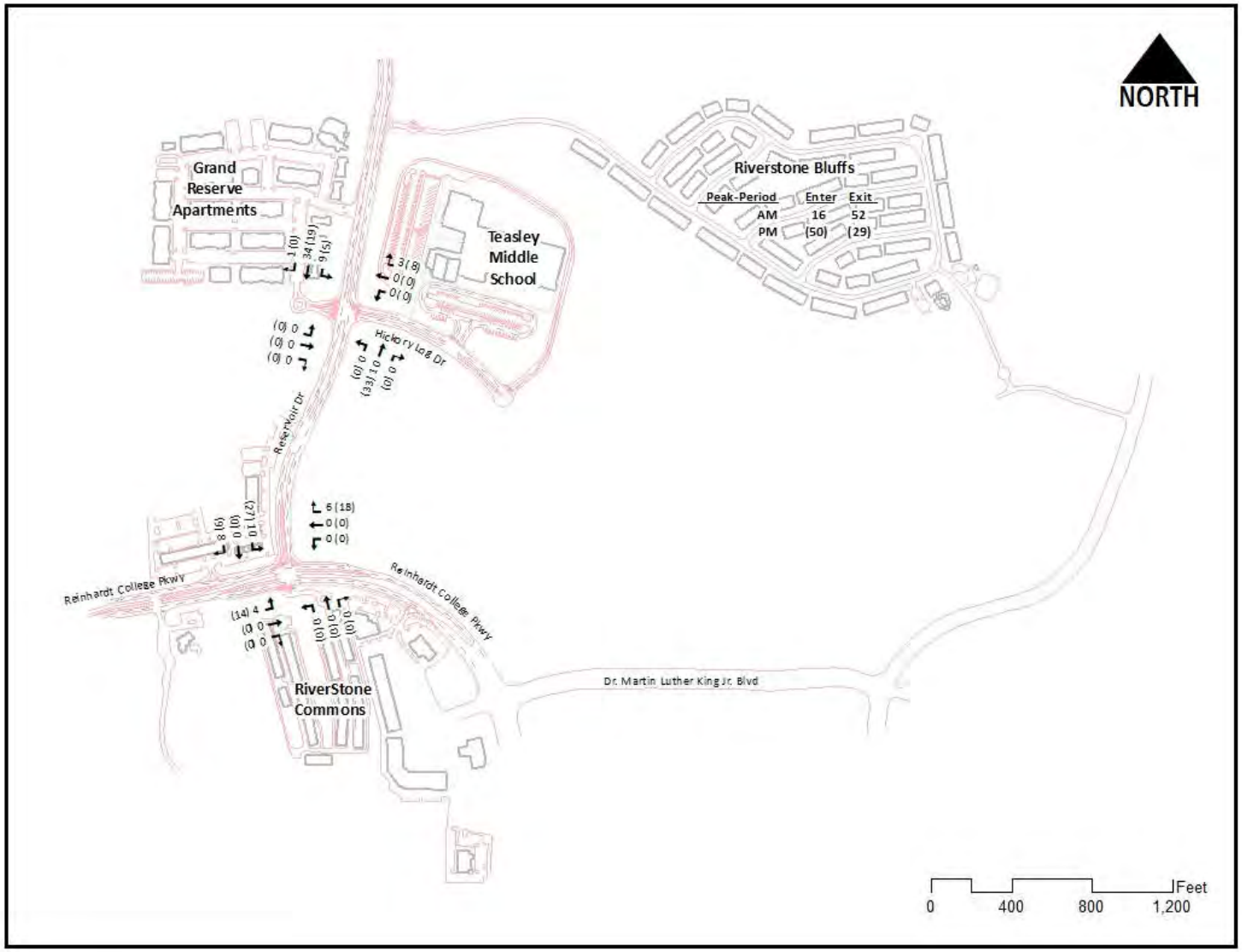


Figure 21. Future (2025) Condition Traffic

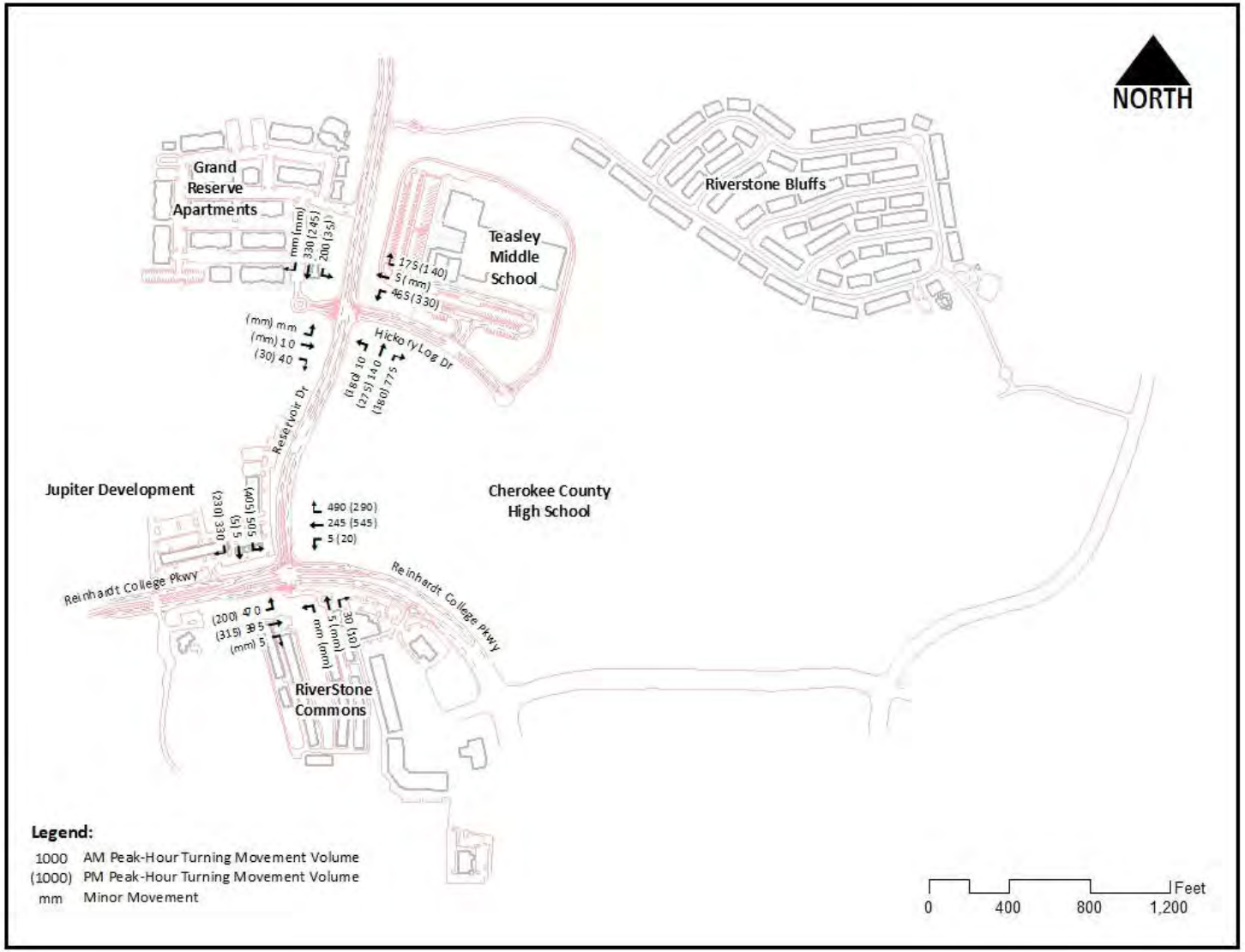


Figure 22. Future (2045) Condition Traffic

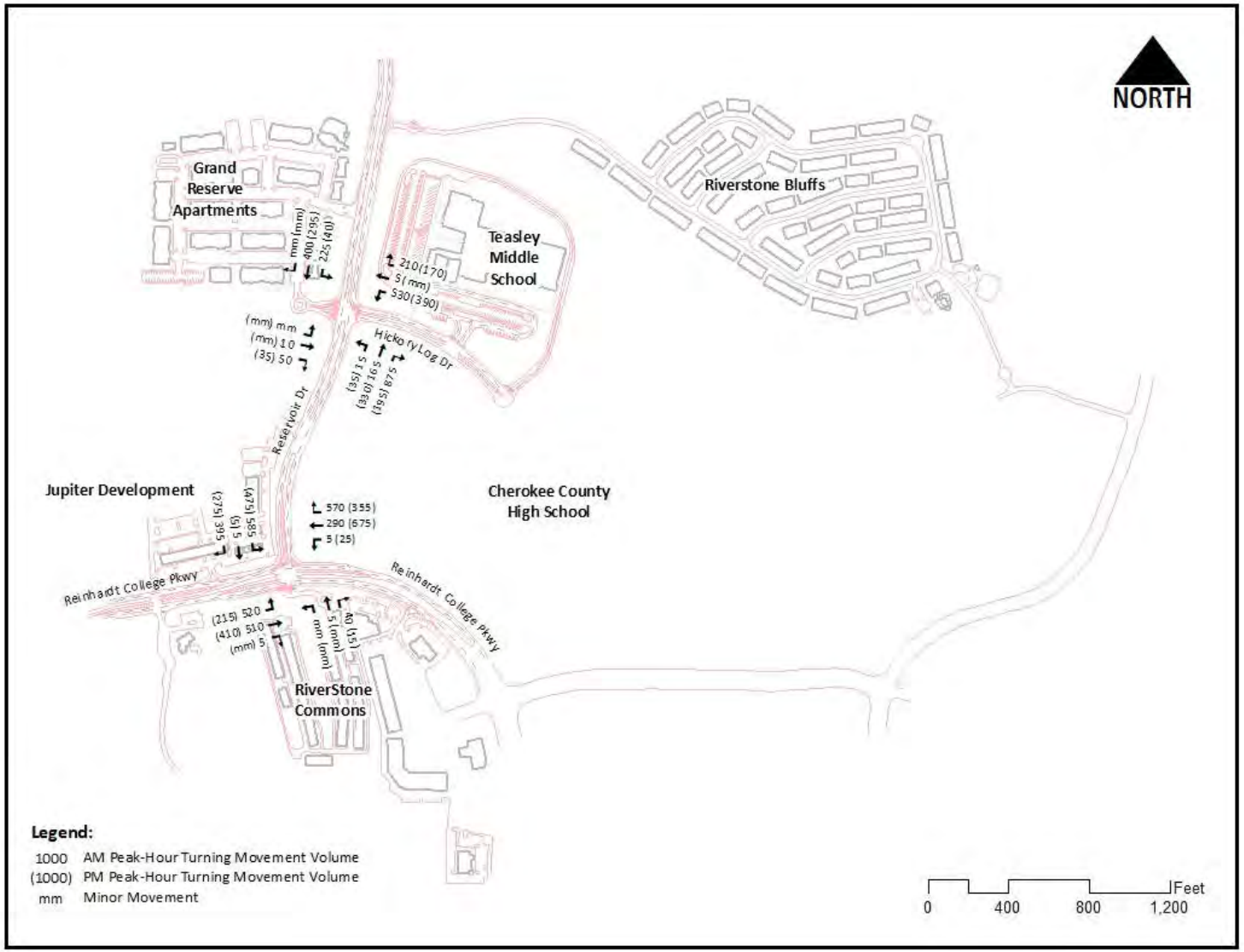


Table 10. No-Build Intersection Level-of-Service Summary

Reinhardt College Pkwy at Reservoir Dr												
Analysis Year	Peak Period	No-Build										Max V/C Ratio
		EB		WB		NB		SB		Intersection		
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	
2025	AM	5.3	A	0.2	A	20.8	C	>300.0	F	>300.0	F	>1.00
	PM	3.8	A	0.3	A	9.3	A	>300.0	F	>300.0	F	>1.00
2045	AM	5.3	A	0.1	A	26.9	D	>300.0	F	>300.0	F	>1.00
	PM	3.7	A	0.3	A	9.7	A	>300.0	F	>300.0	F	>1.00
Reservoir Dr at Hickory Log Dr												
Analysis Year	Peak Period	No-Build										Max V/C Ratio
		EB		WB		NB		SB		Intersection		
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	
2025	AM	22.1	C	>300.0	F	0.1	A	4.8	A	>300.0	F	>1.00
	PM	9.2	A	118.7	F	0.5	A	1.1	A	>100.0	F	>1.00
2045	AM	35.9	E	>300.0	F	0.2	A	5.3	A	>300.0	F	>1.00
	PM	9.4	A	>300.0	F	0.6	A	1.1	A	>100.0	F	>1.00

Traffic Signal Evaluation

The Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition[8], is the national standard that traffic engineers use to determine if an intersection requires a traffic signal. Traffic signal warrants 1 (8-Hour Volume Warrant) and 2 (4-Hour Volume Warrant) were evaluated using the Future Condition traffic volumes for the year 2025 with available traffic data for each of the identified intersections. Traffic signal warrant 3 (Peak-Hour Volume Warrant) should only be applied in special circumstances where high volumes of traffic are discharged over a short period of time; therefore, was only applied on Reservoir Drive at Hickory Log Drive due to the two schools using Hickory Log Drive as access. Traffic signal warrants 7 and 9 were not considered for either of the intersections since each warrant requires a trial of alternatives not yet tested. Each intersection was analyzed using two lanes for both major street and minor street approaches and full right-turn reductions were applied. Hourly turn percentages were applied to the Future Condition traffic volumes for the year 2025 for these evaluations and the traffic for these evaluations is expected to reflect a typical weekday of traffic volumes for a 12-hour period. The resulting warrant volumes for the future year 2025 are summarized in **Table 11** and **Table 12**. **Table 13** summarizes the warrant analyses results and **Appendix G** provides detailed warrant analyses.

[8] *Manual on Uniform Traffic Control Devices for Streets and Highways*. 2009 Edition., U.S. Department of Transportation Federal Highway Administration, 2009.

Table 11-Reinhardt College Pkwy @ Reservoir Dr Future Year (2025) Warrant Volumes

	Major Approaches					Minor Approach	
	Reinhardt College Pkwy					Reservoir Dr	
Hour Ending	EB	EB Adjusted	WB	WB Adjusted	Total Adjusted	SB	SB Adjusted
1:00 AM	0	0	0	0	**0**	0	**0**
2:00 AM	0	0	0	0	**0**	0	**0**
3:00 AM	0	0	0	0	**0**	0	**0**
4:00 AM	0	0	0	0	**0**	0	**0**
5:00 AM	0	0	0	0	**0**	0	**0**
6:00 AM	0	0	0	0	**0**	0	**0**
7:00 AM	286	285	101	64	**348**	244	**177**
8:00 AM	618	614	380	156	**770**	501	**326**
9:00 AM	593	585	439	217	**802**	658	**406**
10:00 AM	420	416	328	227	**642**	302	**224**
11:00 AM	388	388	394	281	**668**	224	**176**
12:00 PM	471	471	505	344	**815**	272	**201**
1:00 PM	495	490	587	380	**870**	289	**210**
2:00 PM	592	586	649	441	**1027**	395	**270**
3:00 PM	538	531	646	421	**952**	307	**224**
4:00 PM	524	523	746	462	**986**	602	**376**
5:00 PM	437	427	874	564	**991**	426	**302**
6:00 PM	466	460	873	578	**1037**	267	**204**
7:00 PM	0	0	0	0	**0**	0	**0**
8:00 PM	0	0	0	0	**0**	0	**0**
9:00 PM	0	0	0	0	**0**	0	**0**
10:00 PM	0	0	0	0	**0**	0	**0**
11:00 PM	0	0	0	0	**0**	0	**0**
12:00 AM	0	0	0	0	**0**	0	**0**

Table 12-Reservoir Dr @ Hickory Log Dr Future Year (2025) Warrant Volumes

	Major Approaches					Minor Approach	
	Reservoir Dr					Hickory Log Dr	
Hour Ending	NB	NB Adjusted	SB	SB Adjusted	Total Adjusted	WB	WB Adjusted
1:00 AM	0	0	0	0	**0**	0	**0**
2:00 AM	0	0	0	0	**0**	0	**0**
3:00 AM	0	0	0	0	**0**	0	**0**
4:00 AM	0	0	0	0	**0**	0	**0**
5:00 AM	0	0	0	0	**0**	0	**0**
6:00 AM	0	0	0	0	**0**	0	**0**
7:00 AM	67	23	165	163	**186**	42	**35**
8:00 AM	453	96	361	360	**456**	308	**227**
9:00 AM	517	162	361	360	**522**	697	**544**
10:00 AM	170	104	193	192	**296**	58	**47**
11:00 AM	170	112	153	153	**265**	25	**20**
12:00 PM	236	144	186	184	**328**	61	**51**
1:00 PM	313	205	205	205	**410**	42	**36**
2:00 PM	363	229	280	280	**509**	103	**82**
3:00 PM	367	193	228	226	**419**	56	**48**
4:00 PM	494	241	349	348	**589**	672	**499**
5:00 PM	432	283	215	211	**494**	264	**223**
6:00 PM	399	271	168	166	**437**	86	**73**
7:00 PM	0	0	0	0	**0**	0	**0**
8:00 PM	0	0	0	0	**0**	0	**0**
9:00 PM	0	0	0	0	**0**	0	**0**
10:00 PM	0	0	0	0	**0**	0	**0**
11:00 PM	0	0	0	0	**0**	0	**0**
12:00 AM	0	0	0	0	**0**	0	**0**

The resulting traffic signal warrant analyses revealed that the intersection on Reinhardt College Parkway at Reservoir Drive is expected to meet traffic signal warrants 1 and 2 by the future year 2025, while the intersection on Reservoir Drive at Hickory Log Drive only satisfies traffic signal warrant 3 for the future year 2025.

Table 13. Traffic Signal Warrant Analysis Results

Reinhardt College Pkwy at Reservoir Dr				
Warrant	MUTCD Value		Number of Hours Warrant Satisfied	Meet?
	Major	Minor		
1A – 8-Hour (Minimum Vehicular Volume)	600	200	10	Yes
1B – 8-Hour (Interruption of Continuous Traffic)	900	100	5	No
2 – 4-Hour Vehicular Volume	Figure 4C-1 Curve		9	Yes
3 – Peak-Hour Vehicular Volume	not applicable		-	-
Reservoir Dr at Hickory Log Dr				
Warrant	MUTCD Value		Number of Hours Warrant Satisfied	Meet?
	Major	Minor		
1A – 8-Hour (Minimum Vehicular Volume)	600	200	0	No
1B – 8-Hour (Interruption of Continuous Traffic)	900	100	0	No
2 – 4-Hour Vehicular Volume	Figure 4C-1 Curve		2	No
3 – Peak-Hour Vehicular Volume	Figure 4C-3 Curve		2	Yes

Atkins conducted a capacity analysis for each identified intersection using the traffic operations software, Synchro, version 10. To accommodate the Future Condition traffic volumes, additional improvements were provided at each intersection. These improvements have been listed below:

- Reinhardt College Pkwy at Reservoir Dr
  - Provide for a southbound left-turn lane (provide access to existing left-turn lane and extend)
  - Convert eastbound single left-turn lane to a dual left-turn
  - Convert eastbound through lane to a shared through/right-turn lane to conserve right-of-way
- Reservoir Dr at Hickory Log Dr
  - Provide for a northbound left-turn lane (150')
  - Provide for a northbound right-turn lane (500')
  - Convert shared westbound left/thru lane to left-turn only and westbound right-turn lane to shared thru/right-turn lane

As signalized intersections, Reinhardt College Parkway at Reservoir Drive and Reservoir Drive at Hickory Log Drive are expected to operate at LOS D or better using Future Condition traffic volumes for both years 2025 and 2045. These results are summarized in **Table 14**. Reinhardt College Parkway at Reservoir Drive operates at LOS C during the AM and PM peak-hours for the year 2025, while operating at LOS D and C for the AM and PM peak-hours, respectively, for the year 2045. Reservoir Drive at Hickory Log Drive is anticipated to operate at LOS C during the AM peak-hour for both years 2025 and 2045 and at LOS B for the PM peak-hours, for the same years.

Table 14. Signalized Intersection Level-of-Service Summary

Reinhardt College Pkwy at Reservoir Dr												
Analysis Year	Peak Period	No-Build										Max V/C Ratio
		EB		WB		NB		SB		Intersection		
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	
2025	AM	37.7	D	41.3	D	21.3	C	16.7	B	31.4	C	0.88
	PM	28.6	C	30.1	C	16.5	B	15.0	B	25.3	C	0.81
2045	AM	44.2	D	40.6	D	24.0	C	23.9	C	37.1	D	0.96
	PM	27.0	C	38.6	D	20.9	C	20.2	C	29.6	C	0.89
Reservoir Dr at Hickory Log Dr												
Analysis Year	Peak Period	No-Build										Max V/C Ratio
		EB		WB		NB		SB		Intersection		
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	
2025	AM	37.5	D	35.6	C	17.7	B	15.6	B	24.1	C	0.91
	PM	0.0	-	21.1	C	9.5	A	9.0	A	13.6	B	0.84
2045	AM	42.3	D	38.8	D	20.2	C	19.5	B	27.4	C	0.93
	PM	0.0	-	25.1	C	11.2	B	10.8	B	16.1	B	0.87

Roundabout Evaluation

Atkins also evaluated the feasibility of a roundabout at each of the identified intersections. Atkins performed the analyses for the roundabouts using GDOT's Roundabout Analysis Tool (version 4.2) and SIDRA (version 8). The GDOT Roundabout Analysis Tool, version 4.2 is frequently used for planning purposes and for determining the feasibility of a roundabout, while SIDRA, version 8, is used as an aid in the design and evaluation of a roundabout. **Appendix H** and **Appendix I** provide detailed roundabout operational analyses results. The roundabouts were evaluated using the Future Condition traffic volumes for the years 2025 and 2045 assuming multi-lane roundabouts at each location. Operational analysis results for Reinhardt College Parkway at Reservoir Drive are summarized in **Table 15** and the results for Reservoir Drive at Hickory Log Drive are summarized in **Table 16**.

Using the GDOT Roundabout Analysis Tool the multi-lane roundabout at Reinhardt College Parkway and Reservoir Drive is expected to operate at LOS B for both the AM and PM peak-hours using the Future Condition traffic for the year 2025. As traffic conditions worsen for the year 2045, this intersection is expected to operate at LOS C for both the AM and PM peak-hours using the GDOT Roundabout Analysis Tool. SIDRA anticipates this same intersection to operate at LOS B and A for the AM and PM peak-hours, respectively, in the year 2025 and at LOS C and B for the AM and PM peak-hours, respectively, using the Future Condition traffic for the year 2045.

Reservoir Drive at Hickory Log Drive is expected to operate at LOS B and LOS A for the AM and PM peak-hours, respectively, for the year 2025 using the GDOT Roundabout Analysis Tool. As traffic increases for the year 2045, this same tool anticipates the intersection to operate at LOS C and A for both the AM and PM peak-hours, respectively. Using SIDRA, Reservoir Drive at Hickory Log Drive is expected to operate at LOS A for each future year analyzed, 2025 and 2045, during both the AM and PM peak-hours.

Table 15. Roundabout Intersection Level-of-Service Summary (Reinhardt College Pkwy at Reservoir Dr)

Approach	Measure of Effectiveness	Period Analyzed			
		AM		PM	
2025 (Base Year)		GDOT	SIDRA	GDOT	SIDRA
Reservoir Dr (North Leg: Southbound)	Maximum V/C Ratio	0.57	0.520	0.66	.526
	Approach Delay (second/vehicle)	**9.7**	**9.2**	**15.1**	**11.2**
	Maximum 95% Queue Length (lane feet)	101	106.4	140	115.6
	LOS	**A**	**A**	**C**	**B**
Reinhardt College Pkwy (East leg: Westbound)	Maximum V/C Ratio	0.63	0.618	0.43	0.405
	Approach Delay (second/vehicle)	**12.5**	**12.8**	**7.7**	**7.3**
	Maximum 95% Queue Length (lane feet)	120	190.5	57	71.5
	LOS	**B**	**B**	**A**	**A**
Riverstone Commons Cir (South Leg: Northbound)	Maximum V/C Ratio	0.10	0.092	0.02	0.020
	Approach Delay (second/vehicle)	**11.5**	**9.8**	**6.5**	**5.8**
	Maximum 95% Queue Length (lane feet)	9	11.5	1	2.2
	LOS	**B**	**A**	**A**	**A**
Reinhardt College Pkwy (West leg: Eastbound)	Maximum V/C Ratio	0.71	0.604	0.34	0.312
	Approach Delay (second/vehicle)	**16.4**	**14.2**	**8.0**	**7.4**
	Maximum 95% Queue Length (lane feet)	158	173.1	38	49.7
	LOS	**C**	**B**	**A**	**A**
Intersection LOS		**B**	**B**	**B**	**A**
Approach	Measure of Effectiveness	Period Analyzed			
		AM		PM	
2045 (Design Year)		GDOT	SIDRA	GDOT	SIDRA
Reservoir Dr (North Leg: Southbound)	Maximum V/C Ratio	0.69	0.596	0.89	0.631
	Approach Delay (second/vehicle)	**12.9**	**10.7**	**30.8**	**14.1**
	Maximum 95% Queue Length (lane feet)	157	169.8	295	172.6
	LOS	**B**	**B**	**D**	**B**
Reinhardt College Pkwy (East leg: Westbound)	Maximum V/C Ratio	0.77	0.738	0.54	0.489
	Approach Delay (second/vehicle)	**17.9**	**17.1**	**9.6**	**8.4**
	Maximum 95% Queue Length (lane feet)	198	314.6	86	97.4
	LOS	**C**	**C**	**A**	**A**
Riverstone Commons Cir (South Leg: Northbound)	Maximum V/C Ratio	0.17	0.147	0.03	0.030
	Approach Delay (second/vehicle)	**16.0**	**13.2**	**8.0**	**6.2**
	Maximum 95% Queue Length (lane feet)	15	20.6	3	3.5
	LOS	**C**	**B**	**A**	**A**
Reinhardt College Pkwy (West leg: Eastbound)	Maximum V/C Ratio	0.85	0.763	0.44	0.399
	Approach Delay (second/vehicle)	**27.8**	**22.6**	**10.3**	**9.0**
	Maximum 95% Queue Length (lane feet)	258	326.2	59	71.1
	LOS	**D**	**C**	**B**	**A**
Intersection LOS		**C**	**C**	**C**	**B**

Table 16. Roundabout Intersection Level-of-Service Summary (Reservoir Dr at Hickory Log Dr)

Approach	Measure of Effectiveness	Period Analyzed			
		AM		PM	
2025 (Base Year)		GDOT	SIDRA	GDOT	SIDRA
Reservoir Dr (North Leg: Southbound)	Maximum V/C Ratio	0.37	0.326	0.17	0.156
	Approach Delay (second/vehicle)	**8.8**	**7.7**	**5.7**	**5.2**
	Maximum 95% Queue Length (lane feet)	43	50.4	16	20.9
	LOS	**B**	**A**	**A**	**A**
Hickory Log Dr (East leg: Westbound)	Maximum V/C Ratio	0.50	0.452	0.43	0.365
	Approach Delay (second/vehicle)	**8.3**	**7.7**	**8.4**	**7.5**
	Maximum 95% Queue Length (lane feet)	81	86.3	63	54.1
	LOS	**A**	**A**	**A**	**A**
Reservoir Dr (South Leg: Northbound)	Maximum V/C Ratio	0.80	0.647	0.21	0.175
	Approach Delay (second/vehicle)	**17.4**	**10.1**	**4.6**	**3.8**
	Maximum 95% Queue Length (lane feet)	252	176.9	21	28.5
	LOS	**C**	**B**	**A**	**A**
Hickory Log Dr (West leg: Eastbound)	Maximum V/C Ratio	0.10	0.094	0.04	0.045
	Approach Delay (second/vehicle)	**8.1**	**7.3**	**5.2**	**5.2**
	Maximum 95% Queue Length (lane feet)	9	11.0	3	5.0
	LOS	**A**	**A**	**A**	**A**
Intersection LOS		**B**	**A**	**A**	**A**
Approach	Measure of Effectiveness	Period Analyzed			
		AM		PM	
2045 (Design Year)		GDOT	SIDRA	GDOT	SIDRA
Reservoir Dr (North Leg: Southbound)	Maximum V/C Ratio	0.46	0.397	0.22	0.191
	Approach Delay (second/vehicle)	**11.2**	**8.9**	**6.7**	**5.6**
	Maximum 95% Queue Length (lane feet)	64	67.1	22	27.3
	LOS	**B**	**A**	**A**	**A**
Hickory Log Dr (East leg: Westbound)	Maximum V/C Ratio	0.59	0.502	0.54	0.422
	Approach Delay (second/vehicle)	**10.0**	**8.3**	**10.7**	**8.1**
	Maximum 95% Queue Length (lane feet)	112	102.0	96	65.0
	LOS	**A**	**A**	**B**	**A**
Reservoir Dr (South Leg: Northbound)	Maximum V/C Ratio	0.93	0.708	0.25	0.198
	Approach Delay (second/vehicle)	**29.0**	**11.3**	**5.0**	**3.9**
	Maximum 95% Queue Length (lane feet)	414	291.8	26	33.9
	LOS	**D**	**B**	**A**	**A**
Hickory Log Dr (West leg: Eastbound)	Maximum V/C Ratio	0.14	0.118	0.06	0.053
	Approach Delay (second/vehicle)	**10.1**	**7.9**	**5.9**	**5.3**
	Maximum 95% Queue Length (lane feet)	13	14.7	4	6.1
	LOS	**B**	**A**	**A**	**A**
Intersection LOS		**C**	**A**	**A**	**A**

As indicated, these delays represent an improvement over the existing conditions for each intersection. A roundabout at each intersection location would provide acceptable levels-of-service in the peak-hours through the future year 2045.

ALTERNATIVE AND COUNTERMEASURE EVALUATION

Given the traffic safety data outlined in the preceding sections, Atkins identified several potential design alternatives and countermeasures to improve both safety and operations at each study location. These potential design alternatives and countermeasures were evaluated for further implementation at the intersection along Reinhardt College Parkway at Reservoir Drive, as a state funded investment. Reservoir Drive at Hickory Log Drive would not be considered a state funded investment; therefore, an ICE was not prepared for this location.

Intersection Control Evaluation

Atkins performed a formal intersection control evaluation (ICE), which is included in **Appendix J,** for the intersection along Reinhardt College Parkway at Reservoir Drive. The alternatives evaluated within the ICE correspond to the selected safety alternatives and recommendations that were analyzed as a part of this study. Modifying the intersection for the placement of a traffic signal ranks first, followed by converting the intersection into a multi-lane roundabout. Though the intersection does not currently meet the warrant for a traffic signal, the planned developments that were evaluated indicated that traffic signal warrants 1 and 2 would be satisfied for the future year 2025; therefore, the traffic signal was analyzed as a potential alternative to estimate the impact if implemented.

It should be noted that a signalized restricted crossing U-turn intersection (R-Cut) was considered; however, this alternative was not evaluated for the following reasons:

1. Driveways should not be allowed near the main intersection or on the opposite side of the arterial from the median U-turn to reduce the chance of wrong-way movements in the crossover; and,
2. The minor road total volume to total intersection volume ratio is typically less than or equal to 0.20; and,
3. For intersections with very high left-turn and through volumes from the side road approaches, RCUT intersection design is not the optimum choice.[9]

A median U-turn for southbound vehicles on Reservoir Drive attempting to travel eastbound on Reinhardt College Parkway is located approximately 650 feet west of Reservoir Drive. However, a driveway for the Heritage at Riverstone apartment complex is opposite from this median U-turn location. Additionally, the Future Condition traffic for the design year (2045) indicates a significant southbound left-turn from Reservoir Drive. The minor road total volume on Reservoir Drive to the total intersection volume ratio is 0.33, which is greater than the recommended 0.20 ratio or less.

Potential Safety Alternatives and Countermeasures

Table 17 summarizes the alternatives and countermeasures selected for further consideration along Reinhardt College Parkway at Reservoir Drive, as well as, the crash modification factors (CMF) identified from the Highway Safety Manual (HSM), FHWA CMF Clearinghouse, or the GDOT ICE form. A CMF is used to compute the expected

[9] U.S. Department of Transportation Federal Highway Administration. (2009). *Alternative Intersections/Interchanges: Information Report (AIIR). Federal Highway Administration (FHWA-HRT-09-060)*.

number of crashes after implementing a given countermeasure at a specific site. While many safety countermeasures are suggested, only those treatments with known safety performance impacts are analyzed.

Table 17. Suggested Safety Countermeasures and CMFs for Reinhardt College Pkwy and Reservoir Dr

Countermeasure	CMF (PDO Crashes)	CMF (FI Crashes)	Safety Issue Addressed	CMF Source
Convert Reinhardt College Parkway at Reservoir Drive to a roundabout intersection	.68	.29	1,2,3	CMF ID: 236 / 237
Install a traffic signal at the intersection of Reinhardt College Parkway and Reservoir Drive	.61	.60	1,2	CMF ID: 325 / 7984

Deploying either of the evaluated countermeasures will improve the safety performance of this intersection. The roundabout treatment will eliminate most of the conflict points at this location. Consequently, installing a multi-lane roundabout is the most effective way to reduce the potential for injury crashes at this location. Additionally, the presence of a roundabout is likely to reduce travel speeds through the intersection, further improving the safety performance of the facility.

Safety Impact of Potential Alternatives and Countermeasures

The suggested countermeasures along Reinhardt College Parkway at Reservoir Drive are proven safety treatments that have been shown in prior research to reduce traffic crashes. However, each treatment impacts the safety performance of the facility in a slightly different manner as outlined in the preceding paragraphs. **Table 18** summarizes the estimated impacts on the anticipated annual crash frequencies for each safety treatment. **Figure 23** illustrates the safety impacts of each countermeasure and provides a comparison against the intersection's current safety performance.

Table 18. Annual Safety Impact of Proposed Safety Countermeasures

Safety Countermeasure Combination	Combined CMFs		Expected Crashes without Treatment		Expected Crashes with Treatment		Annual Reduction	
	PDO	FI	PDO	FI	PDO	FI	PDO	FI
Convert the existing intersection to a multi-lane roundabout.	0.68	0.29	2.00	1.40	1.36	0.41	0.64	0.99
Convert the existing intersection into a signalized intersection	0.61	0.60	2.00	1.40	1.22	0.84	0.78	0.56

Figure 23. Annual Safety Impact of Proposed Alternatives and Countermeasures

Operational Impact of Potential Alternatives and Countermeasures

Table 19 and **Table 20** provide a summary of the operational impacts of each alternative for the intersection along Reinhardt College Parkway at Reservoir Drive. SIDRA, version 8, was used to evaluate the traffic operations for the multi-lane roundabout and SYNCHRO, version 10, was used to evaluate the traffic operations for the traffic signal. Any LOS worse than D is considered as unacceptable. The multi-lane roundabout was estimated to generate the highest amount of operational improvement at the identified intersection.

Table 19 summarizes the operational impact of the multi-lane roundabout alternative. This alternative improves the LOS and safety significantly and the intersection performs at LOS B using the Future Condition Traffic for the year 2025 and at LOS C or better using the Future Condition Traffic for the year 2045. The cost for this alternative would be significantly higher than the cost for installing a traffic signal.

Table 19. Operational Impact of a Multi-Lane Roundabout

Multi-Lane Roundabout (SIDRA 8)												
Analysis Year	Peak Period	Reinhardt College Pkwy at Reservoir Dr, Delay in second/vehicle (LOS)										Max V/C Ratio
		EB		WB		NB		SB		Intersection		
2025	AM	14.2	(B)	12.8	(B)	9.8	(A)	9.2	(A)	12.0	(B)	0.618
	PM	7.4	(A)	7.3	(A)	5.8	(A)	11.2	(B)	8.5	(A)	0.526
2045	AM	22.6	(C)	17.1	(C)	13.2	(B)	10.7	(B)	16.8	(C)	0.763
	PM	9.0	(A)	8.4	(A)	6.2	(A)	14.1	(B)	10.3	(B)	0.631

Table 20 summarizes the operational impact of the traffic signal alternative. The placement of a traffic signal along Reinhardt College Parkway at Reservoir Drive improves the operations of the intersection, but not as well as the multi-lane roundabout alternative. As a signalized intersection, traffic operations are LOS D or better using the Future Condition traffic volumes for both years 2025 and 2045.

Table 20. Operational Impact of a Traffic Signal

Traffic Signal (HCM 6th Edition)												
Analysis Year	Peak Period	Reinhardt College Pkwy at Reservoir Dr, Delay in second/vehicle (LOS)										Max V/C Ratio
		EB		WB		NB		SB		Intersection		
2025	AM	37.7	(D)	41.3	(D)	21.3	(C)	16.7	(B)	31.4	(C)	0.88
	PM	28.6	(C)	30.1	(C)	16.5	(B)	15.0	(B)	25.3	(C)	0.81
2045	AM	44.2	(D)	40.6	(D)	24.0	(C)	23.9	(C)	37.1	(D)	0.96
	PM	27.0	(C)	38.6	(D)	20.9	(C)	20.2	(C)	29.6	(C)	0.89

BENEFIT/COST ANALYSIS

The following section details the analysis of the benefit values for each alternative and provides an estimate for potential cost. The benefit and cost are then used to compare each alternative through a Safety Benefit/Cost (B/C) ratio.

Alternatives

Multi-Lane Roundabout

Benefits

- Eliminates conflict points associated with angle collisions
- Incorporates Pedestrian Safety
- Improved Traffic Operations
- Slows mainline speeds at the intersection

Concerns

- Most expensive to implement

Estimated Cost

PE	*$678,000.00*
UTL	*$0.00*
ROW	*$0.00*
CST	*$2,392,000.00*
Total	$3,070,000.00

Estimated Safety Benefit Cost

FHWA crash modification factors suggest converting the intersection from a TWSC to a multi-lane roundabout is expected to result in an 71% (ID:237) reduction in injury crashes and a 32% (ID:236) reduction in PDO crashes for all crash types.

Safety B/C = 2.85

Signalized Intersection

Benefits

- Slows mainline speeds at the intersection
- Moderately inexpensive
- Safer for pedestrians crossing

Concerns

- Higher construction and maintenance cost.

Estimated Cost

PE	*$104,000.00*
UTL	*$0.00*
ROW	*$0.00*
CST	*$288,000.00*
Total	**$392,000.00**

Estimated Safety Benefit Cost

FHWA crash modification factors suggest converting the intersection from a TWSC to a Signalized intersection is expected to result in an 40% (ID:7984) reduction in injury crashes and a 39% (ID:325) reduction in PDO crashes for all crash types.

Safety B/C = 7.88

CONCLUSION

The previous sections of this report demonstrate that both Reinhardt College Parkway at Reservoir Drive and Reservoir Drive at Hickory Log Drive have needs for operational improvements. Neither intersection has experienced a significant number of crashes over the most recent five-year period. Reinhardt College Parkway at Reservoir Drive has experienced 17 crashes between the years 2016 and 2020. Of those 17 crashes, 7 were injury crashes and there were no fatal crashes. A significant number of crashes at this intersection were related to the high number of crossing conflict points in a high-speed setting where the minor-street is stop controlled and the major-street is uncontrolled. There was only one crash at the intersection of Reservoir Drive and Hickory Log Drive, which was not an injury crash but property damage only. The southbound approach on Reservoir Drive currently operates at LOS F for both the morning and evening peak-hours at Reinhardt College Parkway and the westbound approach on Hickory Log Drive operates at LOS F during the morning peak-hour and at LOS E during the evening peak-hour due to relatively high peak-hour volumes on the minor-streets. With increasing traffic volumes in the future, each intersection will experience more delay and increased risk of safety concerns.

Atkins developed countermeasures to address the safety and operational issues identified in the previous sections of this study. The preferred alternative for each intersection is the placement of a traffic signal to improve both safety and operations. Traffic signals at these locations would provide improved safety benefits addressing Safety Issue 1 by eliminating crossing conflicts and Safety Issue 2 by slowing mainline speeds at the intersection. Traffic signals at each intersection also significantly improve traffic operations through the future year 2045. Therefore, the City of Canton should consider the recommended safety countermeasures and treatments presented in **Table 21** for implementation as properties continue to develop.

Table 21. Suggested Safety Countermeasures

No.	Countermeasure	Approximate Implementation Timeline	Safety Issue Addressed
1	Placement of a traffic signal at Reinhardt College Pkwy and Reservoir Dr	Long-Term	1, 2
2	Placement of a traffic signal at Reservoir Dr and Hickory Log Dr	Long-Term	1, 2

RECOMMENDATIONS

Based on the analysis presented in this report, Atkins proposes long-term recommendations to consider as properties continue to develop along Reinhardt College Parkway and along Reservoir Drive. The placement of traffic signals at Reinhardt College Parkway and Reservoir Drive and at Reservoir Drive and Hickory Log Drive would improve both safety and operations for the future year 2025 with the construction of the planned developments listed below:

- Riverstone Bluffs (Town Homes/Condos)
- Cherokee County High School
- Jupiter Development (Retail/Commercial)

The benefit cost ratio for a traffic signal at Reinhardt College Parkway and Reservoir Drive is higher than the construction of a multi-lane roundabout and the ICE ratings for the traffic signal are higher than the multi-lane roundabout at the same location. Benefit cost and ICE ratings were not calculated for Reservoir Drive and

Hickory Log Drive, as any intersection improvements at this location would not be considered as state funded investments. However, the placement of a traffic signal at this location would cost considerably less than the construction of a roundabout. The placement of traffic signals at Reinhardt College Parkway and Reservoir Drive and at Reservoir Drive at Hickory Log Drive would slow mainline speeds at the intersections and provide safer crossings for pedestrians. Traffic signals at these locations would also reduce the delay at each intersection compared to the existing traffic control. Prior studies have shown that converting a minor stop-controlled intersection into a signalized intersection can provide up to a 40% reduction in fatal/injury crashes and a 39% reduction in PDO crashes.

Atkins recommends that the City of Canton consider the placement of traffic signals at the identified intersections by the future year 2025, assuming development continues to occur along Reinhardt College Parkway and along Reservoir Drive. As indicated previously, the intersection at Reinhardt College Parkway and Reservoir Drive is expected to meet signal warrants 1 and 2 by the year 2025. Additional improvements to accommodate future traffic conditions at this intersection include:

- Provide for a southbound left-turn lane (provide access to existing left-turn lane and extend)
- Convert eastbound single left-turn lane to a dual left-turn
- Convert eastbound through lane to a shared through/right-turn lane to conserve right-of-way

The intersection at Reservoir Drive and Hickory Log Drive is expected to only meet the peak-hour warrant, signal warrant 3, by the year 2025. This warrant is intended for special circumstances where high volumes of traffic are discharged over a short period of time. A full-actuated controller at this location would establish the cycle and green light time that is necessary to maintain the most efficient flow of traffic. Additional improvements at this location to accommodate future traffic conditions include:

- Provide for a northbound left-turn lane (150')
- Provide for a northbound right-turn lane (500')
- Convert shared westbound left/thru lane to left-turn only and westbound right-turn lane to shared thru/right-turn lane

APPENDICES

Appendix A: Collision Diagram

Appendix B: Safety Risk Matrix Background

Appendix C: Traffic Count Worksheets

Appendix D: Growth Rate Calculations

Appendix E: Trip Generation Worksheets

Appendix F: Synchro Reports

Appendix G: Warrant Analysis

Appendix H: Roundabout Analysis – GDOT Roundabout Analysis Tool (v 4.2) Reports

Appendix I: Roundabout Analysis – SIDRA 8 Reports

Appendix J: Intersection Control Evaluation (ICE)

Appendix K: Right-of-Way Information

Appendix L: Environmental Screening

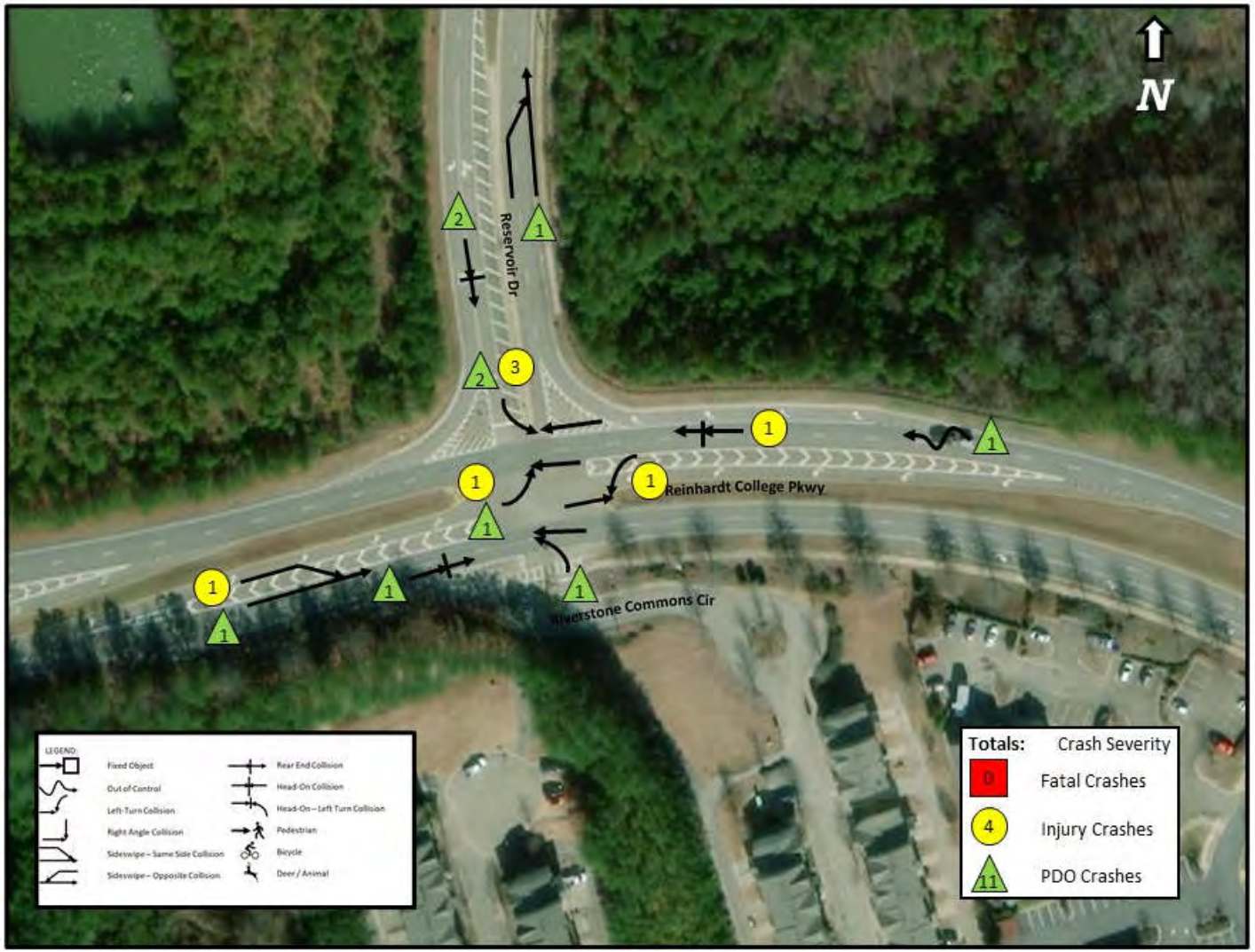
Appendix M: Utility Risks

Appendix N: Important Documents/Other Risks/Site Visits

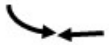
Appendix O: Proposed Conceptual Sketches

Appendix A: Collision Diagrams

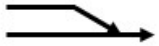
COUNTY: Cherokee
LOCATION: Intersection of Reinhardt College Pkwy @ Reservoir Dr
PERIOD: 01/01/2016 TO 12/31/2020



COUNTY: Cherokee
LOCATION: Intersection of Reinhardt College Pkwy @ Reservoir Dr
PERIOD: 01/01/2016 TO 12/31/2020

No.	Crash Type	Date	Day	Time	PDO	A	B	C	F	Light Cond.	Surface	Accident No.
1		09/02/2017	Sat	10:25 PM	0	0	1	0	0	Dark	Dry	6380737
2		03/17/2020	Tue	3:20 PM	0	0	0	1	0	Day	Dry	7596581
3		01/18/2017	Wed	11:40 AM	1	0	0	0	0	Day	Dry	6112847
4		03/13/2019	Wed	7:15 AM	1	0	0	0	0	Day	Dry	7121063
5		10/10/2019	Thu	4:19 PM	0	0	1	0	0	Day	Dry	7386784
6		05/08/2016	Sun	7:15 PM	0	0	1	0	0	Day	Dry	5767217
7		02/17/2017	Fri	6:25 PM	1	0	0	0	0	Dark	Dry	6177951
8		04/27/2020	Mon	2:20 PM	1	0	0	0	0	Day	Dry	7623778
9		10/05/2020	Mon	8:18 AM	0	1	0	0	0	Day	Dry	7799779
10		12/07/2019	Sat	7:10 PM	0	0	1	0	0	Dark	Dry	7472845
11		10/31/2016	Mon	9:32 PM	1	0	0	0	0	Dark	Dry	6013213

COUNTY: Cherokee
LOCATION: Intersection of Reinhardt College Pkwy @ Reservoir Dr
PERIOD: 01/01/2016 TO 12/31/2020

No.	Crash Type	Date	Day	Time	PDO	A	B	C	F	Light Cond.	Surface	Accident No.
12		04/23/2019	Tue	7:35 AM	1	0	0	0	0	Day	Dry	7174193
13		07/21/2020	Tue	6:45 AM	0	0	0	1	0	Day	Dry	7703493
14		02/16/2017	Thu	8:09 AM	1	0	0	0	0	Day	Dry	6177955
15		01/25/2018	Thu	8:32 AM	1	0	0	0	0	Day	Dry	6604487
16		08/13/2020	Thu	1:35 PM	1	0	0	0	0	Day	Dry	7738079
17		04/14/2019	Sat	5:38 PM	1	0	0	0	0	Day	Wet	7163563

COUNTY: Cherokee
LOCATION: Intersection of Reservoir Dr @ Hickory Log Dr
PERIOD: 01/01/2016 TO 12/31/2020

COUNTY: Cherokee
LOCATION: Intersection of Reservoir Dr @ Hickory Log Dr
PERIOD: 01/01/2016 TO 12/31/2020

No.	Crash Type	Date	Day	Time	PDO	A	B	C	F	Light Cond.	Surface	Accident No.
1		08/18/2018	Wed	1:20 PM	1	0	0	0	0	Day	Dry	6842429

Appendix B: Safety Risk Matrix Background

Crash Frequency

Estimated		Expected Crash Frequency (from HSM analysis)	Frequency Rating
Exposure	**Probability**		
High	High	10 or more crashes per year	Frequent
Medium	High		
High	Medium	1 to 9 crashes per year	Occasional
Medium	Medium		
High	Low	Less than 1 crash per year, but more than 1 crash every five years	Infrequent
Low	Medium		
Medium	Low	Less than 1 crash every five years	Rare
Low	Low		

Crash Severity

Types of crashes	Expected crash severity	Severity rating
Crashes involving high speeds or heavy vehicles, pedestrians, bicycles or motorcycles	Probable fatality or incapacitating injury	Extreme
Crashes involving medium to high speeds; lane departure, angle, or left-turn crashes	Moderate to severe injury	High
Crashes involving low to medium speeds angle or left-turn crashes or high speeds and rear end or side-swipe crashes	Minor to moderate injury	Moderate
Crashes involving low to medium speeds; rear end or sideswipe crashes	Property damage only or minor injury	Low

Safety Risk Matrix

Frequency Rating	Severity Rating			
	Low	Moderate	High	Extreme
Frequent	C	D	E	F
Occasional	B	C	D	E
Infrequent	A	B	C	D
Rare	A	A	B	C

Appendix C: Traffic Count Worksheets

Atkins

INTERSECTION : Reservoir Dr @ Reinhardt College Pkwy
DATE COUNT : Tuesday, January 26, 2021
CONDITION :
PROJECT : Reservoir Dr Planning Study
JOB NO. : 100073738
COMP.BY : Atkins

TIME INTERVAL	Reinhardt College Pkwy EASTBOUND					Reinhardt College Pkwy WESTBOUND					Reservoir Dr NORTHBOUND					Reservoir Dr SOUTHBOUND					
	U	L	T	R	TOTAL	U	L	T	R	TOTAL	U	L	T	R	TOTAL	U	L	T	R	TOTAL	TOTALS
6:00 AM - 6:15 AM	0	6	40	0	46	0	0	6	1	7	0	0	0	4	4	0	15	0	3	18	75
6:15 AM - 6:30 AM	0	4	46	0	50	0	0	13	5	18	0	2	0	0	2	0	27	0	7	34	104
6:30 AM - 6:45 AM	0	1	57	1	59	0	0	19	7	26	0	2	0	3	5	0	28	0	12	40	130
6:45 AM - 7:00 AM	0	4	71	0	75	1	0	17	14	32	0	0	0	4	4	0	40	0	15	55	166
7:00 AM - 7:15 AM	0	9	68	0	77	0	0	19	19	38	0	2	0	4	6	0	24	0	14	38	159
7:15 AM - 7:30 AM	0	9	97	1	107	0	1	27	22	50	0	2	0	6	8	0	48	0	8	56	221
7:30 AM - 7:45 AM	0	35	108	1	144	0	1	33	62	96	0	0	0	7	7	0	40	0	14	54	301
7:45 AM - 8:00 AM	0	47	121	1	169	0	3	44	77	124	0	2	0	8	10	0	79	0	75	154	457
8:00 AM - 8:15 AM	0	50	86	3	139	0	1	35	68	104	0	0	1	11	12	0	62	0	67	129	384
8:15 AM - 8:30 AM	0	55	99	1	155	0	0	45	43	88	0	1	1	4	6	0	77	1	66	144	393
8:30 AM - 8:45 AM	0	16	64	1	81	1	1	48	34	84	0	0	0	3	3	0	45	0	16	61	229
8:45 AM - 9:00 AM	0	11	89	2	102	0	0	53	27	80	0	2	0	3	5	0	43	1	19	63	250
9:00 AM - 9:15 AM	0	14	73	0	87	0	0	42	20	62	0	1	0	3	4	0	48	0	18	66	219
9:15 AM - 9:30 AM	0	11	76	3	90	1	2	51	21	75	0	1	0	4	5	0	33	0	8	41	211
9:30 AM - 9:45 AM	0	3	77	1	81	1	2	45	13	61	0	0	0	5	5	0	30	0	8	38	185
9:45 AM - 10:00 AM	0	11	69	0	80	0	6	50	13	69	0	2	0	7	9	0	30	0	7	37	195
10:00 AM - 10:15 AM	0	8	53	0	61	0	2	49	20	71	0	1	0	3	4	0	28	0	6	34	170
10:15 AM - 10:30 AM	0	8	71	0	79	1	2	69	21	93	0	0	0	3	3	0	31	0	3	34	209
10:30 AM - 10:45 AM	0	6	62	0	68	0	1	58	19	78	0	0	0	2	2	0	29	0	7	36	184
10:45 AM - 11:00 AM	0	6	98	0	104	2	5	60	13	80	0	0	0	3	3	0	26	0	5	31	218
11:00 AM - 11:15 AM	0	6	100	0	106	0	4	72	25	101	0	0	1	3	4	0	27	0	6	33	244
11:15 AM - 11:30 AM	0	5	88	0	93	0	3	63	27	93	0	0	1	3	4	0	31	0	8	39	229
11:30 AM - 11:45 AM	0	12	78	0	90	1	2	70	28	101	0	1	0	6	7	0	30	0	15	45	243
11:45 AM - 12:00 PM	0	12	78	0	90	1	3	83	29	116	0	0	0	2	2	0	38	0	9	47	255
12:00 PM - 12:15 PM	0	6	87	1	94	0	2	85	37	124	0	0	0	2	2	0	40	0	5	45	265
12:15 PM - 12:30 PM	0	15	80	0	95	0	2	85	29	116	0	1	0	2	3	0	31	0	10	41	255
12:30 PM - 12:45 PM	0	6	105	2	113	1	2	84	35	122	0	1	0	3	4	0	26	0	14	40	279
12:45 PM - 1:00 PM	0	11	84	1	96	0	0	70	44	114	0	3	0	3	6	0	34	0	14	48	264
1:00 PM - 1:15 PM	0	19	85	0	104	0	1	98	37	136	0	2	0	3	5	0	48	0	20	68	313
1:15 PM - 1:30 PM	0	13	110	2	125	1	1	92	29	123	0	0	0	5	5	0	40	0	20	60	313
1:30 PM - 1:45 PM	0	35	100	0	135	1	2	91	41	135	0	3	0	2	5	0	39	0	19	58	333
1:45 PM - 2:00 PM	0	10	99	3	112	1	3	97	33	134	0	0	1	4	5	0	36	0	16	52	303
2:00 PM - 2:15 PM	0	12	87	1	100	0	8	82	33	123	0	0	0	7	7	0	28	0	9	37	267
2:15 PM - 2:30 PM	0	16	84	3	103	1	5	85	39	130	0	1	0	4	5	0	35	0	9	44	282
2:30 PM - 2:45 PM	0	13	86	2	101	0	5	83	39	127	0	1	0	4	5	0	35	0	11	46	279
2:45 PM - 3:00 PM	0	26	102	1	129	0	4	94	46	144	0	0	0	4	4	0	42	0	16	58	335
3:00 PM - 3:15 PM	0	31	80	1	112	1	5	87	45	138	0	0	0	3	3	0	59	0	16	75	328
3:15 PM - 3:30 PM	0	19	81	0	100	0	4	87	54	145	0	1	0	3	4	0	34	0	8	42	291
3:30 PM - 3:45 PM	0	17	70	0	87	0	4	100	55	159	0	0	0	1	1	0	51	0	47	98	345
3:45 PM - 4:00 PM	0	22	101	0	123	0	5	108	50	163	0	2	0	3	5	0	70	0	78	148	439
4:00 PM - 4:15 PM	0	14	70	2	86	1	4	113	59	177	0	0	0	0	0	0	65	0	23	88	351
4:15 PM - 4:30 PM	0	14	69	0	83	0	6	114	53	173	0	0	0	3	3	0	43	0	20	63	322
4:30 PM - 4:45 PM	0	6	87	2	95	0	6	117	51	174	0	2	1	2	5	0	41	1	16	58	332
4:45 PM - 5:00 PM	0	11	71	6	88	0	3	127	55	185	0	0	1	1	2	0	36	0	12	48	323
5:00 PM - 5:15 PM	0	11	84	1	96	0	3	117	57	177	0	1	0	6	7	0	25	1	10	36	316
5:15 PM - 5:30 PM	0	12	87	4	103	0	7	121	36	164	0	0	0	5	5	0	30	0	6	36	308
5:30 PM - 5:45 PM	0	8	70	1	79	2	7	121	56	186	0	0	0	3	3	0	37	0	11	48	316
5:45 PM - 6:00 PM	0	10	87	0	97	0	5	122	55	182	0	2	0	3	5	0	37	0	4	41	325
TOTAL	0	706	3935	48	4689	18	133	3451	1696	5298	0	39	7	177	223	0	1871	4	830	2705	12915
GRAND TOTAL	0	706	3935	48	4689	18	133	3451	1696	5298	0	39	7	177	223	0	1871	4	830	2705	12915

AM PEAK HOUR 7:30 AM TO 8:30 AM

	EASTBOUND U	L	T	R	WESTBOUND U	L	T	R	NORTHBOUND U	L	T	R	SOUTHBOUND U	L	T	R
TURN VOLUME	0	187	414	6	0	5	157	250	0	3	2	30	0	258	1	222
APPROACH TOTAL		607				412				35				481		
PEAK HOUR FAC.		0.90				0.83				0.73				0.78		

MID-DAY PEAK HOUR 11:45 AM TO 12:45 PM

	EASTBOUND U	L	T	R	WESTBOUND U	L	T	R	NORTHBOUND U	L	T	R	SOUTHBOUND U	L	T	R
TURN VOLUME	0	39	350	3	2	9	337	130	0	2	0	9	0	135	0	38
APPROACH TOTAL		392				478				11				173		
PEAK HOUR FAC.		0.87				0.96				0.69				0.92		

PM PEAK HOUR 3:30 PM TO 4:30 PM

	EASTBOUND U	L	T	R	WESTBOUND U	L	T	R	NORTHBOUND U	L	T	R	SOUTHBOUND U	L	T	R
TURN VOLUME	0	67	310	2	1	19	435	217	0	2	0	7	0	229	0	168
APPROACH TOTAL		379				672				9				397		
PEAK HOUR FAC.		0.77				0.95				0.45				0.67		

INTERSECTION : CONTROL ■ UNSIGNALIZED ☐ SIGNALIZED ☐ ACTUATED ☐ PRETIMED ☐ SEMI-ACTUATED

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive, City of Canton

Atkins

INTERSECTION : Reservoir Dr @ Hickory Log Dr

DATE COUNT : Tuesday, January 26, 2021

CONDITION :

PROJECT : Reservoir Dr Planning Study

JOB NO. : 100073738

COMP.BY : Atkins

TIME INTERVAL	Hickory Log Dr EASTBOUND					Hickory Log Dr WESTBOUND					Reservoir Dr NORTHBOUND					Reservoir Dr SOUTHBOUND					
	U	L	T	R	TOTAL	U	L	T	R	TOTAL	U	L	T	R	TOTAL	U	L	T	R	TOTAL	TOTALS
6:00 AM - 6:15 AM	0	0	0	3	3	0	3	0	0	3	0	0	2	3	5	0	3	14	0	17	28
6:15 AM - 6:30 AM	0	2	0	5	7	0	3	0	0	3	0	0	4	6	10	0	3	24	0	27	47
6:30 AM - 6:45 AM	0	0	0	7	7	0	6	0	2	8	0	1	3	4	8	0	0	32	1	33	56
6:45 AM - 7:00 AM	0	0	0	15	15	0	1	0	0	1	0	1	7	10	18	0	0	36	1	37	71
7:00 AM - 7:15 AM	0	0	0	11	11	0	1	0	1	2	0	1	11	14	26	0	0	26	0	26	65
7:15 AM - 7:30 AM	0	0	0	9	9	0	0	0	0	0	0	2	6	25	33	0	5	50	0	55	97
7:30 AM - 7:45 AM	0	1	1	9	11	0	2	0	0	2	0	3	15	76	94	0	22	39	0	61	168
7:45 AM - 8:00 AM	0	0	0	11	11	0	63	0	44	107	0	1	26	95	122	0	25	81	1	107	347
8:00 AM - 8:15 AM	0	0	0	11	11	0	60	0	43	103	0	6	20	100	126	0	33	63	1	97	337
8:15 AM - 8:30 AM	0	0	0	7	7	0	91	0	24	115	0	6	25	68	99	0	16	45	0	61	282
8:30 AM - 8:45 AM	0	0	0	7	7	0	20	0	5	25	0	1	32	16	49	0	5	33	0	38	119
8:45 AM - 9:00 AM	0	0	0	7	7	0	7	0	1	8	0	1	33	6	40	0	1	52	0	53	108
9:00 AM - 9:15 AM	0	1	0	9	10	0	7	0	2	9	0	0	25	6	31	0	0	45	0	45	95
9:15 AM - 9:30 AM	0	0	1	7	8	0	5	1	0	6	0	0	29	4	33	0	0	29	0	29	76
9:30 AM - 9:45 AM	0	0	0	10	10	0	1	0	1	2	0	1	14	1	16	0	1	29	0	30	58
9:45 AM - 10:00 AM	0	0	0	9	9	0	2	0	2	4	0	2	18	3	23	0	2	26	1	29	65
10:00 AM - 10:15 AM	0	0	0	10	10	0	2	0	1	3	0	2	24	4	30	2	0	22	0	24	67
10:15 AM - 10:30 AM	0	2	0	7	9	0	3	0	1	4	0	4	20	2	26	0	1	25	0	26	65
10:30 AM - 10:45 AM	0	1	0	9	10	0	2	0	0	2	0	2	26	0	28	0	0	22	0	22	62
10:45 AM - 11:00 AM	0	0	0	1	1	0	0	0	0	0	0	2	17	0	19	0	1	34	0	35	55
11:00 AM - 11:15 AM	0	0	0	6	6	0	4	0	0	4	0	3	25	4	32	0	0	21	0	21	63
11:15 AM - 11:30 AM	0	0	0	2	2	0	4	0	0	4	0	0	28	4	32	1	0	33	1	35	73
11:30 AM - 11:45 AM	0	1	0	6	7	0	2	0	3	5	0	4	26	7	37	0	0	37	1	38	87
11:45 AM - 12:00 PM	0	0	0	4	4	0	9	0	0	9	1	3	34	5	43	0	0	35	0	35	91
12:00 PM - 12:15 PM	0	0	0	3	3	0	3	0	0	3	0	2	40	4	46	0	0	37	0	37	89
12:15 PM - 12:30 PM	0	0	0	4	4	0	5	0	1	6	0	3	33	5	41	1	0	32	0	33	84
12:30 PM - 12:45 PM	0	1	0	5	6	0	3	0	0	3	0	4	41	1	46	0	1	31	0	32	87
12:45 PM - 1:00 PM	0	0	0	6	6	0	3	0	0	3	0	0	54	3	57	1	1	39	0	41	107
1:00 PM - 1:15 PM	0	0	0	5	5	0	3	0	1	4	1	10	39	7	57	0	2	60	0	62	128
1:15 PM - 1:30 PM	0	0	0	14	14	0	3	0	0	3	0	2	34	6	42	0	3	46	0	49	108
1:30 PM - 1:45 PM	0	0	0	7	7	0	11	0	4	15	0	9	57	8	74	0	1	42	0	43	139
1:45 PM - 2:00 PM	0	0	0	6	6	0	11	0	4	15	0	0	46	2	48	0	0	39	0	39	108
2:00 PM - 2:15 PM	0	0	0	1	1	0	5	0	0	5	0	1	40	4	45	0	0	25	0	25	76
2:15 PM - 2:30 PM	0	1	0	4	5	0	4	1	0	5	0	3	44	7	54	0	0	33	1	34	98
2:30 PM - 2:45 PM	0	0	0	7	7	0	3	0	1	4	0	4	30	16	50	0	2	36	0	38	99
2:45 PM - 3:00 PM	0	0	0	7	7	0	6	0	0	6	0	2	38	34	74	0	14	46	0	60	147
3:00 PM - 3:15 PM	0	0	1	4	5	0	3	0	1	4	0	4	32	41	77	1	18	70	0	89	175
3:15 PM - 3:30 PM	0	0	0	2	2	0	10	1	2	13	0	1	52	14	67	0	7	29	0	36	118
3:30 PM - 3:45 PM	0	0	0	6	6	0	69	0	22	91	0	5	44	35	84	0	1	37	0	38	219
3:45 PM - 4:00 PM	0	0	0	4	4	0	65	0	69	134	0	5	57	10	72	0	4	74	0	78	288
4:00 PM - 4:15 PM	0	0	0	3	3	0	46	0	7	53	0	7	60	4	71	0	1	38	0	39	166
4:15 PM - 4:30 PM	0	1	0	10	11	0	22	0	1	23	0	9	50	9	68	0	2	31	0	33	135
4:30 PM - 4:45 PM	0	0	0	5	5	0	14	0	0	14	1	6	51	1	59	0	0	42	0	42	120
4:45 PM - 5:00 PM	0	1	0	13	14	0	2	0	3	5	0	6	55	4	65	0	2	29	3	34	118
5:00 PM - 5:15 PM	0	0	0	7	7	0	11	0	2	13	0	7	55	3	65	0	1	17	1	19	104
5:15 PM - 5:30 PM	0	0	1	1	2	0	4	0	0	4	0	8	40	3	51	0	1	31	1	33	90
5:30 PM - 5:45 PM	0	0	0	5	5	0	12	0	1	13	1	8	49	2	60	0	1	29	0	30	108
5:45 PM - 6:00 PM	0	0	0	4	4	0	1	0	0	1	1	11	56	0	68	0	0	34	0	34	107
TOTAL	0	12	4	315	331	0	617	3	249	869	5	163	1567	686	2421	6	180	1780	13	1979	5600
GRAND TOTAL	0	12	4	315	331	0	617	3	249	869	5	163	1567	686	2421	6	180	1780	13	1979	5600

AM PEAK HOUR 7:30 AM TO 8:30 AM

	EASTBOUND				WESTBOUND				NORTHBOUND				SOUTHBOUND			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TURN VOLUME	0	1	1	38	0	216	0	111	0	16	86	339	0	96	228	2
APPROACH TOTAL		40				327				441				326		
PEAK HOUR FAC.		0.91				0.71				0.88				0.76		

MID-DAY PEAK HOUR 11:30 AM TO 12:30 PM

	EASTBOUND				WESTBOUND				NORTHBOUND				SOUTHBOUND			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TURN VOLUME	0	1	0	17	0	19	0	4	1	12	133	21	1	0	141	1
APPROACH TOTAL		18				23				167				143		
PEAK HOUR FAC.		0.64				0.64				0.91				0.94		

PM PEAK HOUR 3:30 PM TO 4:30 PM

	EASTBOUND				WESTBOUND				NORTHBOUND				SOUTHBOUND			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
TURN VOLUME	0	1	0	23	0	202	0	99	0	26	211	58	0	8	180	0
APPROACH TOTAL		24				301				295				188		
PEAK HOUR FAC.		0.55				0.56				0.88				0.60		

INTERSECTION : CONTROL ■ UNSIGNALIZED ☐ SIGNALIZED ☐ ACTUATED ☐ PRETIMED ☐ SEMI-ACTUATED

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive,
City of Canton

Reinhardt College Pkwy, east of Reservoir Dr

Twenty-Four Hour Vehicle Classification Count

Location: Reinhardt College Pkwy, east of Reservoir Dr (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	
1:00 AM	19	28	47	97.9%	1	0	1	2.1%	-	0	0	0.0%	20	28	48	100.0%	1:00 AM
2:00 AM	10	8	18	100.0%	-	0	0	0.0%	-	0	0	0.0%	10	8	18	100.0%	2:00 AM
3:00 AM	9	15	24	100.0%	-	0	0	0.0%	-	0	0	0.0%	9	15	24	100.0%	3:00 AM
4:00 AM	13	18	31	96.9%	-	0	0	0.0%	1	0	1	3.1%	14	18	32	100.0%	4:00 AM
5:00 AM	63	16	79	95.2%	3	1	4	4.8%	-	0	0	0.0%	66	17	83	100.0%	5:00 AM
6:00 AM	151	28	179	97.8%	1	1	2	1.1%	-	2	2	1.1%	152	31	183	100.0%	6:00 AM
7:00 AM	322	79	401	95.7%	12	4	16	3.8%	2	0	2	0.5%	336	83	419	100.0%	7:00 AM
8:00 AM	594	296	890	96.9%	16	12	28	3.1%	-	0	0	0.0%	610	308	918	100.0%	8:00 AM
9:00 AM	569	340	909	96.4%	15	16	31	3.3%	3	0	3	0.3%	587	356	943	100.0%	9:00 AM
10:00 AM	443	256	699	96.5%	10	10	20	2.8%	4	1	5	0.7%	457	267	724	100.0%	10:00 AM
11:00 AM	403	308	711	96.9%	6	12	18	2.5%	3	2	5	0.7%	412	322	734	100.0%	11:00 AM
12:00 PM	469	394	863	96.2%	14	13	27	3.0%	3	4	7	0.8%	486	411	897	100.0%	12:00 PM
1:00 PM	486	466	952	97.7%	9	8	17	1.7%	3	2	5	0.5%	498	476	974	100.0%	1:00 PM
2:00 PM	557	522	1079	97.9%	14	5	19	1.7%	3	1	4	0.4%	574	528	1102	100.0%	2:00 PM
3:00 PM	496	511	1007	96.5%	22	12	34	3.3%	1	1	2	0.2%	519	524	1043	100.0%	3:00 PM
4:00 PM	535	583	1118	96.2%	20	17	37	3.2%	2	5	7	0.6%	557	605	1162	100.0%	4:00 PM
5:00 PM	483	695	1178	98.3%	5	13	18	1.5%	1	1	2	0.2%	489	709	1198	100.0%	5:00 PM
6:00 PM	469	706	1175	99.2%	4	2	6	0.5%	3	1	4	0.3%	476	709	1185	100.0%	6:00 PM
7:00 PM	415	573	988	99.4%	1	3	4	0.4%	1	1	2	0.2%	417	577	994	100.0%	7:00 PM
8:00 PM	227	436	663	99.8%	-	0	0	0.0%	1	0	1	0.2%	228	436	664	100.0%	8:00 PM
9:00 PM	151	278	429	99.8%	-	1	1	0.2%	-	0	0	0.0%	151	279	430	100.0%	9:00 PM
10:00 PM	100	180	280	100.0%	-	0	0	0.0%	-	0	0	0.0%	100	180	280	100.0%	10:00 PM
11:00 PM	76	132	208	99.5%	-	1	1	0.5%	-	0	0	0.0%	76	133	209	100.0%	11:00 PM
12:00 AM	37	79	116	100.0%	-	0	0	0.0%	-	0	0	0.0%	37	79	116	100.0%	12:00 AM
Total	7,097	6,947	14,044	97.7%	153	131	284	2.0%	31	21	52	0.4%	7,281	7,099	14,380	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*909*	*96.4%*	*4:00 PM*	*5:00 PM*	*1,178*	*98.3%*	*14,044*	*98%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*31*	*3.3%*	*4:00 PM*	*5:00 PM*	*18*	*1.5%*	*284*	*2%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	*3*	*0.3%*	*4:00 PM*	*5:00 PM*	*2*	*0.2%*	*52*	*0%*
Total	*8:00 AM*	*9:00 AM*	*943*	*100.0%*	*4:00 PM*	*5:00 PM*	*1,198*	*100.0%*	*14,380*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Tuesday*
Date of Count: *1/26/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/1/2021*

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Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Reinhardt College Pkwy, east of Reservoir Dr

Twenty-Four Hour Vehicle Classification Count

Location: Reinhardt College Pkwy, east of Reservoir Dr (2021)

Hour	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour
Ending	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Ending
1:00 AM	20	37	57	100.0%	-	0	0	0.0%	-	0	0	0.0%	20	37	57	100.0%	1:00 AM
2:00 AM	13	19	32	100.0%	-	0	0	0.0%	-	0	0	0.0%	13	19	32	100.0%	2:00 AM
3:00 AM	4	14	18	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	14	18	100.0%	3:00 AM
4:00 AM	18	14	32	100.0%	-	0	0	0.0%	-	0	0	0.0%	18	14	32	100.0%	4:00 AM
5:00 AM	57	12	69	98.6%	1	0	1	1.4%	-	0	0	0.0%	58	12	70	100.0%	5:00 AM
6:00 AM	128	28	156	97.5%	3	1	4	2.5%	-	0	0	0.0%	131	29	160	100.0%	6:00 AM
7:00 AM	344	87	431	96.6%	11	2	13	2.9%	1	1	2	0.4%	356	90	446	100.0%	7:00 AM
8:00 AM	563	285	848	96.0%	20	13	33	3.7%	1	1	2	0.2%	584	299	883	100.0%	8:00 AM
9:00 AM	590	325	915	97.4%	14	8	22	2.3%	-	2	2	0.2%	604	335	939	100.0%	9:00 AM
10:00 AM	429	240	669	96.0%	12	13	25	3.6%	1	2	3	0.4%	442	255	697	100.0%	10:00 AM
11:00 AM	444	293	737	97.0%	10	11	21	2.8%	1	1	2	0.3%	455	305	760	100.0%	11:00 AM
12:00 PM	436	388	824	97.7%	9	6	15	1.8%	3	1	4	0.5%	448	395	843	100.0%	12:00 PM
1:00 PM	516	464	980	98.2%	8	4	12	1.2%	2	4	6	0.6%	526	472	998	100.0%	1:00 PM
2:00 PM	497	483	980	98.0%	9	9	18	1.8%	-	2	2	0.2%	506	494	1000	100.0%	2:00 PM
3:00 PM	437	516	953	96.4%	16	16	32	3.2%	1	3	4	0.4%	454	535	989	100.0%	3:00 PM
4:00 PM	510	656	1166	97.3%	18	11	29	2.4%	2	1	3	0.3%	530	668	1198	100.0%	4:00 PM
5:00 PM	513	682	1195	98.5%	7	10	17	1.4%	1	0	1	0.1%	521	692	1213	100.0%	5:00 PM
6:00 PM	433	758	1191	99.7%	2	1	3	0.3%	-	1	1	0.1%	435	760	1195	100.0%	6:00 PM
7:00 PM	385	531	916	99.7%	1	1	2	0.2%	1	0	1	0.1%	387	532	919	100.0%	7:00 PM
8:00 PM	270	404	674	100.0%	-	0	0	0.0%	-	0	0	0.0%	270	404	674	100.0%	8:00 PM
9:00 PM	156	291	447	100.0%	-	0	0	0.0%	-	0	0	0.0%	156	291	447	100.0%	9:00 PM
10:00 PM	99	202	301	100.0%	-	0	0	0.0%	-	0	0	0.0%	99	202	301	100.0%	10:00 PM
11:00 PM	74	122	196	100.0%	-	0	0	0.0%	-	0	0	0.0%	74	122	196	100.0%	11:00 PM
12:00 AM	43	66	109	100.0%	-	0	0	0.0%	-	0	0	0.0%	43	66	109	100.0%	12:00 AM
Total	6,979	6,917	13,896	98.0%	141	106	247	1.7%	14	19	33	0.2%	7,134	7,042	14,176	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*915*	*97.4%*	*4:00 PM*	*5:00 PM*	*1,195*	*98.5%*	*13,896*	*98%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*22*	*2.3%*	*4:00 PM*	*5:00 PM*	*17*	*1.4%*	*247*	*2%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	*2*	*0.2%*	*4:00 PM*	*5:00 PM*	*1*	*0.1%*	*33*	*0%*
Total	*8:00 AM*	*9:00 AM*	*939*	*100.0%*	*4:00 PM*	*5:00 PM*	*1,213*	*100.0%*	*14,176*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Wednesday*
Date of Count: *1/27/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/1/2021*

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Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive,
City of Canton

Reinhardt College Pkwy, west of Reservoir Dr

Twenty-Four Hour Vehicle Classification Count

Location: Reinhardt College Pkwy, west of Reservoir Dr (2021)

Hour	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour
Ending	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Ending
1:00 AM	17	24	41	97.6%	1	0	1	2.4%	-	0	0	0.0%	18	24	42	100.0%	1:00 AM
2:00 AM	8	7	15	100.0%	-	0	0	0.0%	-	0	0	0.0%	8	7	15	100.0%	2:00 AM
3:00 AM	5	12	17	100.0%	-	0	0	0.0%	-	0	0	0.0%	5	12	17	100.0%	3:00 AM
4:00 AM	6	16	22	95.7%	-	0	0	0.0%	1	0	1	4.3%	7	16	23	100.0%	4:00 AM
5:00 AM	45	15	60	95.2%	2	1	3	4.8%	-	0	0	0.0%	47	16	63	100.0%	5:00 AM
6:00 AM	103	38	141	97.9%	-	1	1	0.7%	-	2	2	1.4%	103	41	144	100.0%	6:00 AM
7:00 AM	223	83	306	93.9%	5	13	18	5.5%	2	0	2	0.6%	230	96	326	100.0%	7:00 AM
8:00 AM	467	225	692	93.9%	30	15	45	6.1%	-	0	0	0.0%	497	240	737	100.0%	8:00 AM
9:00 AM	449	324	773	93.2%	25	28	53	6.4%	3	0	3	0.4%	477	352	829	100.0%	9:00 AM
10:00 AM	324	226	550	96.3%	10	6	16	2.8%	4	1	5	0.9%	338	233	571	100.0%	10:00 AM
11:00 AM	302	248	550	96.5%	7	9	16	2.8%	3	1	4	0.7%	312	258	570	100.0%	11:00 AM
12:00 PM	364	314	678	96.0%	13	9	22	3.1%	2	4	6	0.8%	379	327	706	100.0%	12:00 PM
1:00 PM	390	362	752	97.7%	5	7	12	1.6%	3	3	6	0.8%	398	372	770	100.0%	1:00 PM
2:00 PM	461	444	905	96.9%	12	13	25	2.7%	3	1	4	0.4%	476	458	934	100.0%	2:00 PM
3:00 PM	412	384	796	96.6%	21	6	27	3.3%	-	1	1	0.1%	433	391	824	100.0%	3:00 PM
4:00 PM	402	489	891	93.2%	18	40	58	6.1%	2	5	7	0.7%	422	534	956	100.0%	4:00 PM
5:00 PM	343	537	880	98.2%	8	6	14	1.6%	1	1	2	0.2%	352	544	896	100.0%	5:00 PM
6:00 PM	371	511	882	99.1%	1	3	4	0.4%	3	1	4	0.4%	375	515	890	100.0%	6:00 PM
7:00 PM	333	405	738	99.2%	-	4	4	0.5%	1	1	2	0.3%	334	410	744	100.0%	7:00 PM
8:00 PM	205	333	538	99.8%	-	0	0	0.0%	1	0	1	0.2%	206	333	539	100.0%	8:00 PM
9:00 PM	140	204	344	99.7%	-	1	1	0.3%	-	0	0	0.0%	140	205	345	100.0%	9:00 PM
10:00 PM	84	129	213	100.0%	-	0	0	0.0%	-	0	0	0.0%	84	129	213	100.0%	10:00 PM
11:00 PM	70	103	173	100.0%	-	0	0	0.0%	-	0	0	0.0%	70	103	173	100.0%	11:00 PM
12:00 AM	37	62	99	99.0%	-	1	1	1.0%	-	0	0	0.0%	37	63	100	100.0%	12:00 AM
Total	5,561	5,495	11,056	96.8%	158	163	321	2.8%	29	21	50	0.4%	5,748	5,679	11,427	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*773*	*93.2%*	*3:00 PM*	*4:00 PM*	*891*	*93.2%*	*11,056*	*97%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*53*	*6.4%*	*3:00 PM*	*4:00 PM*	*58*	*6.1%*	*321*	*3%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	*3*	*0.4%*	*3:00 PM*	*4:00 PM*	*7*	*0.7%*	*50*	*0%*
Total	*8:00 AM*	*9:00 AM*	*829*	*100.0%*	*3:00 PM*	*4:00 PM*	*956*	*100.0%*	*11,427*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Tuesday*
Date of Count: *1/26/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/1/2021*

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Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive,
City of Canton

Reinhardt College Pkwy, west of Reservoir Dr

Twenty-Four Hour Vehicle Classification Count

Location: Reinhardt College Pkwy, west of Reservoir Dr (2021)

Hour	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour
Ending	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Ending
1:00 AM	15	27	42	100.0%	-	0	0	0.0%	-	0	0	0.0%	15	27	42	100.0%	1:00 AM
2:00 AM	10	12	22	100.0%	-	0	0	0.0%	-	0	0	0.0%	10	12	22	100.0%	2:00 AM
3:00 AM	3	14	17	100.0%	-	0	0	0.0%	-	0	0	0.0%	3	14	17	100.0%	3:00 AM
4:00 AM	12	15	27	100.0%	-	0	0	0.0%	-	0	0	0.0%	12	15	27	100.0%	4:00 AM
5:00 AM	38	15	53	98.1%	1	0	1	1.9%	-	0	0	0.0%	39	15	54	100.0%	5:00 AM
6:00 AM	95	31	126	97.7%	2	1	3	2.3%	-	0	0	0.0%	97	32	129	100.0%	6:00 AM
7:00 AM	235	90	325	95.0%	4	11	15	4.4%	1	1	2	0.6%	240	102	342	100.0%	7:00 AM
8:00 AM	435	223	658	93.6%	28	15	43	6.1%	1	1	2	0.3%	464	239	703	100.0%	8:00 AM
9:00 AM	459	310	769	94.4%	26	19	45	5.5%	-	1	1	0.1%	485	330	815	100.0%	9:00 AM
10:00 AM	326	206	532	96.0%	9	12	21	3.8%	-	1	1	0.2%	335	219	554	100.0%	10:00 AM
11:00 AM	346	238	584	96.4%	10	10	20	3.3%	1	1	2	0.3%	357	249	606	100.0%	11:00 AM
12:00 PM	345	318	663	97.6%	8	4	12	1.8%	3	1	4	0.6%	356	323	679	100.0%	12:00 PM
1:00 PM	413	354	767	97.7%	8	4	12	1.5%	2	4	6	0.8%	423	362	785	100.0%	1:00 PM
2:00 PM	383	412	795	97.3%	6	14	20	2.4%	1	1	2	0.2%	390	427	817	100.0%	2:00 PM
3:00 PM	350	400	750	96.4%	20	5	25	3.2%	-	3	3	0.4%	370	408	778	100.0%	3:00 PM
4:00 PM	395	553	948	93.7%	20	40	60	5.9%	3	1	4	0.4%	418	594	1012	100.0%	4:00 PM
5:00 PM	377	534	911	98.2%	12	4	16	1.7%	1	0	1	0.1%	390	538	928	100.0%	5:00 PM
6:00 PM	356	523	879	99.3%	3	2	5	0.6%	-	1	1	0.1%	359	526	885	100.0%	6:00 PM
7:00 PM	326	376	702	99.4%	1	1	2	0.3%	1	1	2	0.3%	328	378	706	100.0%	7:00 PM
8:00 PM	207	306	513	100.0%	-	0	0	0.0%	-	0	0	0.0%	207	306	513	100.0%	8:00 PM
9:00 PM	147	222	369	100.0%	-	0	0	0.0%	-	0	0	0.0%	147	222	369	100.0%	9:00 PM
10:00 PM	97	163	260	100.0%	-	0	0	0.0%	-	0	0	0.0%	97	163	260	100.0%	10:00 PM
11:00 PM	53	91	144	100.0%	-	0	0	0.0%	-	0	0	0.0%	53	91	144	100.0%	11:00 PM
12:00 AM	38	54	92	100.0%	-	0	0	0.0%	-	0	0	0.0%	38	54	92	100.0%	12:00 AM
Total	5,461	5,487	10,948	97.1%	158	142	300	2.7%	14	17	31	0.3%	5,633	5,646	11,279	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*769*	*94.4%*	*3:00 PM*	*4:00 PM*	*948*	*93.7%*	*10,948*	*97%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*45*	*5.5%*	*3:00 PM*	*4:00 PM*	*60*	*5.9%*	*300*	*3%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	*1*	*0.1%*	*3:00 PM*	*4:00 PM*	*4*	*0.4%*	*31*	*0%*
Total	*8:00 AM*	*9:00 AM*	*815*	*100.0%*	*3:00 PM*	*4:00 PM*	*1,012*	*100.0%*	*11,279*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Wednesday*
Date of Count: *1/27/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/1/2021*

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Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive, City of Canton

Reservoir Dr, north of Reinhardt College Pkwy

Twenty-Four Hour Vehicle Classification Count

Location: Reservoir Dr, north of Reinhardt College Pkwy (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	
1:00 AM	5	5	10	100.0%	-	0	0	0.0%	-	0	0	0.0%	5	5	10	100.0%	1:00 AM
2:00 AM	4	5	9	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	5	9	100.0%	2:00 AM
3:00 AM	1	3	4	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	3	4	100.0%	3:00 AM
4:00 AM	7	13	20	100.0%	-	0	0	0.0%	-	0	0	0.0%	7	13	20	100.0%	4:00 AM
5:00 AM	5	18	23	95.8%	-	1	1	4.2%	-	0	0	0.0%	5	19	24	100.0%	5:00 AM
6:00 AM	10	63	73	98.6%	-	1	1	1.4%	-	0	0	0.0%	10	64	74	100.0%	6:00 AM
7:00 AM	41	130	171	90.5%	1	17	18	9.5%	-	0	0	0.0%	42	147	189	100.0%	7:00 AM
8:00 AM	254	287	541	93.0%	26	15	41	7.0%	-	0	0	0.0%	280	302	582	100.0%	8:00 AM
9:00 AM	281	370	651	92.6%	25	27	52	7.4%	-	0	0	0.0%	306	397	703	100.0%	9:00 AM
10:00 AM	98	178	276	95.8%	8	4	12	4.2%	-	0	0	0.0%	106	182	288	100.0%	10:00 AM
11:00 AM	94	133	227	96.2%	5	1	6	2.5%	2	1	3	1.3%	101	135	236	100.0%	11:00 AM
12:00 PM	135	155	290	93.5%	11	8	19	6.1%	-	1	1	0.3%	146	164	310	100.0%	12:00 PM
1:00 PM	178	165	343	96.1%	5	8	13	3.6%	-	1	1	0.3%	183	174	357	100.0%	1:00 PM
2:00 PM	213	223	436	95.6%	4	14	18	3.9%	1	1	2	0.4%	218	238	456	100.0%	2:00 PM
3:00 PM	208	173	381	93.2%	16	11	27	6.6%	-	1	1	0.2%	224	185	409	100.0%	3:00 PM
4:00 PM	265	310	575	87.7%	28	53	81	12.3%	-	0	0	0.0%	293	363	656	100.0%	4:00 PM
5:00 PM	248	250	498	95.4%	17	7	24	4.6%	-	0	0	0.0%	265	257	522	100.0%	5:00 PM
6:00 PM	245	157	402	99.0%	-	4	4	1.0%	-	0	0	0.0%	245	161	406	100.0%	6:00 PM
7:00 PM	215	144	359	99.4%	-	2	2	0.6%	-	0	0	0.0%	215	146	361	100.0%	7:00 PM
8:00 PM	156	81	237	100.0%	-	0	0	0.0%	-	0	0	0.0%	156	81	237	100.0%	8:00 PM
9:00 PM	107	47	154	100.0%	-	0	0	0.0%	-	0	0	0.0%	107	47	154	100.0%	9:00 PM
10:00 PM	66	34	100	100.0%	-	0	0	0.0%	-	0	0	0.0%	66	34	100	100.0%	10:00 PM
11:00 PM	46	32	78	98.7%	1	0	1	1.3%	-	0	0	0.0%	47	32	79	100.0%	11:00 PM
12:00 AM	21	7	28	96.6%	-	1	1	3.4%	-	0	0	0.0%	21	8	29	100.0%	12:00 AM
Total	2,903	2,983	5,886	94.7%	147	174	321	5.2%	3	5	8	0.1%	3,053	3,162	6,215	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*651*	*92.6%*	*3:00 PM*	*4:00 PM*	*575*	*87.7%*	*5,886*	*95%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*52*	*7.4%*	*3:00 PM*	*4:00 PM*	*81*	*12.3%*	*321*	*5%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	-	*0.0%*	*3:00 PM*	*4:00 PM*	-	*0.0%*	*8*	*0%*
Total	*8:00 AM*	*9:00 AM*	*703*	*100.0%*	*3:00 PM*	*4:00 PM*	*656*	*100.0%*	*6,215*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Tuesday*
Date of Count: *1/26/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive,
City of Canton

Reservoir Dr, north of Reinhardt College Pkwy

Twenty-Four Hour Vehicle Classification Count

Location: Reservoir Dr, north of Reinhardt College Pkwy (2021)

Hour	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour
Ending	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Ending
1:00 AM	11	9	20	100.0%	-	0	0	0.0%	-	0	0	0.0%	11	9	20	100.0%	1:00 AM
2:00 AM	9	6	15	100.0%	-	0	0	0.0%	-	0	0	0.0%	9	6	15	100.0%	2:00 AM
3:00 AM	-	1	1	100.0%	-	0	0	0.0%	-	0	0	0.0%	-	1	1	100.0%	3:00 AM
4:00 AM	2	8	10	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	8	10	100.0%	4:00 AM
5:00 AM	4	20	24	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	20	24	100.0%	5:00 AM
6:00 AM	14	48	62	98.4%	-	1	1	1.6%	-	0	0	0.0%	14	49	63	100.0%	6:00 AM
7:00 AM	40	133	173	90.6%	1	17	18	9.4%	-	0	0	0.0%	41	150	191	100.0%	7:00 AM
8:00 AM	254	303	557	92.7%	25	19	44	7.3%	-	0	0	0.0%	279	322	601	100.0%	8:00 AM
9:00 AM	282	390	672	92.6%	27	26	53	7.3%	1	0	1	0.1%	310	416	726	100.0%	9:00 AM
10:00 AM	99	154	253	97.7%	1	3	4	1.5%	1	1	2	0.8%	101	158	259	100.0%	10:00 AM
11:00 AM	101	142	243	98.8%	2	1	3	1.2%	-	0	0	0.0%	103	143	246	100.0%	11:00 AM
12:00 PM	131	152	283	99.0%	2	1	3	1.0%	-	0	0	0.0%	133	153	286	100.0%	12:00 PM
1:00 PM	178	169	347	99.7%	-	1	1	0.3%	-	0	0	0.0%	178	170	348	100.0%	1:00 PM
2:00 PM	164	203	367	96.8%	1	9	10	2.6%	2	0	2	0.5%	167	212	379	100.0%	2:00 PM
3:00 PM	186	163	349	93.1%	20	5	25	6.7%	-	1	1	0.3%	206	169	375	100.0%	3:00 PM
4:00 PM	309	321	630	89.5%	23	50	73	10.4%	1	0	1	0.1%	333	371	704	100.0%	4:00 PM
5:00 PM	230	234	464	96.9%	12	1	13	2.7%	1	1	2	0.4%	243	236	479	100.0%	5:00 PM
6:00 PM	308	166	474	99.6%	1	1	2	0.4%	-	0	0	0.0%	309	167	476	100.0%	6:00 PM
7:00 PM	242	149	391	99.7%	-	0	0	0.0%	-	1	1	0.3%	242	150	392	100.0%	7:00 PM
8:00 PM	162	139	301	100.0%	-	0	0	0.0%	-	0	0	0.0%	162	139	301	100.0%	8:00 PM
9:00 PM	117	67	184	100.0%	-	0	0	0.0%	-	0	0	0.0%	117	67	184	100.0%	9:00 PM
10:00 PM	66	35	101	100.0%	-	0	0	0.0%	-	0	0	0.0%	66	35	101	100.0%	10:00 PM
11:00 PM	38	25	63	100.0%	-	0	0	0.0%	-	0	0	0.0%	38	25	63	100.0%	11:00 PM
12:00 AM	22	16	38	100.0%	-	0	0	0.0%	-	0	0	0.0%	22	16	38	100.0%	12:00 AM
Total	2,969	3,053	6,022	95.9%	115	135	250	4.0%	6	4	10	0.2%	3,090	3,192	6,282	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*672*	*92.6%*	*3:00 PM*	*4:00 PM*	*630*	*89.5%*	*6,022*	*96%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*53*	*7.3%*	*3:00 PM*	*4:00 PM*	*73*	*10.4%*	*250*	*4%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	*1*	*0.1%*	*3:00 PM*	*4:00 PM*	*1*	*0.1%*	*10*	*0%*
Total	*8:00 AM*	*9:00 AM*	*726*	*100.0%*	*3:00 PM*	*4:00 PM*	*704*	*100.0%*	*6,282*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Wednesday*
Date of Count: *1/27/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive, City of Canton

Riverstone Commons Circle, south of Reinhardt College Pkwy

Twenty-Four Hour Vehicle Classification Count

Location: Riverstone Commons Circle, south of Reinhardt College Pkwy (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	
1:00 AM	-	2	2	100.0%	-	0	0	0.0%	-	0	0	0.0%	-	2	2	100.0%	1:00 AM
2:00 AM	1	1	2	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	1	2	100.0%	2:00 AM
3:00 AM	2	3	5	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	3	5	100.0%	3:00 AM
4:00 AM	1	2	3	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	2	3	100.0%	4:00 AM
5:00 AM	4	0	4	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	0	4	100.0%	5:00 AM
6:00 AM	6	1	7	100.0%	-	0	0	0.0%	-	0	0	0.0%	6	1	7	100.0%	6:00 AM
7:00 AM	15	1	16	100.0%	-	0	0	0.0%	-	0	0	0.0%	15	1	16	100.0%	7:00 AM
8:00 AM	31	8	39	100.0%	-	0	0	0.0%	-	0	0	0.0%	31	8	39	100.0%	8:00 AM
9:00 AM	26	11	37	100.0%	-	0	0	0.0%	-	0	0	0.0%	26	11	37	100.0%	9:00 AM
10:00 AM	23	14	37	100.0%	-	0	0	0.0%	-	0	0	0.0%	23	14	37	100.0%	10:00 AM
11:00 AM	12	10	22	100.0%	-	0	0	0.0%	-	0	0	0.0%	12	10	22	100.0%	11:00 AM
12:00 PM	17	12	29	100.0%	-	0	0	0.0%	-	0	0	0.0%	17	12	29	100.0%	12:00 PM
1:00 PM	15	10	25	100.0%	-	0	0	0.0%	-	0	0	0.0%	15	10	25	100.0%	1:00 PM
2:00 PM	19	11	30	93.8%	1	1	2	6.3%	-	0	0	0.0%	20	12	32	100.0%	2:00 PM
3:00 PM	19	27	46	92.0%	2	2	4	8.0%	-	0	0	0.0%	21	29	50	100.0%	3:00 PM
4:00 PM	13	19	32	100.0%	-	0	0	0.0%	-	0	0	0.0%	13	19	32	100.0%	4:00 PM
5:00 PM	10	30	40	100.0%	-	0	0	0.0%	-	0	0	0.0%	10	30	40	100.0%	5:00 PM
6:00 PM	20	29	49	100.0%	-	0	0	0.0%	-	0	0	0.0%	20	29	49	100.0%	6:00 PM
7:00 PM	18	33	51	100.0%	-	0	0	0.0%	-	0	0	0.0%	18	33	51	100.0%	7:00 PM
8:00 PM	21	27	48	100.0%	-	0	0	0.0%	-	0	0	0.0%	21	27	48	100.0%	8:00 PM
9:00 PM	11	14	25	100.0%	-	0	0	0.0%	-	0	0	0.0%	11	14	25	100.0%	9:00 PM
10:00 PM	6	9	15	100.0%	-	0	0	0.0%	-	0	0	0.0%	6	9	15	100.0%	10:00 PM
11:00 PM	2	11	13	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	11	13	100.0%	11:00 PM
12:00 AM	4	7	11	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	7	11	100.0%	12:00 AM
Total	296	292	588	99.0%	3	3	6	1.0%	-	0	-	0.0%	299	295	594	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*7:00 AM*	*8:00 AM*	*39*	*100.0%*	*6:00 PM*	*7:00 PM*	*51*	*100.0%*	*588*	*99%*
*Med-Trk	*7:00 AM*	*8:00 AM*	-	*0.0%*	*6:00 PM*	*7:00 PM*	-	*0.0%*	*6*	*1%*
*Hvy-Trk	*7:00 AM*	*8:00 AM*	-	*0.0%*	*6:00 PM*	*7:00 PM*	-	*0.0%*	-	*0%*
Total	*7:00 AM*	*8:00 AM*	*39*	*100.0%*	*6:00 PM*	*7:00 PM*	*51*	*100.0%*	*594*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Tuesday*
Date of Count: *1/26/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive, City of Canton

Riverstone Commons Circle, south of Reinhardt College Pkwy

Twenty-Four Hour Vehicle Classification Count

Location: Riverstone Commons Circle, south of Reinhardt College Pkwy (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	
1:00 AM	3	6	9	100.0%	-	0	0	0.0%	-	0	0	0.0%	3	6	9	100.0%	1:00 AM
2:00 AM	-	1	1	100.0%	-	0	0	0.0%	-	0	0	0.0%	-	1	1	100.0%	2:00 AM
3:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	3:00 AM
4:00 AM	2	1	3	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	1	3	100.0%	4:00 AM
5:00 AM	6	0	6	100.0%	-	0	0	0.0%	-	0	0	0.0%	6	0	6	100.0%	5:00 AM
6:00 AM	4	2	6	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	2	6	100.0%	6:00 AM
7:00 AM	22	3	25	100.0%	-	0	0	0.0%	-	0	0	0.0%	22	3	25	100.0%	7:00 AM
8:00 AM	26	9	35	100.0%	-	0	0	0.0%	-	0	0	0.0%	26	9	35	100.0%	8:00 AM
9:00 AM	18	10	28	100.0%	-	0	0	0.0%	-	0	0	0.0%	18	10	28	100.0%	9:00 AM
10:00 AM	21	7	28	100.0%	-	0	0	0.0%	-	0	0	0.0%	21	7	28	100.0%	10:00 AM
11:00 AM	13	11	24	100.0%	-	0	0	0.0%	-	0	0	0.0%	13	11	24	100.0%	11:00 AM
12:00 PM	6	6	12	85.7%	1	1	2	14.3%	-	0	0	0.0%	7	7	14	100.0%	12:00 PM
1:00 PM	20	18	38	97.4%	-	1	1	2.6%	-	0	0	0.0%	20	19	39	100.0%	1:00 PM
2:00 PM	15	11	26	92.9%	1	1	2	7.1%	-	0	0	0.0%	16	12	28	100.0%	2:00 PM
3:00 PM	14	20	34	94.4%	1	1	2	5.6%	-	0	0	0.0%	15	21	36	100.0%	3:00 PM
4:00 PM	17	17	34	94.4%	1	1	2	5.6%	-	0	0	0.0%	18	18	36	100.0%	4:00 PM
5:00 PM	13	29	42	100.0%	-	0	0	0.0%	-	0	0	0.0%	13	29	42	100.0%	5:00 PM
6:00 PM	16	32	48	96.0%	1	1	2	4.0%	-	0	0	0.0%	17	33	50	100.0%	6:00 PM
7:00 PM	16	19	35	100.0%	-	0	0	0.0%	-	0	0	0.0%	16	19	35	100.0%	7:00 PM
8:00 PM	12	24	36	100.0%	-	0	0	0.0%	-	0	0	0.0%	12	24	36	100.0%	8:00 PM
9:00 PM	6	16	22	100.0%	-	0	0	0.0%	-	0	0	0.0%	6	16	22	100.0%	9:00 PM
10:00 PM	4	10	14	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	10	14	100.0%	10:00 PM
11:00 PM	11	8	19	100.0%	-	0	0	0.0%	-	0	0	0.0%	11	8	19	100.0%	11:00 PM
12:00 AM	3	4	7	100.0%	-	0	0	0.0%	-	0	0	0.0%	3	4	7	100.0%	12:00 AM
Total	268	264	532	98.0%	5	6	11	2.0%	-	0	-	0.0%	273	270	543	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*7:00 AM*	*8:00 AM*	*35*	*100.0%*	*5:00 PM*	*6:00 PM*	*48*	*96.0%*	*532*	*98%*
*Med-Trk	*7:00 AM*	*8:00 AM*	-	*0.0%*	*5:00 PM*	*6:00 PM*	*2*	*4.0%*	*11*	*2%*
*Hvy-Trk	*7:00 AM*	*8:00 AM*	-	*0.0%*	*5:00 PM*	*6:00 PM*	-	*0.0%*	-	*0%*
Total	*7:00 AM*	*8:00 AM*	*35*	*100.0%*	*5:00 PM*	*6:00 PM*	*50*	*100.0%*	*543*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Wednesday*
Date of Count: *1/27/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive,
City of Canton

Rservoir Drive, north of Hickory Log Drive

Twenty-Four Hour Vehicle Classification Count

Location: Rservoir Drive, north of Hickory Log Drive (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	
1:00 AM	2	6	8	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	6	8	100.0%	1:00 AM
2:00 AM	4	5	9	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	5	9	100.0%	2:00 AM
3:00 AM	1	3	4	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	3	4	100.0%	3:00 AM
4:00 AM	6	12	18	100.0%	-	0	0	0.0%	-	0	0	0.0%	6	12	18	100.0%	4:00 AM
5:00 AM	4	13	17	94.4%	-	1	1	5.6%	-	0	0	0.0%	4	14	18	100.0%	5:00 AM
6:00 AM	4	49	53	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	49	53	100.0%	6:00 AM
7:00 AM	17	110	127	94.8%	3	4	7	5.2%	-	0	0	0.0%	20	114	134	100.0%	7:00 AM
8:00 AM	103	241	344	97.5%	1	8	9	2.5%	-	0	0	0.0%	104	249	353	100.0%	8:00 AM
9:00 AM	177	245	422	97.7%	6	4	10	2.3%	-	0	0	0.0%	183	249	432	100.0%	9:00 AM
10:00 AM	84	131	215	95.6%	8	2	10	4.4%	-	0	0	0.0%	92	133	225	100.0%	10:00 AM
11:00 AM	87	104	191	95.0%	5	2	7	3.5%	2	1	3	1.5%	94	107	201	100.0%	11:00 AM
12:00 PM	110	120	230	93.1%	8	8	16	6.5%	-	1	1	0.4%	118	129	247	100.0%	12:00 PM
1:00 PM	165	135	300	95.2%	6	8	14	4.4%	1	0	1	0.3%	172	143	315	100.0%	1:00 PM
2:00 PM	173	187	360	95.2%	11	5	16	4.2%	1	1	2	0.5%	185	193	378	100.0%	2:00 PM
3:00 PM	150	143	293	94.2%	4	13	17	5.5%	-	1	1	0.3%	154	157	311	100.0%	3:00 PM
4:00 PM	272	223	495	95.0%	8	18	26	5.0%	-	0	0	0.0%	280	241	521	100.0%	4:00 PM
5:00 PM	224	138	362	96.0%	5	10	15	4.0%	-	0	0	0.0%	229	148	377	100.0%	5:00 PM
6:00 PM	203	112	315	98.7%	-	4	4	1.3%	-	0	0	0.0%	203	116	319	100.0%	6:00 PM
7:00 PM	175	121	296	99.3%	-	2	2	0.7%	-	0	0	0.0%	175	123	298	100.0%	7:00 PM
8:00 PM	117	61	178	100.0%	-	0	0	0.0%	-	0	0	0.0%	117	61	178	100.0%	8:00 PM
9:00 PM	86	41	127	100.0%	-	0	0	0.0%	-	0	0	0.0%	86	41	127	100.0%	9:00 PM
10:00 PM	54	29	83	100.0%	-	0	0	0.0%	-	0	0	0.0%	54	29	83	100.0%	10:00 PM
11:00 PM	35	22	57	98.3%	1	0	1	1.7%	-	0	0	0.0%	36	22	58	100.0%	11:00 PM
12:00 AM	18	4	22	95.7%	-	1	1	4.3%	-	0	0	0.0%	18	5	23	100.0%	12:00 AM
Total	2,271	2,255	4,526	96.5%	66	90	156	3.3%	4	4	8	0.2%	2,341	2,349	4,690	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*422*	*97.7%*	*3:00 PM*	*4:00 PM*	*495*	*95.0%*	*4,526*	*97%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*10*	*2.3%*	*3:00 PM*	*4:00 PM*	*26*	*5.0%*	*156*	*3%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	*-*	*0.0%*	*3:00 PM*	*4:00 PM*	*-*	*0.0%*	*8*	*0%*
Total	*8:00 AM*	*9:00 AM*	*432*	*100.0%*	*3:00 PM*	*4:00 PM*	*521*	*100.0%*	*4,690*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Tuesday*
Date of Count: *1/26/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive,
City of Canton

Rservoir Drive, north of Hickory Log Drive

Twenty-Four Hour Vehicle Classification Count

Location: Rservoir Drive, north of Hickory Log Drive (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	Northbound	Southbound	Total	Percent	
1:00 AM	7	5	12	100.0%	-	0	0	0.0%	-	0	0	0.0%	7	5	12	100.0%	1:00 AM
2:00 AM	5	6	11	100.0%	-	0	0	0.0%	-	0	0	0.0%	5	6	11	100.0%	2:00 AM
3:00 AM	-	1	1	100.0%	-	0	0	0.0%	-	0	0	0.0%	-	1	1	100.0%	3:00 AM
4:00 AM	2	7	9	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	7	9	100.0%	4:00 AM
5:00 AM	2	17	19	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	17	19	100.0%	5:00 AM
6:00 AM	9	38	47	100.0%	-	0	0	0.0%	-	0	0	0.0%	9	38	47	100.0%	6:00 AM
7:00 AM	15	110	125	94.7%	3	4	7	5.3%	-	0	0	0.0%	18	114	132	100.0%	7:00 AM
8:00 AM	95	260	355	95.7%	4	12	16	4.3%	-	0	0	0.0%	99	272	371	100.0%	8:00 AM
9:00 AM	191	250	441	97.8%	4	5	9	2.0%	1	0	1	0.2%	196	255	451	100.0%	9:00 AM
10:00 AM	86	136	222	98.2%	1	1	2	0.9%	1	1	2	0.9%	88	138	226	100.0%	10:00 AM
11:00 AM	89	111	200	99.0%	1	1	2	1.0%	-	0	0	0.0%	90	112	202	100.0%	11:00 AM
12:00 PM	111	115	226	99.1%	1	1	2	0.9%	-	0	0	0.0%	112	116	228	100.0%	12:00 PM
1:00 PM	162	141	303	99.3%	-	2	2	0.7%	-	0	0	0.0%	162	143	305	100.0%	1:00 PM
2:00 PM	135	171	306	96.2%	10	1	11	3.5%	1	0	1	0.3%	146	172	318	100.0%	2:00 PM
3:00 PM	135	140	275	94.2%	7	9	16	5.5%	-	1	1	0.3%	142	150	292	100.0%	3:00 PM
4:00 PM	280	193	473	95.0%	9	15	24	4.8%	1	0	1	0.2%	290	208	498	100.0%	4:00 PM
5:00 PM	206	133	339	98.0%	1	4	5	1.4%	1	1	2	0.6%	208	138	346	100.0%	5:00 PM
6:00 PM	260	111	371	99.5%	-	2	2	0.5%	-	0	0	0.0%	260	113	373	100.0%	6:00 PM
7:00 PM	205	112	317	100.0%	-	0	0	0.0%	-	0	0	0.0%	205	112	317	100.0%	7:00 PM
8:00 PM	127	125	252	100.0%	-	0	0	0.0%	-	0	0	0.0%	127	125	252	100.0%	8:00 PM
9:00 PM	90	50	140	100.0%	-	0	0	0.0%	-	0	0	0.0%	90	50	140	100.0%	9:00 PM
10:00 PM	48	27	75	100.0%	-	0	0	0.0%	-	0	0	0.0%	48	27	75	100.0%	10:00 PM
11:00 PM	29	16	45	100.0%	-	0	0	0.0%	-	0	0	0.0%	29	16	45	100.0%	11:00 PM
12:00 AM	17	13	30	100.0%	-	0	0	0.0%	-	0	0	0.0%	17	13	30	100.0%	12:00 AM
Total	2,306	2,288	4,594	97.7%	41	57	98	2.1%	5	3	8	0.2%	2,352	2,348	4,700	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*441*	*97.8%*	*3:00 PM*	*4:00 PM*	*473*	*95.0%*	*4,594*	*98%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*9*	*2.0%*	*3:00 PM*	*4:00 PM*	*24*	*4.8%*	*98*	*2%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	*1*	*0.2%*	*3:00 PM*	*4:00 PM*	*1*	*0.2%*	*8*	*0%*
Total	*8:00 AM*	*9:00 AM*	*451*	*100.0%*	*3:00 PM*	*4:00 PM*	*498*	*100.0%*	*4,700*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Wednesday*
Date of Count: *1/27/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive, City of Canton

Hickory Log Drive, east of Reservoir Drive

Twenty-Four Hour Vehicle Classification Count

Location: Hickory Log Drive, east of Reservoir Drive (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	
1:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	1:00 AM
2:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	2:00 AM
3:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	3:00 AM
4:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	4:00 AM
5:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	5:00 AM
6:00 AM	8	1	9	90.0%	-	1	1	10.0%	-	0	0	0.0%	8	2	10	100.0%	6:00 AM
7:00 AM	29	0	29	65.9%	-	15	15	34.1%	-	0	0	0.0%	29	15	44	100.0%	7:00 AM
8:00 AM	231	96	327	87.4%	32	15	47	12.6%	-	0	0	0.0%	263	111	374	100.0%	8:00 AM
9:00 AM	217	221	438	88.3%	28	30	58	11.7%	-	0	0	0.0%	245	251	496	100.0%	9:00 AM
10:00 AM	17	19	36	92.3%	1	2	3	7.7%	-	0	0	0.0%	18	21	39	100.0%	10:00 AM
11:00 AM	6	9	15	88.2%	2	0	2	11.8%	-	0	0	0.0%	8	9	17	100.0%	11:00 AM
12:00 PM	18	22	40	95.2%	2	0	2	4.8%	-	0	0	0.0%	20	22	42	100.0%	12:00 PM
1:00 PM	15	15	30	100.0%	-	0	0	0.0%	-	0	0	0.0%	15	15	30	100.0%	1:00 PM
2:00 PM	29	20	49	74.2%	-	17	17	25.8%	-	0	0	0.0%	29	37	66	100.0%	2:00 PM
3:00 PM	61	19	80	82.5%	16	1	17	17.5%	-	0	0	0.0%	77	20	97	100.0%	3:00 PM
4:00 PM	95	192	287	76.9%	36	50	86	23.1%	-	0	0	0.0%	131	242	373	100.0%	4:00 PM
5:00 PM	6	93	99	83.9%	17	2	19	16.1%	-	0	0	0.0%	23	95	118	100.0%	5:00 PM
6:00 PM	12	31	43	100.0%	-	0	0	0.0%	-	0	0	0.0%	12	31	43	100.0%	6:00 PM
7:00 PM	3	7	10	100.0%	-	0	0	0.0%	-	0	0	0.0%	3	7	10	100.0%	7:00 PM
8:00 PM	3	2	5	100.0%	-	0	0	0.0%	-	0	0	0.0%	3	2	5	100.0%	8:00 PM
9:00 PM	1	2	3	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	2	3	100.0%	9:00 PM
10:00 PM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	10:00 PM
11:00 PM	2	5	7	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	5	7	100.0%	11:00 PM
12:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	12:00 AM
Total	753	754	1,507	84.9%	134	133	267	15.1%	-	0	-	0.0%	887	887	1,774	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*438*	*88.3%*	*3:00 PM*	*4:00 PM*	*287*	*76.9%*	*1,507*	*85%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*58*	*11.7%*	*3:00 PM*	*4:00 PM*	*86*	*23.1%*	*267*	*15%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	-	*0.0%*	*3:00 PM*	*4:00 PM*	-	*0.0%*	-	*0%*
Total	*8:00 AM*	*9:00 AM*	*496*	*100.0%*	*3:00 PM*	*4:00 PM*	*373*	*100.0%*	*1,774*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Tuesday*
Date of Count: *1/26/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive, City of Canton

Hickory Log Drive, east of Reservoir Drive

Twenty-Four Hour Vehicle Classification Count

Location: Hickory Log Drive, east of Reservoir Drive (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	
1:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	1:00 AM
2:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	2:00 AM
3:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	3:00 AM
4:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	4:00 AM
5:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	5:00 AM
6:00 AM	9	1	10	90.9%	-	1	1	9.1%	-	0	0	0.0%	9	2	11	100.0%	6:00 AM
7:00 AM	27	2	29	65.9%	-	15	15	34.1%	-	0	0	0.0%	27	17	44	100.0%	7:00 AM
8:00 AM	249	98	347	88.3%	30	16	46	11.7%	-	0	0	0.0%	279	114	393	100.0%	8:00 AM
9:00 AM	215	237	452	88.8%	29	28	57	11.2%	-	0	0	0.0%	244	265	509	100.0%	9:00 AM
10:00 AM	19	19	38	90.5%	1	3	4	9.5%	-	0	0	0.0%	20	22	42	100.0%	10:00 AM
11:00 AM	10	12	22	95.7%	1	0	1	4.3%	-	0	0	0.0%	11	12	23	100.0%	11:00 AM
12:00 PM	16	18	34	97.1%	1	0	1	2.9%	-	0	0	0.0%	17	18	35	100.0%	12:00 PM
1:00 PM	9	10	19	100.0%	-	0	0	0.0%	-	0	0	0.0%	9	10	19	100.0%	1:00 PM
2:00 PM	34	16	50	74.6%	-	17	17	25.4%	-	0	0	0.0%	34	33	67	100.0%	2:00 PM
3:00 PM	65	22	87	84.5%	16	0	16	15.5%	-	0	0	0.0%	81	22	103	100.0%	3:00 PM
4:00 PM	101	226	327	78.6%	34	55	89	21.4%	-	0	0	0.0%	135	281	416	100.0%	4:00 PM
5:00 PM	8	78	86	85.1%	14	1	15	14.9%	-	0	0	0.0%	22	79	101	100.0%	5:00 PM
6:00 PM	16	34	50	96.2%	2	0	2	3.8%	-	0	0	0.0%	18	34	52	100.0%	6:00 PM
7:00 PM	3	4	7	100.0%	-	0	0	0.0%	-	0	0	0.0%	3	4	7	100.0%	7:00 PM
8:00 PM	1	2	3	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	2	3	100.0%	8:00 PM
9:00 PM	2	1	3	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	1	3	100.0%	9:00 PM
10:00 PM	1	3	4	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	3	4	100.0%	10:00 PM
11:00 PM	1	4	5	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	4	5	100.0%	11:00 PM
12:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	12:00 AM
Total	786	787	1,573	85.6%	128	136	264	14.4%	-	0	-	0.0%	914	923	1,837	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*8:00 AM*	*9:00 AM*	*452*	*88.8%*	*3:00 PM*	*4:00 PM*	*327*	*78.6%*	*1,573*	*86%*
*Med-Trk	*8:00 AM*	*9:00 AM*	*57*	*11.2%*	*3:00 PM*	*4:00 PM*	*89*	*21.4%*	*264*	*14%*
*Hvy-Trk	*8:00 AM*	*9:00 AM*	-	*0.0%*	*3:00 PM*	*4:00 PM*	-	*0.0%*	-	*0%*
Total	*8:00 AM*	*9:00 AM*	*509*	*100.0%*	*3:00 PM*	*4:00 PM*	*416*	*100.0%*	*1,837*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Wednesday*
Date of Count: *1/27/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive,
City of Canton

Hickory Log Drive, west of Reservoir Drive

Twenty-Four Hour Vehicle Classification Count

Location: Hickory Log Drive, west of Reservoir Drive (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	
1:00 AM	-	4	4	100.0%	-	0	0	0.0%	-	0	0	0.0%	-	4	4	100.0%	1:00 AM
2:00 AM	2	2	4	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	2	4	100.0%	2:00 AM
3:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	3:00 AM
4:00 AM	1	1	2	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	1	2	100.0%	4:00 AM
5:00 AM	4	0	4	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	0	4	100.0%	5:00 AM
6:00 AM	17	2	19	100.0%	-	0	0	0.0%	-	0	0	0.0%	17	2	19	100.0%	6:00 AM
7:00 AM	32	4	36	100.0%	-	0	0	0.0%	-	0	0	0.0%	32	4	36	100.0%	7:00 AM
8:00 AM	42	8	50	100.0%	-	0	0	0.0%	-	0	0	0.0%	42	8	50	100.0%	8:00 AM
9:00 AM	32	15	47	100.0%	-	0	0	0.0%	-	0	0	0.0%	32	15	47	100.0%	9:00 AM
10:00 AM	37	5	42	100.0%	-	0	0	0.0%	-	0	0	0.0%	37	5	42	100.0%	10:00 AM
11:00 AM	30	10	40	100.0%	-	0	0	0.0%	-	0	0	0.0%	30	10	40	100.0%	11:00 AM
12:00 PM	19	12	31	100.0%	-	0	0	0.0%	-	0	0	0.0%	19	12	31	100.0%	12:00 PM
1:00 PM	19	9	28	100.0%	-	0	0	0.0%	-	0	0	0.0%	19	9	28	100.0%	1:00 PM
2:00 PM	32	20	52	98.1%	-	1	1	1.9%	-	0	0	0.0%	32	21	53	100.0%	2:00 PM
3:00 PM	19	12	31	96.9%	1	0	1	3.1%	-	0	0	0.0%	20	12	32	100.0%	3:00 PM
4:00 PM	17	16	33	100.0%	-	0	0	0.0%	-	0	0	0.0%	17	16	33	100.0%	4:00 PM
5:00 PM	33	31	64	100.0%	-	0	0	0.0%	-	0	0	0.0%	33	31	64	100.0%	5:00 PM
6:00 PM	18	36	54	100.0%	-	0	0	0.0%	-	0	0	0.0%	18	36	54	100.0%	6:00 PM
7:00 PM	21	42	63	100.0%	-	0	0	0.0%	-	0	0	0.0%	21	42	63	100.0%	7:00 PM
8:00 PM	20	37	57	100.0%	-	0	0	0.0%	-	0	0	0.0%	20	37	57	100.0%	8:00 PM
9:00 PM	7	24	31	100.0%	-	0	0	0.0%	-	0	0	0.0%	7	24	31	100.0%	9:00 PM
10:00 PM	9	15	24	100.0%	-	0	0	0.0%	-	0	0	0.0%	9	15	24	100.0%	10:00 PM
11:00 PM	4	10	14	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	10	14	100.0%	11:00 PM
12:00 AM	3	5	8	100.0%	-	0	0	0.0%	-	0	0	0.0%	3	5	8	100.0%	12:00 AM
Total	418	320	738	99.7%	1	1	2	0.3%	-	0	-	0.0%	419	321	740	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*7:00 AM*	*8:00 AM*	*50*	*100.0%*	*4:00 PM*	*5:00 PM*	*64*	*100.0%*	*738*	*100%*
*Med-Trk	*7:00 AM*	*8:00 AM*	-	*0.0%*	*4:00 PM*	*5:00 PM*	-	*0.0%*	*2*	*0%*
*Hvy-Trk	*7:00 AM*	*8:00 AM*	-	*0.0%*	*4:00 PM*	*5:00 PM*	-	*0.0%*	-	*0%*
Total	*7:00 AM*	*8:00 AM*	*50*	*100.0%*	*4:00 PM*	*5:00 PM*	*64*	*100.0%*	*740*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Tuesday*
Date of Count: *1/26/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

Traffic Engineering Study

Reservoir Drive at Reinhardt College Parkway and at Hickory Log Drive,
City of Canton

Hickory Log Drive, west of Reservoir Drive

Twenty-Four Hour Vehicle Classification Count

Location: Hickory Log Drive, west of Reservoir Drive (2021)

Hour Ending	Motorcycles, Autos, Pickups				Buses and Single Unit Trucks				Combination Trucks				Total				Hour Ending
	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	Eastbound	Westbound	Total	Percent	
1:00 AM	4	4	8	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	4	8	100.0%	1:00 AM
2:00 AM	1	5	6	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	5	6	100.0%	2:00 AM
3:00 AM	1	0	1	100.0%	-	0	0	0.0%	-	0	0	0.0%	1	0	1	100.0%	3:00 AM
4:00 AM	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	-	0	0	0.0%	4:00 AM
5:00 AM	2	3	5	100.0%	-	0	0	0.0%	-	0	0	0.0%	2	3	5	100.0%	5:00 AM
6:00 AM	15	1	16	100.0%	-	0	0	0.0%	-	0	0	0.0%	15	1	16	100.0%	6:00 AM
7:00 AM	30	5	35	100.0%	-	0	0	0.0%	-	0	0	0.0%	30	5	35	100.0%	7:00 AM
8:00 AM	46	7	53	100.0%	-	0	0	0.0%	-	0	0	0.0%	46	7	53	100.0%	8:00 AM
9:00 AM	30	8	38	100.0%	-	0	0	0.0%	-	0	0	0.0%	30	8	38	100.0%	9:00 AM
10:00 AM	16	7	23	100.0%	-	0	0	0.0%	-	0	0	0.0%	16	7	23	100.0%	10:00 AM
11:00 AM	21	7	28	100.0%	-	0	0	0.0%	-	0	0	0.0%	21	7	28	100.0%	11:00 AM
12:00 PM	29	11	40	100.0%	-	0	0	0.0%	-	0	0	0.0%	29	11	40	100.0%	12:00 PM
1:00 PM	17	5	22	100.0%	-	0	0	0.0%	-	0	0	0.0%	17	5	22	100.0%	1:00 PM
2:00 PM	25	6	31	100.0%	-	0	0	0.0%	-	0	0	0.0%	25	6	31	100.0%	2:00 PM
3:00 PM	21	9	30	100.0%	-	0	0	0.0%	-	0	0	0.0%	21	9	30	100.0%	3:00 PM
4:00 PM	22	39	61	100.0%	-	0	0	0.0%	-	0	0	0.0%	22	39	61	100.0%	4:00 PM
5:00 PM	27	27	54	100.0%	-	0	0	0.0%	-	0	0	0.0%	27	27	54	100.0%	5:00 PM
6:00 PM	31	41	72	100.0%	-	0	0	0.0%	-	0	0	0.0%	31	41	72	100.0%	6:00 PM
7:00 PM	33	38	71	100.0%	-	0	0	0.0%	-	0	0	0.0%	33	38	71	100.0%	7:00 PM
8:00 PM	15	34	49	100.0%	-	0	0	0.0%	-	0	0	0.0%	15	34	49	100.0%	8:00 PM
9:00 PM	14	27	41	100.0%	-	0	0	0.0%	-	0	0	0.0%	14	27	41	100.0%	9:00 PM
10:00 PM	6	17	23	100.0%	-	0	0	0.0%	-	0	0	0.0%	6	17	23	100.0%	10:00 PM
11:00 PM	5	14	19	100.0%	-	0	0	0.0%	-	0	0	0.0%	5	14	19	100.0%	11:00 PM
12:00 AM	4	7	11	100.0%	-	0	0	0.0%	-	0	0	0.0%	4	7	11	100.0%	12:00 AM
Total	415	322	737	100.0%	-	-	-	0.0%	-	0	-	0.0%	415	322	737	100.0%	Total

	AM Peak				PM Peak				24-Hr Vehicle Mix	
Veh. Type	From	To	Volume	% Mix	From	To	Volume	% Mix	24-Hr Count	% Mix
*Auto	*7:00 AM*	*8:00 AM*	*53*	*100.0%*	*5:00 PM*	*6:00 PM*	*72*	*100.0%*	*737*	*100%*
*Med-Trk	*7:00 AM*	*8:00 AM*	-	*0.0%*	*5:00 PM*	*6:00 PM*	-	*0.0%*	-	*0%*
*Hvy-Trk	*7:00 AM*	*8:00 AM*	-	*0.0%*	*5:00 PM*	*6:00 PM*	-	*0.0%*	-	*0%*
Total	*7:00 AM*	*8:00 AM*	*53*	*100.0%*	*5:00 PM*	*6:00 PM*	*72*	*100.0%*	*737*	*100%*

Machine Count Made By: *All Traffic Data Services*
Day-of-Week of Count: *Wednesday*
Date of Count: *1/27/2021*
Report Prepared By: *JRA*
Date Report Prepared: *2/2/2021*

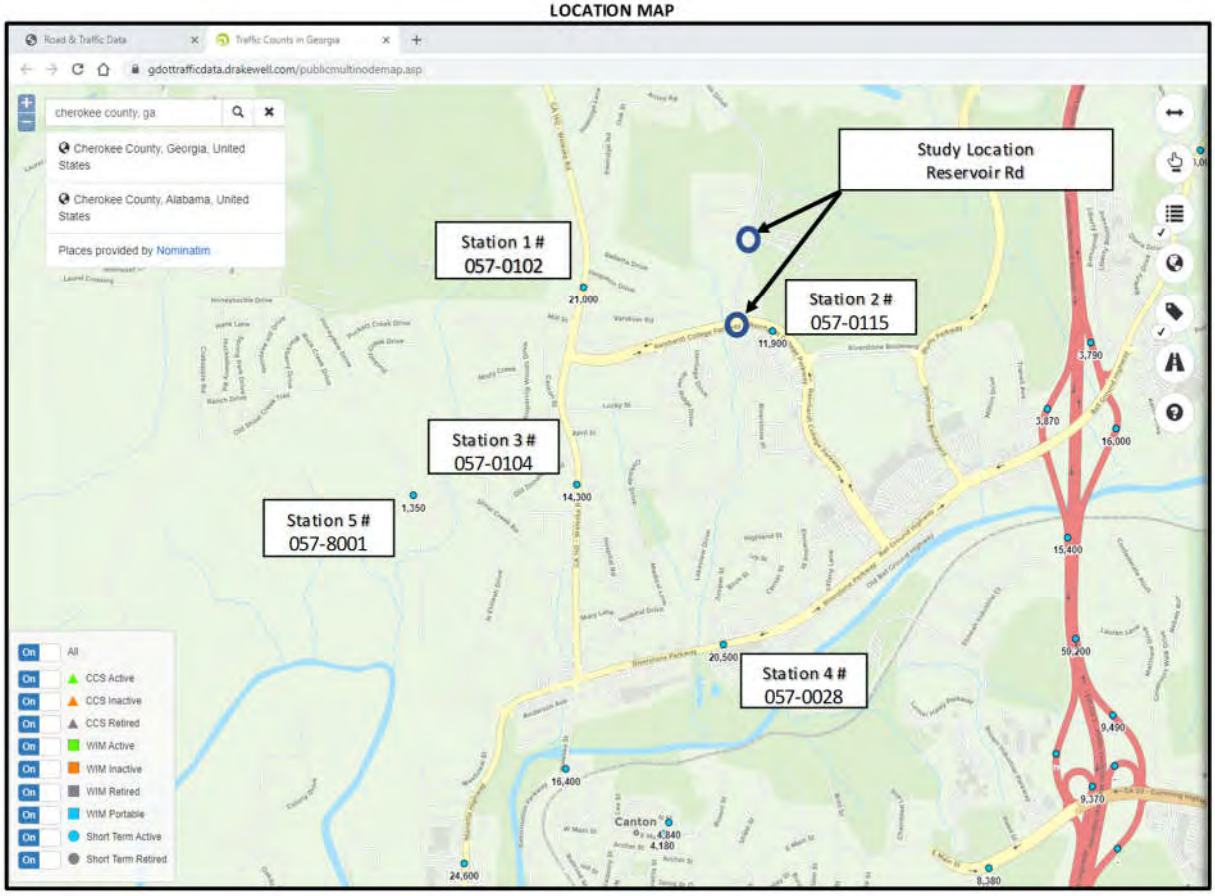
*

Auto: Motorcycles, Autos, Pickups
Med-Trk: Buses and Single Unit Trucks
Hvy-Trk: Combination Trucks

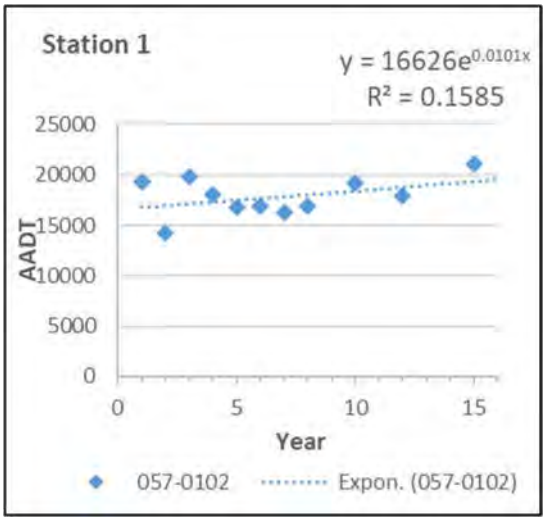
Appendix D: Growth Rate Calculations

GDOT Historical Traffic Count Stations

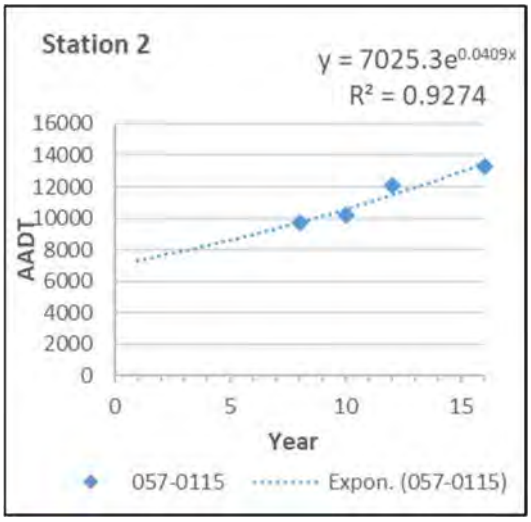
LOCATION MAP



Station 1	057-0102		
Waleska Rd btn Vandiver Rd & Ferguson Dr			
		AADT	
Year	n Year	Actual	Exponential
2004	1	19390	16795
2005	2	14250	16965
2006	3	19810	17137
2007	4	18000	17311
2008	5	16830	17487
2009	6	16860	17665
2010	7	16220	17844
2011	8	16956	18025
2012	9		18208
2013	10	19200	18393
2014	11		18580
2015	12	17939	18768
2016	13		18959
2017	14		19151
2018	15	21172	19346
2019	16		19542
2025	22		20763
2045	42		25411
https://gdottrafficdata.drakewell.com/sitedashboard.asp?node=GDOT_PORTABLES&cosit=0000057_0102			
From Graph		Year	Growth
		5-yr	1.0%
Intercept, a	16626	10-yr	1.0%
Growth, b	0.0101	15-yr	1.0%



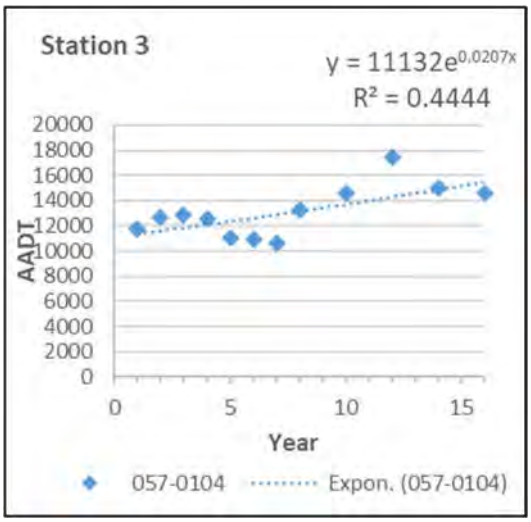
Station 2	057-0115		
Reinhardt College Pkwy East of Reservoir Dr			
		AADT	
Year	n Year	Actual	Exponential
2004	1		7319
2005	2		7624
2006	3		7942
2007	4		8274
2008	5		8619
2009	6		8979
2010	7		9354
2011	8	9761	9745
2012	9		10151
2013	10	10190	10575
2014	11		11017
2015	12	12115	11477
2016	13		11956
2017	14		12455
2018	15		12975
2019	16	13292	13517
2025	22		17276
2045	42		39147
https://gdottrafficdata.drakewell.com/sitedashboard.asp?node=GDOT_PORTABLES&cosit=0000057_0115			
From Graph		Year	Growth
		5-yr	4.2%
Intercept, a	7025.3	10-yr	4.2%
Growth, b	0.0409	15-yr	4.2%



Station 3	057-0104		
Waleska Rd Btn N Etowah Dr and Old Donaldson Rd			
		AADT	
Year	n Year	Actual	Exponential
2005	1	11740	11365
2006	2	12650	11603
2007	3	12860	11845
2008	4	12540	12093
2009	5	10990	12346
2010	6	10890	12604
2011	7	10630	12868
2012	8	13232	13137
2013	9		13412
2014	10	14628	13692
2015	11		13979
2016	12	17446	14271
2017	13		14569
2018	14	14990	14874
2019	15		15185
2020	16	14552	15503
2025	21		17193
2045	41		26011

https://gdottrafficdata.drakewell.com/sitedashboard.asp?node=GDOT_PORTABLES&cosit=0000057_0104

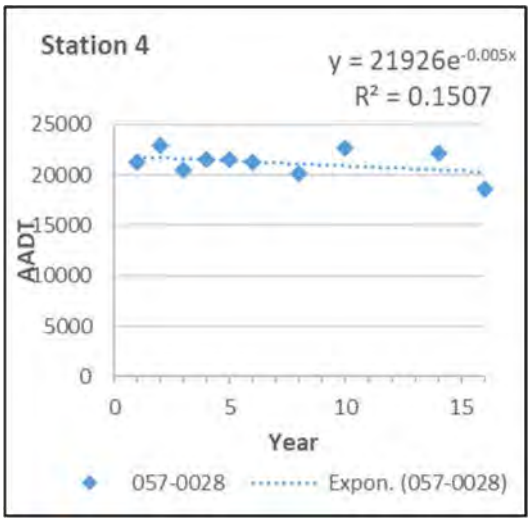
From Graph		Year	Growth
		5-yr	2.1%
Intercept, a	11132	10-yr	2.1%
Growth, b	0.0207	15-yr	2.1%



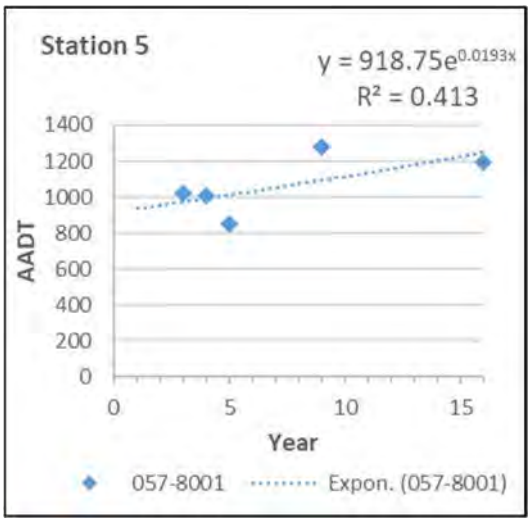
Station 4	057-0028		
Riverstone Pkwy East of Canton Mill Dr			
		AADT	
Year	n Year	Actual	Exponential
2005	1	21250	21817
2006	2	23000	21708
2007	3	20540	21600
2008	4	21500	21492
2009	5	21540	21385
2010	6	21237	21278
2011	7		21172
2012	8	20094	21066
2013	9		20961
2014	10	22674	20857
2015	11		20753
2016	12		20649
2017	13		20546
2018	14	22132	20444
2019	15		20342
2020	16	18612	20240
2025	21		19741
2045	41		17862

https://gdottrafficdata.drakewell.com/sitedashboard.asp?node=GDOT_PORTABLES&cosit=0000057_0028

From Graph		Year	Growth
		5-yr	-0.5%
Intercept, a	21926	10-yr	-0.5%
Growth, b	-0.005	15-yr	-0.5%



Station 5	057-8001		
Shoal Creek Rd West of Waleska Rd			
		AADT	
Year	n Year	Actual	Exponential
2005	1		937
2006	2		955
2007	3	1020	974
2008	4	1010	992
2009	5	850	1012
2010	6		1032
2011	7		1052
2012	8		1072
2013	9	1281	1093
2014	10		1114
2015	11		1136
2016	12		1158
2017	13		1181
2018	14		1204
2019	15		1227
2020	16	1194	1251
2025	21		1378
2045	41		2027
https://gdottrafficdata.drakewell.com/sitedashboard.asp?node=GDOT_PORTABLES&cosit=0000057_8001			
From Graph		Year	Growth
		5-yr	1.9%
Intercept, a	918.75	10-yr	1.9%
Growth, b	0.0193	15-yr	1.9%



GROWTH RATE FROM MODEL AADT				
Leg	Bound	Base Year	Forecast Year	Annual Compound Growth Rate
		2015	2050	
North Waleska Rd	Direction 1	7133	10895	1.1%
	Direction 2	6723	10242	
South Waleska Rd	Direction 1	6135	8613	
	Direction 2	6097	8683	
East GA 5 Conn	Direction 1	2360	3408	
	Direction 2	1913	2824	
West	Direction 1	-	-	
	Direction 2	-	-	
Two-Way Total		30361	44665	

Source: *ARC Ttravel Demand Model 2015 Base year*

GROWTH RATE OF POPULATION FORECAST					
Year	**2020**	**2025**	**2045**	**Average**	**Weighted Average**
Population	266617	297684	371738		
Base Year 2020 - Growth Rate		2.2%	1.3%	1.8%	**1.5%**

Source: Governor's Office of Planning and Budget (OPB) - County Residential Population, 2018-2063

OPB: https://opb.georgia.gov/census-data/population-projections

Appendix E: Trip Generation Worksheets

TRIP GENERATION ANALYSIS
Atkins

PROJECT: *Reservoir Dr Corridor Study*

CLIENT: *City of Canton* **DATE:** *02/22/21*

PARCEL IDENTIFICATION: *Residential*

LAND USE

ITE LAND USE CODE: *220*
Land Use: *Multi-Family Housing (Low-Rise)*

Trip Rate Units - Trips Per Dwelling Unit

Total Number of Dwelling Units: *299*

TRIP END CALCULATION

		DIRECTIONAL DISTRIBUTION			
		PERCENT		TRIPS	
		IN	OUT	IN	OUT
DAILY					
AVERAGE TRIP RATE:	7.32				
TRIP ENDS (AVG. TRIP RATE)	2,189				
TRIP END EQUATION					
*Trip Ends = 7.56 * Dwelling Units - 40.86*					
Daily Trip Ends =	2,220	50	50	1,110	1,110
AM PEAK HOUR					
AVERAGE TRIP RATE:	0.46				
TRIP ENDS (AVG. TRIP RATE)	138				
TRIP END EQUATION					
*Ln(Trip Ends) = 0.95*Ln(Dwelling Units) - 0.51*					
AM Peak Trip Ends =	135	23	77	31	104
PM PEAK HOUR					
AVERAGE TRIP RATE:	0.56				
TRIP ENDS (AVG. TRIP RATE)	167				
TRIP END EQUATION					
*Ln(Trip Ends) = 0.89*Ln(Dwelling Units) - 0.02*					
PM Peak Trip Ends =	157	63	37	99	58

Source: TRIP GENERATION 10th Edition

TRIP GENERATION ANALYSIS
Atkins

PROJECT: *Reservoir Dr Corridor Study*

CLIENT: *City of Canton* **DATE:** *22-Feb-21*

PARCEL IDENTIFICATION: *Cherokee County High School*

LAND USE

ITE LAND USE CODE: *530*
Land Use: *HIGH SCHOOL*

Trip Rate Units - Trips Per Student

Total Number of Students: *2768*

TRIP END CALCULATION

		DIRECTIONAL DISTRIBUTION			
		PERCENT		TRIPS	
		IN	OUT	IN	OUT
DAILY					
AVERAGE TRIP RATE:	2.03				
TRIP ENDS (AVG. TRIP RATE)	5,619				
TRIP END EQUATION					
*Ln(Trip Ends) = 0.76*Ln(Number of Students)+2.46*					
Daily Trip Ends =	4835	50	50	2,418	2,417
AM PEAK HOUR					
AVERAGE TRIP RATE:	0.52				
TRIP ENDS (AVG. TRIP RATE)	1,439				
TRIP END EQUATION					
Trip Ends = not given					
AM Peak Trip Ends =	1,439	67	33	964	475
PM PEAK HOUR					
AVERAGE TRIP RATE:	0.14				
TRIP ENDS (AVG. TRIP RATE)	388				
TRIP END EQUATION					
Trip Ends = not given					
PM Peak Trip Ends =	388	48	52	186	202

Source: TRIP GENERATION 10th Edition

TRIP GENERATION ANALYSIS
Atkins

PROJECT: *Reservoir Dr Corridor Study*

CLIENT: *City of Canton* **DATE:** *02/26/21*

PARCEL IDENTIFICATION: *Convenience Market with Gasoline Pumps*

LAND USE

ITE LAND USE CODE: *853*
Land Use: *Convenience Market with Gasoline Pumps*

Trip Rate Units - Trips Per 1,000 Sq.Ft. GFA

Total Number of Square Feet: *6.08*

TRIP END CALCULATION

		DIRECTIONAL DISTRIBUTION			
		PERCENT		TRIPS	
		IN	OUT	IN	OUT
DAILY					
AVERAGE TRIP RATE:	624.20				
TRIP ENDS (AVG. TRIP RATE)	3,795				
TRIP END EQUATION					
Trip Ends = not given					
Daily Trip Ends =	3,795	50	50	1,898	1,897
AM PEAK HOUR					
AVERAGE TRIP RATE:	40.59				
TRIP ENDS (AVG. TRIP RATE)	247				
TRIP END EQUATION					
Trip Ends = not given					
AM Peak Trip Ends =	247	50	50	124	123
PM PEAK HOUR					
AVERAGE TRIP RATE:	49.29				
TRIP ENDS (AVG. TRIP RATE)	300				
TRIP END EQUATION					
Trip Ends = not given					
PM Peak Trip Ends =	300	50	50	150	150

Source: TRIP GENERATION 10th Edition

TRIP GENERATION ANALYSIS
Atkins

PROJECT: *Reservoir Dr Corridor Study*

CLIENT: *City of Canton* **DATE:** *02/26/21*

PARCEL IDENTIFICATION: *Retail*

LAND USE

ITE LAND USE CODE: *820*
Land Use: *Shopping Center*

Trip Rate Units - Trips Per 1,000 Sq.Ft. GFA

Total Number of Square Feet: *16.75*

TRIP END CALCULATION

	DIRECTIONAL DISTRIBUTION			
	PERCENT		TRIPS	
	IN	OUT	IN	OUT
DAILY				
AVERAGE TRIP RATE: 37.75				
TRIP ENDS (AVG. TRIP RATE) 632				
TRIP END EQUATION				
*Ln(Trip Ends) = 0.68*Ln(Square Feet) + 5.57*				
Daily Trip Ends = 1,784	50	50	892	892
AM PEAK HOUR				
AVERAGE TRIP RATE: 0.94				
TRIP ENDS (AVG. TRIP RATE) 16				
TRIP END EQUATION				
Trip Ends = 0.50(Square Feet) + 151.78*				
AM Peak Trip Ends = 160	62	38	99	61
PM PEAK HOUR				
AVERAGE TRIP RATE: 3.81				
TRIP ENDS (AVG. TRIP RATE) 64				
TRIP END EQUATION				
*Ln(Trip Ends) = 0.74*Ln(Square Feet) + 2.89*				
PM Peak Trip Ends = 145	48	52	70	75

Source: TRIP GENERATION 10th Edition

TRIP GENERATION ANALYSIS
Atkins

PROJECT: *Reservoir Dr Corridor Study*

CLIENT: *City of Canton* **DATE:** *02/26/21*

PARCEL IDENTIFICATION: *Retail*

LAND USE

ITE LAND USE CODE: *820*
Land Use: *Shopping Center*

Trip Rate Units - Trips Per 1,000 Sq.Ft. GFA

Total Number of Square Feet: *10.26*

TRIP END CALCULATION

		DIRECTIONAL DISTRIBUTION			
		PERCENT		TRIPS	
		IN	OUT	IN	OUT
DAILY					
AVERAGE TRIP RATE:	37.75				
TRIP ENDS (AVG. TRIP RATE)	387				
TRIP END EQUATION					
*Ln(Trip Ends) = 0.68*Ln(Square Feet) + 5.57*					
Daily Trip Ends =	1,278	50	50	639	639
AM PEAK HOUR					
AVERAGE TRIP RATE:	0.94				
TRIP ENDS (AVG. TRIP RATE)	10				
TRIP END EQUATION					
Trip Ends = 0.50(Square Feet) + 151.78*					
AM Peak Trip Ends =	157	62	38	97	60
PM PEAK HOUR					
AVERAGE TRIP RATE:	3.81				
TRIP ENDS (AVG. TRIP RATE)	39				
TRIP END EQUATION					
*Ln(Trip Ends) = 0.74*Ln(Square Feet) + 2.89*					
PM Peak Trip Ends =	101	48	52	48	53

Source: TRIP GENERATION 10th Edition

TRIP GENERATION ANALYSIS
ATKINS

PROJECT: *Reservoir Dr Corridor Study*

CLIENT: *City of Canton* **DATE:** *26-Feb-21*

PARCEL IDENTIFICATION: *Retail/Convenience Market with Gasoline Pumps*

Shopping Center Size (Sq. Ft.): 33,085

ADT of Adajacent Street (Reinhardt College Pkwy): 11,350

Pass-By Trip Percentage Calculation

PM PEAK HOUR

PASS-BY TRIP ESTIMATING EQUATION (Shopping Center Size) (1)

*Ln(% Pass-By Trips) = -0.291 * Ln(Sq. Ft. in 1000's) + 5.001*

% PM Peak Pass-By Trip = **54 %**

PASS-BY TRIP ESTIMATING EQUATION (ADT of Adjacent Street) (2)

Reinhardt College Pkwy

$$\% \text{ Pass-By Trips} = [(157.357/(\text{ADT of Adajacent Road} + 0.022)]^{-1}$$

% PM Peak Pass-By Trip = **28 %**

(1) Source: TRIP GENERATION HANDBOOK, ITE 2001, Figure 5.5 (page 43)
(2) Source: TRIP GENERATION 5th Edition, ITE 1991, Figure VII-1B (page I-31)

Reservoir Drive
Weekday Trip Generation Analysis

Land Use	Quantity	ITE Trip Generation Code	Nonadjusted Daily Trip Ends	AM Enter	AM Exit	PM Enter	PM Exit
Townhomes/Condos	299 units	220	1,110	16	52	50	29
High School	2,768 students	530	2,418	482	238	93	101
Jupiter 2 - Convenience Market	6,075 sqft	853	3,795	124	123	150	150
Jupiter 2 - Retail	10,260 sqft	820	1,278	97	60	48	53
Jupiter 2 - Retail	16,750 sqft	820	1,784	99	61	70	75
Total Trips Generated			10,385	818	534	411	408

Trips after Mixed-Use Reductions

Land Use	Quantity	ITE Trip Generation Code	Adjusted Daily Trips	AM Enter	AM Exit	PM Enter	PM Exit
Townhomes/Condos	299 units	220	1,110	16	52	50	29
High School	2,768 students	530	2,418	482	238	93	101
Jupiter 2 - Convenience Market	6,075 sqft	853	3,795	124	123	150	150
Jupiter 2 - Retail	10,260 sqft	820	1,278	97	60	48	53
Jupiter 2 - Retail	16,750 sqft	820	1,784	99	61	70	75
0	0	0	-	-	-	-	-
0	0	0	-	-	-	-	-
Total Trips Generated			10,385	818	534	411	408

Trips after Alternative Modes of Transportation Reductions

Land Use	Quantity	ITE Trip Generation Code	Adjusted Daily Trips	AM Enter	AM Exit	PM Enter	PM Exit
Townhomes/Condos	299 units	220	1110	16	52	50	29
High School	2,768 students	530	2418	482	238	93	101
Jupiter 2 - Convenience Market	6,075 sqft	853	3795	124	123	150	150
Jupiter 2 - Retail	10,260 sqft	820	1278	97	60	48	53
Jupiter 2 - Retail	16,750 sqft	820	1784	99	61	70	75
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
Total Trips Generated			10,385	818	534	411	408

Trips after Pass-By Reductions

Land Use	Quantity	ITE Trip Generation Code	Adjusted Daily Trips	AM Enter	AM Exit	PM Enter	PM Exit
Townhomes/Condos	299 units	220	1110	16	52	50	29
High School	2,768 students	530	2418	482	238	93	101
Jupiter 2 - Convenience Market	6,075 sqft	853	2846	96	87	112	113
Jupiter 2 - Retail	10,260 sqft	820	959	75	43	36	40
Jupiter 2 - Retail	16,750 sqft	820	1338	77	43	52	57
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
Total Trips Generated			8,670	747	463	343	340

Final Net New Trips

Land Use	Quantity	ITE Trip Generation Code	Adjusted Daily Trips	AM Enter	AM Exit	PM Enter	PM Exit
Townhomes/Condos	299 units	220	1110	16	52	50	29
High School	2,768 students	530	2418	482	238	93	101
Jupiter 2 - Convenience Market	6,075 sqft	853	2846	96	87	112	113
Jupiter 2 - Retail	10,260 sqft	820	959	75	43	36	40
Jupiter 2 - Retail	16,750 sqft	820	1338	77	43	52	57
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
Total Trips Generated			**8,670**	**747**	**463**	**343**	**340**

* Persons per Vehicle

Mixed-Use Reduction is a percentage of the trips that are attacted between compatible land uses within the site. Trips generated by the mixed-use reductions do not leave the site. The mixed-use reduction percentage varied with the time of day and was based on the total trips associated with the commercial development that were not making external trips.

Appendix F: Synchro Reports

HCM 6th TWSC
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/16/2021

Intersection	
Int Delay, s/veh	90.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	185	400	5	5	150	270	0	0	30	285	0	220
Future Vol, veh/h	185	400	5	5	150	270	0	0	30	285	0	220
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Free	-	-	None	-	-	Yield
Storage Length	315	-	200	370	-	230	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	7	7	7	5	5	5	0	0	0	8	8	8
Mvmt Flow	220	476	6	6	179	321	0	0	36	339	0	262

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	179	0	0	476	0	0	1018	1107	238	869	1107	90
Stage 1	-	-	-	-	-	-	916	916	-	191	191	-
Stage 2	-	-	-	-	-	-	102	191	-	678	916	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.5	6.5	6.9	7.66	6.66	7.06
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.66	5.66	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.66	5.66	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.5	4	3.3	3.58	4.08	3.38
Pot Cap-1 Maneuver	1358	-	-	1062	-	0	194	212	769	~ 236	200	931
Stage 1	-	-	-	-	-	0	297	354	-	775	727	-
Stage 2	-	-	-	-	-	0	899	746	-	394	336	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1358	-	-	1062	-	-	122	177	769	~ 196	167	931
Mov Cap-2 Maneuver	-	-	-	-	-	-	122	177	-	~ 196	167	-
Stage 1	-	-	-	-	-	-	249	297	-	649	723	-
Stage 2	-	-	-	-	-	-	642	742	-	~ 315	282	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.6	0.3	9.9	225.3
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	769	1358	-	-	1062	-	196	931
HCM Lane V/C Ratio	0.046	0.162	-	-	0.006	-	1.731	0.281
HCM Control Delay (s)	9.9	8.2	-	-	8.4	-	$ 391.2	10.4
HCM Lane LOS	A	A	-	-	A	-	F	B
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0	-	23.4	1.2

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

HCM 6th TWSC
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/16/2021

Intersection												
Int Delay, s/veh	33.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	35	225	0	120	10	95	350	95	245	0
Future Vol, veh/h	0	0	35	225	0	120	10	95	350	95	245	0
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	-	-	Yield	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	13	13	13	11	11	11	3	3	3
Mvmt Flow	0	0	44	281	0	150	13	119	438	119	306	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	630	1127	153	755	908	279	306	0	0	557	0	0
Stage 1	544	544	-	364	364	-	-	-	-	-	-	-
Stage 2	86	583	-	391	544	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.76	6.76	7.16	4.32	-	-	4.16	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.76	5.76	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.76	5.76	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.63	4.13	3.43	2.31	-	-	2.23	-	-
Pot Cap-1 Maneuver	370	206	872	~ 278	255	686	1189	-	-	1003	-	-
Stage 1	496	522	-	598	596	-	-	-	-	-	-	-
Stage 2	918	502	-	576	491	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	259	178	872	~ 237	221	686	1189	-	-	1003	-	-
Mov Cap-2 Maneuver	259	178	-	~ 237	221	-	-	-	-	-	-	-
Stage 1	488	460	-	588	586	-	-	-	-	-	-	-
Stage 2	705	493	-	482	433	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	109.5	0.2	2.5
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1189	-	-	872	237	686	1003	-	-
HCM Lane V/C Ratio	0.011	-	-	0.05	1.187	0.219	0.118	-	-
HCM Control Delay (s)	8.1	0.1	-	9.3	161.6	11.7	9.1	-	-
HCM Lane LOS	A	A	-	A	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	13.4	0.8	0.4	-	-

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

HCM 6th TWSC
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/16/2021

Intersection	
Int Delay, s/veh	72.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	325	0	20	455	220	0	0	10	245	0	170
Future Vol, veh/h	65	325	0	20	455	220	0	0	10	245	0	170
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Free	-	-	None	-	-	Yield
Storage Length	315	-	200	370	-	230	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	3	3	3	3	3	3	0	0	0	13	13	13
Mvmt Flow	79	396	0	24	555	268	0	0	12	299	0	207

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	555	0	0	396	0	0	880	1157	198	959	1157	278
Stage 1	-	-	-	-	-	-	554	554	-	603	603	-
Stage 2	-	-	-	-	-	-	326	603	-	356	554	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.5	6.5	6.9	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.76	5.76	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.5	4	3.3	3.63	4.13	3.43
Pot Cap-1 Maneuver	1005	-	-	1152	-	0	245	198	816	~ 196	179	687
Stage 1	-	-	-	-	-	0	489	517	-	427	460	-
Stage 2	-	-	-	-	-	0	666	492	-	605	485	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1005	-	-	1152	-	-	158	179	816	~ 179	161	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	179	-	~ 179	161	-
Stage 1	-	-	-	-	-	-	450	476	-	393	450	-
Stage 2	-	-	-	-	-	-	455	482	-	549	447	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.3	9.5	223.6
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	816	1005	-	-	1152	-	179	687
HCM Lane V/C Ratio	0.015	0.079	-	-	0.021	-	1.669	0.302
HCM Control Delay (s)	9.5	8.9	-	-	8.2	-	$ 370	12.5
HCM Lane LOS	A	A	-	-	A	-	F	B
HCM 95th %tile Q(veh)	0	0.3	-	-	0.1	-	20.5	1.3

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

HCM 6th TWSC
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/16/2021

Intersection	
Int Delay, s/veh	15.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	25	205	0	105	25	200	60	10	185	0
Future Vol, veh/h	0	0	25	205	0	105	25	200	60	10	185	0
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	-	-	Yield	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	0	0	0	17	17	17	6	6	6	4	4	4
Mvmt Flow	0	0	36	297	0	152	36	290	87	14	268	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	513	745	134	568	702	189	268	0	0	377	0	0
Stage 1	296	296	-	406	406	-	-	-	-	-	-	-
Stage 2	217	449	-	162	296	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.84	6.84	7.24	4.22	-	-	4.18	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.84	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.84	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.67	4.17	3.47	2.26	-	-	2.24	-	-
Pot Cap-1 Maneuver	449	345	897	375	332	776	1264	-	-	1164	-	-
Stage 1	694	672	-	554	560	-	-	-	-	-	-	-
Stage 2	771	576	-	782	631	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	348	328	897	347	316	776	1264	-	-	1164	-	-
Mov Cap-2 Maneuver	348	328	-	347	316	-	-	-	-	-	-	-
Stage 1	669	664	-	534	540	-	-	-	-	-	-	-
Stage 2	597	555	-	741	623	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	39.4	0.8	0.4
HCM LOS	A	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1264	-	-	897	347	776	1164	-	-
HCM Lane V/C Ratio	0.029	-	-	0.04	0.856	0.196	0.012	-	-
HCM Control Delay (s)	7.9	0.1	-	9.2	54	10.8	8.1	-	-
HCM Lane LOS	A	A	-	A	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	7.9	0.7	0	-	-

HCM 6th TWSC
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Intersection	
Int Delay, s/veh	1288.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	470	395	5	5	245	490	0	5	30	505	5	330
Future Vol, veh/h	470	395	5	5	245	490	0	5	30	505	5	330
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Free	-	-	None	-	-	Yield
Storage Length	315	-	200	370	-	230	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	5	5	5	0	0	0	8	8	8
Mvmt Flow	511	429	5	5	266	533	0	5	33	549	5	359

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	266	0	0	429	0	0	1597	1727	215	1515	1727	133
Stage 1	-	-	-	-	-	-	1451	1451	-	276	276	-
Stage 2	-	-	-	-	-	-	146	276	-	1239	1451	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.5	6.5	6.9	7.66	6.66	7.06
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.66	5.66	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.66	5.66	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.5	4	3.3	3.58	4.08	3.38
Pot Cap-1 Maneuver	1259	-	-	1106	-	0	73	90	796	~ 77	82	873
Stage 1	-	-	-	-	-	0	140	197	-	690	666	-
Stage 2	-	-	-	-	-	0	848	685	-	~ 177	184	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1259	-	-	1106	-	-	27	53	796	~ 47	48	873
Mov Cap-2 Maneuver	-	-	-	-	-	-	27	53	-	~ 47	48	-
Stage 1	-	-	-	-	-	-	83	117	-	~ 410	663	-
Stage 2	-	-	-	-	-	-	493	682	-	~ 96	109	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.3	0.2	20.8	$ 3053.5
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	265	1259	-	-	1106	-	47	873
HCM Lane V/C Ratio	0.144	0.406	-	-	0.005	-	11.795	0.411
HCM Control Delay (s)	20.8	9.8	-	-	8.3	-	$ 5021.5	12
HCM Lane LOS	C	A	-	-	A	-	F	B
HCM 95th %tile Q(veh)	0.5	2	-	-	0	-	66.5	2

Notes

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

HCM 6th TWSC
5: Reservoir Dr & Jupiter Dev Access 2 08/17/2021

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	115	95	870	725	110
Future Vol, veh/h	60	115	95	870	725	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	0	150	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	8	8	11	11
Mvmt Flow	65	125	103	946	788	120

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1467	394	788	0	-	0
Stage 1	788	-	-	-	-	-
Stage 2	679	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.26	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.28	-	-	-
Pot Cap-1 Maneuver	119	605	789	-	-	-
Stage 1	409	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	103	605	789	-	-	-
Mov Cap-2 Maneuver	103	-	-	-	-	-
Stage 1	355	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	38	1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	789	-	103	605	-	-
HCM Lane V/C Ratio	0.131	-	0.633	0.207	-	-
HCM Control Delay (s)	10.2	-	86.9	12.5	-	-
HCM Lane LOS	B	-	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	3.1	0.8	-	-

HCM 6th TWSC
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Intersection												
Int Delay, s/veh	598.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	10	40	465	5	175	10	140	775	200	330	0
Future Vol, veh/h	0	10	40	465	5	175	10	140	775	200	330	0
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	-	-	Yield	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	13	13	13	11	11	11	3	3	3
Mvmt Flow	0	11	43	505	5	190	11	152	842	217	359	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	894	1809	180	1214	1388	497	359	0	0	994	0	0
Stage 1	793	793	-	595	595	-	-	-	-	-	-	-
Stage 2	101	1016	-	619	793	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.76	6.76	7.16	4.32	-	-	4.16	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.76	5.76	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.76	5.76	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.63	4.13	3.43	2.31	-	-	2.23	-	-
Pot Cap-1 Maneuver	239	80	838	~ 126	129	490	1134	-	-	686	-	-
Stage 1	352	403	-	~ 431	464	-	-	-	-	-	-	-
Stage 2	900	318	-	~ 417	373	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	103	53	838	~ 75	86	490	1134	-	-	686	-	-
Mov Cap-2 Maneuver	103	53	-	~ 75	86	-	-	-	-	-	-	-
Stage 1	342	276	-	~ 419	451	-	-	-	-	-	-	-
Stage 2	529	309	-	~ 260	255	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.1	$ 1989	0.1	4.8
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1134	-	-	265	75	490	686	-	-
HCM Lane V/C Ratio	0.01	-	-	0.205	6.812	0.388	0.317	-	-
HCM Control Delay (s)	8.2	0.1	-	22.3	$ 723.3	16.9	12.7	-	-
HCM Lane LOS	A	A	-	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.8	57.8	1.8	1.4	-	-

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

HCM 6th TWSC
10: Reservoir Dr & Riverstone Bluffs 08/17/2021

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	10	300	15	0	485
Future Vol, veh/h	45	10	300	15	0	485
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	3	3
Mvmt Flow	49	11	326	16	0	527

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	590	163	0	0	326	0
Stage 1	326	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.16	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.23	-
Pot Cap-1 Maneuver	439	853	-	-	1223	-
Stage 1	704	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	439	853	-	-	1223	-
Mov Cap-2 Maneuver	439	-	-	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	756	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	481	1223	-
HCM Lane V/C Ratio	-	-	0.124	-	-
HCM Control Delay (s)	-	-	13.5	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	395	5	5	245	490	0	5	30	505	5	330
Future Volume (veh/h)	470	395	5	5	245	490	0	5	30	505	5	330
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1796	1796	1796	1826	1826	1826	1900	1900	1900	1781	1781	1781
Adj Flow Rate, veh/h	511	429	0	5	266	0	0	5	33	549	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	5	5	5	0	0	0	8	8	8
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	580	1134		180	372		0	70	461	811	1012	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.17	0.33	0.00	0.11	0.11	0.00	0.00	0.32	0.32	0.19	0.57	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	49.9	23.2	0.0	36.1	41.4	0.0	0.0	0.0	21.3	16.8	8.4	0.0
Ln Grp LOS	D	C		D	D		A	A	C	B	A	
Approach Vol, veh/h		940			271			38			554	
Approach Delay, s/veh		37.7			41.3			21.3			16.7	
Approach LOS		D			D			C			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Case No	1.2	8.0		4.0		3.0	2.0	5.3
Phs Duration (G+Y+Rc), s	22.0	33.6		34.4		55.6	20.2	14.2
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5	4.5	4.5
Max Green (Gmax), s	17.5	19.9		39.1		41.9	16.5	18.1
Max Allow Headway (MAH), s	3.7	5.7		4.9		4.9	3.7	4.9
Max Q Clear (g_c+I1), s	19.5	3.4		10.6		2.1	15.5	8.7
Green Ext Time (g_e), s	0.0	0.1		2.7		0.0	0.2	1.0
Prob of Phs Call (p_c)	1.00	1.00		1.00		1.00	1.00	1.00
Prob of Max Out (p_x)	1.00	0.00		0.00		0.00	1.00	0.11

Left-Turn Movement Data								
Assigned Mvmt	1	5					7	3
Mvmt Sat Flow, veh/h	1697	0					3319	936

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		216		3503		1781		3469

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1427		0		1510		1547

Left Lane Group Data								
Assigned Mvmt	1	5	0	0	0	0	7	3
Lane Assignment	L (Pr/Pm)						L (Prot)	L

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Lanes in Grp	1	0	0	0	0	0	2	1
Grp Vol (v), veh/h	549	0	0	0	0	0	511	5
Grp Sat Flow (s), veh/h/ln	1697	0	0	0	0	0	1659	936
Q Serve Time (g_s), s	17.5	0.0	0.0	0.0	0.0	0.0	13.5	0.4
Cycle Q Clear Time (g_c), s	17.5	0.0	0.0	0.0	0.0	0.0	13.5	0.4
Perm LT Sat Flow (s_l), veh/h/ln	1305	0	0	0	0	0	0	936
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	31.1	0.0	0.0	0.0	0.0	0.0	0.0	9.7
Perm LT Serve Time (g_u), s	27.7	0.0	0.0	0.0	0.0	0.0	0.0	9.7
Perm LT Q Serve Time (g_ps), s	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Time to First Blk (g_f), s	0.0	29.1	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Lane Grp Cap (c), veh/h	811	0	0	0	0	0	580	180
V/C Ratio (X)	0.68	0.00	0.00	0.00	0.00	0.00	0.88	0.03
Avail Cap (c_a), veh/h	811	0	0	0	0	0	608	268
Upstream Filter (I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d1), s/veh	14.5	0.0	0.0	0.0	0.0	0.0	36.2	36.1
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.0	0.0	0.0	13.6	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	16.8	0.0	0.0	0.0	0.0	0.0	49.9	36.1
1st-Term Q (Q1), veh/ln	6.4	0.0	0.0	0.0	0.0	0.0	5.2	0.1
2nd-Term Q (Q2), veh/ln	0.5	0.0	0.0	0.0	0.0	0.0	1.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00
%ile Back of Q (50%), veh/ln	6.9	0.0	0.0	0.0	0.0	0.0	6.3	0.1
%ile Storage Ratio (RQ%)	0.37	0.00	0.00	0.00	0.00	0.00	0.52	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T		T		T
Lanes in Grp	0	0	0	2	0	1	0	2
Grp Vol (v), veh/h	0	0	0	429	0	5	0	266
Grp Sat Flow (s), veh/h/ln	0	0	0	1706	0	1781	0	1735
Q Serve Time (g_s), s	0.0	0.0	0.0	8.6	0.0	0.1	0.0	6.7
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	8.6	0.0	0.1	0.0	6.7
Lane Grp Cap (c), veh/h	0	0	0	1134	0	1012	0	372
V/C Ratio (X)	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.71
Avail Cap (c_a), veh/h	0	0	0	1483	0	1012	0	698
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	23.0	0.0	8.4	0.0	38.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	2.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	23.2	0.0	8.4	0.0	41.4
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	3.2	0.0	0.0	0.0	2.7
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	3.3	0.0	0.0	0.0	2.8
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.06
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R				R		R
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	38	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1643	0	0	0	1510	0	1547
Q Serve Time (g_s), s	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.87	0.00	0.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	531	0	0	0	857	0	166
V/C Ratio (X)	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	531	0	0	0	857	0	311
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	21.1	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	21.3	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	31.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	10	40	465	5	175	10	140	775	200	330	0
Future Volume (veh/h)	0	10	40	465	5	175	10	140	775	200	330	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1900	1900	1707	1707	1707	1737	1737	1737	1856	1856	1856
Adj Flow Rate, veh/h	0	11	0	505	5	0	11	152	0	217	359	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	13	13	13	11	11	11	3	3	3
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	0	36		555	728		403	990		564	1273	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.02	0.00	0.34	0.43	0.00	0.01	0.30	0.00	0.07	0.36	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.0	37.5	0.0	35.8	11.2	0.0	16.2	17.8	0.0	14.9	16.0	0.0
Ln Grp LOS	A	D		D	B		B	B		B	B	
Approach Vol, veh/h		11			510			163			576	
Approach Delay, s/veh		37.5			35.6			17.7			15.6	
Approach LOS		D			D			B			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Case No	1.1	3.0	2.0	8.0	1.1	4.0		4.0
Phs Duration (G+Y+Rc), s	9.6	24.9	27.7	5.8	5.4	29.1		33.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Max Green (Gmax), s	5.1	20.4	28.5	18.0	5.0	20.5		51.0
Max Allow Headway (MAH), s	3.7	4.9	3.9	5.4	3.7	4.9		5.4
Max Q Clear (g_c+I1), s	7.1	4.3	22.2	2.4	2.3	6.9		2.1
Green Ext Time (g_e), s	0.0	0.7	1.0	0.0	0.0	1.7		0.0
Prob of Phs Call (p_c)	0.98	1.00	1.00	0.26	0.19	1.00		1.00
Prob of Max Out (p_x)	1.00	0.00	0.37	0.00	1.00	0.00		0.00

Left-Turn Movement Data					
Assigned Mvmt	1	3	7	5	
Mvmt Sat Flow, veh/h	1767	1626	0	1654	

Through Movement Data					
Assigned Mvmt	2	4	6	8	
Mvmt Sat Flow, veh/h	3300	1900	3618	1707	

Right-Turn Movement Data					
Assigned Mvmt	12	14	16	18	
Mvmt Sat Flow, veh/h	1472	0	0	0	

Left Lane Group Data									
Assigned Mvmt	1	0	3	7	5	0	0	0	
Lane Assignment	L (Pr/Pm)		L (Prot)	L (Pr/Pm)					

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Lanes in Grp	1	0	1	0	1	0	0	0
Grp Vol (v), veh/h	217	0	505	0	11	0	0	0
Grp Sat Flow (s), veh/h/ln	1767	0	1626	0	1654	0	0	0
Q Serve Time (g_s), s	5.1	0.0	20.2	0.0	0.3	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	5.1	0.0	20.2	0.0	0.3	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	1225	0	0	0	950	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	22.1	0.0	0.0	0.0	20.4	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	18.1	0.0	0.0	0.0	19.6	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	564	0	555	0	403	0	0	0
V/C Ratio (X)	0.38	0.00	0.91	0.00	0.03	0.00	0.00	0.00
Avail Cap (c_a), veh/h	564	0	681	0	502	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	14.5	0.0	21.4	0.0	16.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	14.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	14.9	0.0	35.8	0.0	16.2	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.9	0.0	7.2	0.0	0.1	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	2.2	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	2.0	0.0	9.4	0.0	0.1	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.44	0.00	0.24	0.00	0.02	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	152	0	11	0	359	0	5
Grp Sat Flow (s), veh/h/ln	0	1650	0	1900	0	1763	0	1707
Q Serve Time (g_s), s	0.0	2.3	0.0	0.4	0.0	4.9	0.0	0.1
Cycle Q Clear Time (g_c), s	0.0	2.3	0.0	0.4	0.0	4.9	0.0	0.1
Lane Grp Cap (c), veh/h	0	990	0	36	0	1273	0	728
V/C Ratio (X)	0.00	0.15	0.00	0.30	0.00	0.28	0.00	0.01
Avail Cap (c_a), veh/h	0	990	0	503	0	1273	0	1280
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	17.5	0.0	32.9	0.0	15.5	0.0	11.2
Incr Delay (d2), s/veh	0.0	0.3	0.0	4.5	0.0	0.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	17.8	0.0	37.5	0.0	16.0	0.0	11.2
1st-Term Q (Q1), veh/ln	0.0	0.8	0.0	0.2	0.0	1.7	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	0.2	0.0	1.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.05	0.00	0.01	0.00	0.05	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R						
Lanes in Grp	0	1	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1472	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	442	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	442	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Intersection	
Int Delay, s/veh	407.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	200	315	0	20	545	290	0	0	10	405	5	230
Future Vol, veh/h	200	315	0	20	545	290	0	0	10	405	5	230
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Free	-	-	None	-	-	Yield
Storage Length	315	-	200	370	-	230	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	0	0	0	13	13	13
Mvmt Flow	217	342	0	22	592	315	0	0	11	440	5	250

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	592	0	0	342	0	0	1119	1412	171	1241	1412	296
Stage 1	-	-	-	-	-	-	776	776	-	636	636	-
Stage 2	-	-	-	-	-	-	343	636	-	605	776	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.5	6.5	6.9	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.76	5.76	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.5	4	3.3	3.63	4.13	3.43
Pot Cap-1 Maneuver	973	-	-	1207	-	0	164	139	849	~ 120	124	669
Stage 1	-	-	-	-	-	0	361	410	-	~ 407	444	-
Stage 2	-	-	-	-	-	0	651	475	-	~ 425	380	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	973	-	-	1207	-	-	80	106	849	~ 97	95	669
Mov Cap-2 Maneuver	-	-	-	-	-	-	80	106	-	~ 97	95	-
Stage 1	-	-	-	-	-	-	280	319	-	~ 316	436	-
Stage 2	-	-	-	-	-	-	395	466	-	~ 326	295	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.8	0.3	9.3	$ 1097.6
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	849	973	-	-	1207	-	97	669
HCM Lane V/C Ratio	0.013	0.223	-	-	0.018	-	4.594	0.374
HCM Control Delay (s)	9.3	9.8	-	-	8	-	$ 1705.7	13.6
HCM Lane LOS	A	A	-	-	A	-	F	B
HCM 95th %tile Q(veh)	0	0.9	-	-	0.1	-	47.1	1.7

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

HCM 6th TWSC
5: Reservoir Dr & Jupiter Dev Access 2 08/17/2021

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	70	125	80	410	515	90
Future Vol, veh/h	70	125	80	410	515	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	0	150	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	13	13	6	6
Mvmt Flow	76	136	87	446	560	98

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	957	280	560	0	-	0
Stage 1	560	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.36	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.33	-	-	-
Pot Cap-1 Maneuver	256	717	935	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	648	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	232	717	935	-	-	-
Mov Cap-2 Maneuver	232	-	-	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	648	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.2	1.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	935	-	232	717	-	-
HCM Lane V/C Ratio	0.093	-	0.328	0.189	-	-
HCM Control Delay (s)	9.2	-	27.9	11.2	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.4	0.7	-	-

HCM 6th TWSC
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Intersection	
Int Delay, s/veh	44.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	30	330	0	140	25	275	180	35	245	0
Future Vol, veh/h	0	0	30	330	0	140	25	275	180	35	245	0
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	-	-	Yield	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	17	17	17	6	6	6	4	4	4
Mvmt Flow	0	0	33	359	0	152	27	299	196	38	266	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	546	891	133	660	793	248	266	0	0	495	0	0
Stage 1	342	342	-	451	451	-	-	-	-	-	-	-
Stage 2	204	549	-	209	342	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.84	6.84	7.24	4.22	-	-	4.18	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.84	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.84	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.67	4.17	3.47	2.26	-	-	2.24	-	-
Pot Cap-1 Maneuver	425	284	898	~ 320	292	708	1266	-	-	1051	-	-
Stage 1	652	642	-	519	533	-	-	-	-	-	-	-
Stage 2	785	520	-	732	600	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	317	266	898	~ 293	273	708	1266	-	-	1051	-	-
Mov Cap-2 Maneuver	317	266	-	~ 293	273	-	-	-	-	-	-	-
Stage 1	632	619	-	503	517	-	-	-	-	-	-	-
Stage 2	598	504	-	680	578	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	118.7	0.5	1.1
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1266	-	-	898	293	708	1051	-	-
HCM Lane V/C Ratio	0.021	-	-	0.036	1.224	0.215	0.036	-	-
HCM Control Delay (s)	7.9	0.1	-	9.2	164.2	11.5	8.6	-	-
HCM Lane LOS	A	A	-	A	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	16.4	0.8	0.1	-	-

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

HCM 6th TWSC
10: Reservoir Dr & Riverstone Bluffs 08/17/2021

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	5	375	40	10	255
Future Vol, veh/h	25	5	375	40	10	255
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	27	5	408	43	11	277

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	569	204	0	0	408	0
Stage 1	408	-	-	-	-	-
Stage 2	161	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.18	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.24	-
Pot Cap-1 Maneuver	452	803	-	-	1133	-
Stage 1	640	-	-	-	-	-
Stage 2	851	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	447	803	-	-	1133	-
Mov Cap-2 Maneuver	447	-	-	-	-	-
Stage 1	640	-	-	-	-	-
Stage 2	842	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	483	1133	-
HCM Lane V/C Ratio	-	-	0.068	0.01	-
HCM Control Delay (s)	-	-	13	8.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	315	0	20	545	290	0	0	10	405	5	230
Future Volume (veh/h)	200	315	0	20	545	290	0	0	10	405	5	230
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1900	1900	1900	1707	1707	1707
Adj Flow Rate, veh/h	217	342	0	22	592	0	0	0	11	440	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	0	0	0	13	13	13
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	269	1246		320	743		0	0	512	725	884	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.08	0.35	0.00	0.21	0.21	0.00	0.00	0.00	0.32	0.14	0.52	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	48.0	16.3	0.0	22.4	30.4	0.0	0.0	0.0	16.5	15.0	8.2	0.0
Ln Grp LOS	D	B		C	C		A	A	B	B	A	
Approach Vol, veh/h		559			614			11			445	
Approach Delay, s/veh		28.6			30.1			16.5			15.0	
Approach LOS		C			C			B			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Case No	1.2	8.0		4.0		3.0	2.0	5.3
Phs Duration (G+Y+Rc), s	14.0	26.8		29.2		40.8	10.0	19.2
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5	4.5	4.5
Max Green (Gmax), s	9.5	19.0		28.0		33.0	5.5	18.0
Max Allow Headway (MAH), s	3.7	5.7		4.9		4.9	3.7	4.9
Max Q Clear (g_c+I1), s	11.5	2.3		6.9		2.1	6.4	13.2
Green Ext Time (g_e), s	0.0	0.0		1.9		0.0	0.0	1.6
Prob of Phs Call (p_c)	1.00	1.00		1.00		1.00	0.99	1.00
Prob of Max Out (p_x)	1.00	0.00		0.00		0.00	1.00	1.00

Left-Turn Movement Data								
Assigned Mvmt	1	5					7	3
Mvmt Sat Flow, veh/h	1626	0					3428	1030

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		0		3618		1707		3526

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1610		0		1447		1572

Left Lane Group Data									
Assigned Mvmt	1	5	0	0	0	0	7	3	
Lane Assignment	L (Pr/Pm)						L (Prot)	L	

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Lanes in Grp	1	0	0	0	0	0	2	1
Grp Vol (v), veh/h	440	0	0	0	0	0	217	22
Grp Sat Flow (s), veh/h/ln	1626	0	0	0	0	0	1714	1030
Q Serve Time (g_s), s	9.5	0.0	0.0	0.0	0.0	0.0	4.4	1.2
Cycle Q Clear Time (g_c), s	9.5	0.0	0.0	0.0	0.0	0.0	4.4	1.2
Perm LT Sat Flow (s_l), veh/h/ln	1281	0	0	0	0	0	0	1030
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	24.3	0.0	0.0	0.0	0.0	0.0	0.0	14.7
Perm LT Serve Time (g_u), s	21.9	0.0	0.0	0.0	0.0	0.0	0.0	14.7
Perm LT Q Serve Time (g_ps), s	6.8	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Time to First Blk (g_f), s	0.0	22.3	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Lane Grp Cap (c), veh/h	725	0	0	0	0	0	269	320
V/C Ratio (X)	0.61	0.00	0.00	0.00	0.00	0.00	0.81	0.07
Avail Cap (c_a), veh/h	725	0	0	0	0	0	269	368
Upstream Filter (I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d1), s/veh	13.6	0.0	0.0	0.0	0.0	0.0	31.7	22.3
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.0	0.0	0.0	16.2	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	15.0	0.0	0.0	0.0	0.0	0.0	48.0	22.4
1st-Term Q (Q1), veh/ln	3.9	0.0	0.0	0.0	0.0	0.0	1.7	0.3
2nd-Term Q (Q2), veh/ln	0.3	0.0	0.0	0.0	0.0	0.0	0.6	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00
%ile Back of Q (50%), veh/ln	4.2	0.0	0.0	0.0	0.0	0.0	2.3	0.3
%ile Storage Ratio (RQ%)	0.23	0.00	0.00	0.00	0.00	0.00	0.18	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T		T		T
Lanes in Grp	0	0	0	2	0	1	0	2
Grp Vol (v), veh/h	0	0	0	342	0	5	0	592
Grp Sat Flow (s), veh/h/ln	0	0	0	1763	0	1707	0	1763
Q Serve Time (g_s), s	0.0	0.0	0.0	4.9	0.0	0.1	0.0	11.2
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	4.9	0.0	0.1	0.0	11.2
Lane Grp Cap (c), veh/h	0	0	0	1246	0	884	0	743
V/C Ratio (X)	0.00	0.00	0.00	0.27	0.00	0.01	0.00	0.80
Avail Cap (c_a), veh/h	0	0	0	1410	0	884	0	907
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	16.2	0.0	8.2	0.0	26.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	4.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	16.3	0.0	8.2	0.0	30.4
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	1.7	0.0	0.0	0.0	4.2
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	1.7	0.0	0.0	0.0	4.6
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.09
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R				R		R
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	11	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1610	0	0	0	1447	0	1572
Q Serve Time (g_s), s	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	512	0	0	0	749	0	331
V/C Ratio (X)	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	512	0	0	0	749	0	404
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	16.4	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	16.5	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	30	330	0	140	25	275	180	35	245	0
Future Volume (veh/h)	0	0	30	330	0	140	25	275	180	35	245	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1900	1900	1648	1648	1648	1811	1811	1811	1841	1841	1841
Adj Flow Rate, veh/h	0	0	0	359	0	0	27	299	0	38	266	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	17	17	17	6	6	6	4	4	4
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	0	4		428	450		594	1364		588	1421	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.00	0.00	0.27	0.00	0.00	0.03	0.40	0.00	0.04	0.41	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.0	0.0	0.0	21.1	0.0	0.0	7.8	9.7	0.0	7.7	9.2	0.0
Ln Grp LOS	A	A		C	A		A	A		A	A	
Approach Vol, veh/h		0			359			326			304	
Approach Delay, s/veh		0.0			21.1			9.5			9.0	
Approach LOS					C			A			A	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Case No	1.1	3.0	2.0	8.0	1.1	4.0		4.0
Phs Duration (G+Y+Rc), s	6.4	23.0	17.2	0.0	6.0	23.5		17.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Max Green (Gmax), s	5.0	18.5	20.5	18.0	5.0	18.5		43.0
Max Allow Headway (MAH), s	3.7	4.9	3.9	0.0	3.7	4.9		0.0
Max Q Clear (g_c+I1), s	2.6	4.7	12.1	0.0	2.4	4.3		0.0
Green Ext Time (g_e), s	0.0	1.4	0.8	0.0	0.0	1.2		0.0
Prob of Phs Call (p_c)	0.39	1.00	0.99	0.00	0.30	1.00		0.00
Prob of Max Out (p_x)	1.00	0.00	0.09	0.00	1.00	0.00		0.00

Left-Turn Movement Data					
Assigned Mvmt	1		3	7	5
Mvmt Sat Flow, veh/h	1753		1570	0	1725

Through Movement Data					
Assigned Mvmt		2		4	6	8
Mvmt Sat Flow, veh/h		3441		-85500	3589	1648

Right-Turn Movement Data					
Assigned Mvmt		12		14	16	18
Mvmt Sat Flow, veh/h		1535		0	0	0

Left Lane Group Data									
Assigned Mvmt	1	0	3	7	5	0	0	0
Lane Assignment	L (Pr/Pm)		L (Prot)	L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Lanes in Grp	1	0	1	0	1	0	0	0
Grp Vol (v), veh/h	38	0	359	0	27	0	0	0
Grp Sat Flow (s), veh/h/ln	1753	0	1570	0	1725	0	0	0
Q Serve Time (g_s), s	0.6	0.0	10.1	0.0	0.4	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.6	0.0	10.1	0.0	0.4	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	1063	0	0	0	1078	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	18.5	0.0	0.0	0.0	18.5	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	15.8	0.0	0.0	0.0	16.7	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	-4.5	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	588	0	428	0	594	0	0	0
V/C Ratio (X)	0.06	0.00	0.84	0.00	0.05	0.00	0.00	0.00
Avail Cap (c_a), veh/h	702	0	689	0	724	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	7.6	0.0	16.0	0.0	7.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	7.7	0.0	21.1	0.0	7.8	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.1	0.0	3.2	0.0	0.1	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.2	0.0	3.8	0.0	0.1	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.03	0.00	0.10	0.00	0.02	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	299	0	0	0	266	0	0
Grp Sat Flow (s), veh/h/ln	0	1721	0	1900	0	1749	0	1648
Q Serve Time (g_s), s	0.0	2.7	0.0	0.0	0.0	2.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	2.7	0.0	0.0	0.0	2.3	0.0	0.0
Lane Grp Cap (c), veh/h	0	1364	0	4	0	1421	0	450
V/C Ratio (X)	0.00	0.22	0.00	0.00	0.00	0.19	0.00	0.00
Avail Cap (c_a), veh/h	0	1364	0	733	0	1421	0	1518
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	9.3	0.0	0.0	0.0	8.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.7	0.0	0.0	0.0	9.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.7	0.0	0.0	0.0	0.6	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	0.0	0.0	0.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R						
Lanes in Grp	0	1	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1535	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	608	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	608	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Intersection	
Int Delay, s/veh	2535.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	520	510	5	5	290	570	0	5	40	585	5	395
Future Vol, veh/h	520	510	5	5	290	570	0	5	40	585	5	395
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Free	-	-	None	-	-	Yield
Storage Length	315	-	200	370	-	230	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	5	5	5	0	0	0	8	8	8
Mvmt Flow	565	554	5	5	315	620	0	5	43	636	5	429

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	315	0	0	554	0	0	1854	2009	277	1735	2009	158
Stage 1	-	-	-	-	-	-	1684	1684	-	325	325	-
Stage 2	-	-	-	-	-	-	170	325	-	1410	1684	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.5	6.5	6.9	7.66	6.66	7.06
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.66	5.66	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.66	5.66	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.5	4	3.3	3.58	4.08	3.38
Pot Cap-1 Maneuver	1207	-	-	992	-	0	47	60	726	~ 53	54	841
Stage 1	-	-	-	-	-	0	100	152	-	645	633	-
Stage 2	-	-	-	-	-	0	821	653	-	~ 138	140	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1207	-	-	992	-	-	13	32	726	~ 28	29	841
Mov Cap-2 Maneuver	-	-	-	-	-	-	13	32	-	~ 28	29	-
Stage 1	-	-	-	-	-	-	53	81	-	~ 343	630	-
Stage 2	-	-	-	-	-	-	396	650	-	~ 64	74	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.3	0.1	26.9	$ 6069
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	213	1207	-	-	992	-	28	841
HCM Lane V/C Ratio	0.23	0.468	-	-	0.005	-	22.904	0.511
HCM Control Delay (s)	26.9	10.6	-	-	8.6	$ 10	122.9	13.7
HCM Lane LOS	D	B	-	-	A	-	F	B
HCM 95th %tile Q(veh)	0.9	2.6	-	-	0	-	79.7	3

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

HCM 6th TWSC
5: Reservoir Dr & Jupiter Dev Access 2 08/17/2021

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	115	95	1000	870	110
Future Vol, veh/h	60	115	95	1000	870	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	0	150	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	8	8	11	11
Mvmt Flow	65	125	103	1087	946	120

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1696	473	946	0	-	0
Stage 1	946	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.26	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.28	-	-	-
Pot Cap-1 Maneuver	84	538	685	-	-	-
Stage 1	338	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	71	538	685	-	-	-
Mov Cap-2 Maneuver	71	-	-	-	-	-
Stage 1	287	-	-	-	-	-
Stage 2	427	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	71.8	1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	685	-	71	538	-	-
HCM Lane V/C Ratio	0.151	-	0.919	0.232	-	-
HCM Control Delay (s)	11.2	-	183.3	13.7	-	-
HCM Lane LOS	B	-	F	B	-	-
HCM 95th %tile Q(veh)	0.5	-	4.6	0.9	-	-

HCM 6th TWSC
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Intersection												
Int Delay, s/veh	1321.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	10	50	530	5	210	15	165	875	225	400	0
Future Vol, veh/h	0	10	50	530	5	210	15	165	875	225	400	0
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	-	-	Yield	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	13	13	13	11	11	11	3	3	3
Mvmt Flow	0	11	54	576	5	228	16	179	951	245	435	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1049	2087	218	1400	1612	565	435	0	0	1130	0	0
Stage 1	925	925	-	687	687	-	-	-	-	-	-	-
Stage 2	124	1162	-	713	925	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.76	6.76	7.16	4.32	-	-	4.16	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.76	5.76	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.76	5.76	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.63	4.13	3.43	2.31	-	-	2.23	-	-
Pot Cap-1 Maneuver	184	53	792	~ 91	93	441	1060	-	-	608	-	-
Stage 1	294	351	-	~ 378	420	-	-	-	-	-	-	-
Stage 2	873	272	-	~ 365	322	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	54	30	792	~ 41	52	441	1060	-	-	608	-	-
Mov Cap-2 Maneuver	54	30	-	~ 41	52	-	-	-	-	-	-	-
Stage 1	277	210	-	~ 356	396	-	-	-	-	-	-	-
Stage 2	392	256	-	~ 192	192	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.9	$ 4399.8	0.2	5.3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1060	-	-	180	41	441	608	-	-
HCM Lane V/C Ratio	0.015	-	-	0.362	14.183	0.518	0.402	-	-
HCM Control Delay (s)	8.4	0.2	-	35.9	6118.4	21.6	14.8	-	-
HCM Lane LOS	A	A	-	E	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.5	70.7	2.9	1.9	-	-

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

HCM 6th TWSC
10: Reservoir Dr & Riverstone Bluffs 08/17/2021

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	10	360	15	0	580
Future Vol, veh/h	45	10	360	15	0	580
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	3	3
Mvmt Flow	49	11	391	16	0	630

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	706	196	0	0	391	0
Stage 1	391	-	-	-	-	-
Stage 2	315	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.16	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.23	-
Pot Cap-1 Maneuver	370	812	-	-	1157	-
Stage 1	653	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	370	812	-	-	1157	-
Mov Cap-2 Maneuver	370	-	-	-	-	-
Stage 1	653	-	-	-	-	-
Stage 2	713	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	411	1157	-
HCM Lane V/C Ratio	-	-	0.145	-	-
HCM Control Delay (s)	-	-	15.2	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	520	510	5	5	290	570	0	5	40	585	5	395
Future Volume (veh/h)	520	510	5	5	290	570	0	5	40	585	5	395
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1796	1796	1796	1826	1826	1826	1900	1900	1900	1781	1781	1781
Adj Flow Rate, veh/h	565	554	0	5	315	0	0	5	43	636	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	5	5	5	0	0	0	8	8	8
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	586	1191		182	424		0	49	420	787	982	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.18	0.35	0.00	0.12	0.12	0.00	0.00	0.29	0.29	0.21	0.55	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	64.9	23.1	0.0	34.9	40.7	0.0	0.0	0.0	24.0	24.0	9.1	0.0
Ln Grp LOS	E	C		C	D		A	A	C	C	A	
Approach Vol, veh/h		1119			320			48			641	
Approach Delay, s/veh		44.2			40.6			24.0			23.9	
Approach LOS		D			D			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Case No	1.2	8.0		4.0		3.0	2.0	5.3
Phs Duration (G+Y+Rc), s	23.8	30.3		35.9		54.1	20.4	15.5
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5	4.5	4.5
Max Green (Gmax), s	19.3	18.7		38.5		42.5	15.9	18.1
Max Allow Headway (MAH), s	3.7	5.7		4.9		4.9	3.7	4.9
Max Q Clear (g_c+I1), s	21.3	3.9		13.4		2.1	17.2	9.9
Green Ext Time (g_e), s	0.0	0.1		3.5		0.0	0.0	1.1
Prob of Phs Call (p_c)	1.00	1.00		1.00		1.00	1.00	1.00
Prob of Max Out (p_x)	1.00	0.00		0.00		0.00	1.00	0.24

Left-Turn Movement Data								
Assigned Mvmt	1	5					7	3
Mvmt Sat Flow, veh/h	1697	0					3319	834

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		170		3503		1781		3469

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1466		0		1510		1547

Left Lane Group Data									
Assigned Mvmt	1	5	0	0	0	0	7	3	
Lane Assignment	L (Pr/Pm)						L (Prot)	L	

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Lanes in Grp	1	0	0	0	0	0	2	1
Grp Vol (v), veh/h	636	0	0	0	0	0	565	5
Grp Sat Flow (s), veh/h/ln	1697	0	0	0	0	0	1659	834
Q Serve Time (g_s), s	19.3	0.0	0.0	0.0	0.0	0.0	15.2	0.5
Cycle Q Clear Time (g_c), s	19.3	0.0	0.0	0.0	0.0	0.0	15.2	0.5
Perm LT Sat Flow (s_l), veh/h/ln	1293	0	0	0	0	0	0	834
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	27.8	0.0	0.0	0.0	0.0	0.0	0.0	11.0
Perm LT Serve Time (g_u), s	23.9	0.0	0.0	0.0	0.0	0.0	0.0	11.0
Perm LT Q Serve Time (g_ps), s	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Time to First Blk (g_f), s	0.0	25.8	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Lane Grp Cap (c), veh/h	787	0	0	0	0	0	586	182
V/C Ratio (X)	0.81	0.00	0.00	0.00	0.00	0.00	0.96	0.03
Avail Cap (c_a), veh/h	787	0	0	0	0	0	586	248
Upstream Filter (I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d1), s/veh	17.7	0.0	0.0	0.0	0.0	0.0	36.8	34.9
Incr Delay (d2), s/veh	6.3	0.0	0.0	0.0	0.0	0.0	28.2	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	24.0	0.0	0.0	0.0	0.0	0.0	64.9	34.9
1st-Term Q (Q1), veh/ln	8.4	0.0	0.0	0.0	0.0	0.0	5.8	0.1
2nd-Term Q (Q2), veh/ln	1.4	0.0	0.0	0.0	0.0	0.0	2.3	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00
%ile Back of Q (50%), veh/ln	9.8	0.0	0.0	0.0	0.0	0.0	8.1	0.1
%ile Storage Ratio (RQ%)	0.52	0.00	0.00	0.00	0.00	0.00	0.68	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T		T		T
Lanes in Grp	0	0	0	2	0	1	0	2
Grp Vol (v), veh/h	0	0	0	554	0	5	0	315
Grp Sat Flow (s), veh/h/ln	0	0	0	1706	0	1781	0	1735
Q Serve Time (g_s), s	0.0	0.0	0.0	11.4	0.0	0.1	0.0	7.9
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	11.4	0.0	0.1	0.0	7.9
Lane Grp Cap (c), veh/h	0	0	0	1191	0	982	0	424
V/C Ratio (X)	0.00	0.00	0.00	0.47	0.00	0.01	0.00	0.74
Avail Cap (c_a), veh/h	0	0	0	1460	0	982	0	698
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	22.8	0.0	9.1	0.0	38.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	2.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	23.1	0.0	9.1	0.0	40.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	4.2	0.0	0.0	0.0	3.2
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	4.2	0.0	0.0	0.0	3.3
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.07
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R				R		R
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	48	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1636	0	0	0	1510	0	1547
Q Serve Time (g_s), s	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.90	0.00	0.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	469	0	0	0	832	0	189
V/C Ratio (X)	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	469	0	0	0	832	0	311
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	23.6	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	10	50	530	5	210	15	165	875	225	400	0
Future Volume (veh/h)	0	10	50	530	5	210	15	165	875	225	400	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1900	1900	1707	1707	1707	1737	1737	1737	1856	1856	1856
Adj Flow Rate, veh/h	0	11	0	576	5	0	16	179	0	245	435	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	13	13	13	11	11	11	3	3	3
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	0	36		621	783		351	995		522	1229	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.02	0.00	0.38	0.46	0.00	0.02	0.30	0.00	0.07	0.35	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.0	42.3	0.0	39.0	11.4	0.0	18.2	20.4	0.0	19.3	19.6	0.0
Ln Grp LOS	A	D		D	B		B	C		B	B	
Approach Vol, veh/h		11			581			195			680	
Approach Delay, s/veh		42.3			38.8			20.2			19.5	
Approach LOS		D			D			C			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Case No	1.1	3.0	2.0	8.0	1.1	4.0		4.0
Phs Duration (G+Y+Rc), s	9.6	27.9	34.1	6.0	6.0	31.5		40.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Max Green (Gmax), s	5.1	23.4	35.5	18.0	5.0	23.5		58.0
Max Allow Headway (MAH), s	3.7	4.9	3.9	5.4	3.7	4.9		5.4
Max Q Clear (g_c+I1), s	7.1	5.1	28.3	2.4	2.5	9.1		2.1
Green Ext Time (g_e), s	0.0	0.9	1.3	0.0	0.0	2.2		0.0
Prob of Phs Call (p_c)	0.99	1.00	1.00	0.29	0.29	1.00		1.00
Prob of Max Out (p_x)	1.00	0.00	0.31	0.00	1.00	0.00		0.00

Left-Turn Movement Data								
Assigned Mvmt	1		3	7	5			
Mvmt Sat Flow, veh/h	1767		1626	0	1654			

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		3300		1900		3618		1707

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1472		0		0		0

Left Lane Group Data									
Assigned Mvmt	1	0	3	7	5	0	0	0	
Lane Assignment	L (Pr/Pm)		L (Prot)	L (Pr/Pm)					

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Lanes in Grp	1	0	1	0	1	0	0	0
Grp Vol (v), veh/h	245	0	576	0	16	0	0	0
Grp Sat Flow (s), veh/h/ln	1767	0	1626	0	1654	0	0	0
Q Serve Time (g_s), s	5.1	0.0	26.3	0.0	0.5	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	5.1	0.0	26.3	0.0	0.5	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	1196	0	0	0	886	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	24.5	0.0	0.0	0.0	23.4	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	20.3	0.0	0.0	0.0	19.9	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	5.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	522	0	621	0	351	0	0	0
V/C Ratio (X)	0.47	0.00	0.93	0.00	0.05	0.00	0.00	0.00
Avail Cap (c_a), veh/h	522	0	744	0	427	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	18.6	0.0	23.0	0.0	18.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	16.1	0.0	0.1	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	19.3	0.0	39.0	0.0	18.2	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	3.2	0.0	9.5	0.0	0.2	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	2.8	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	3.3	0.0	12.3	0.0	0.2	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.72	0.00	0.32	0.00	0.03	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	179	0	11	0	435	0	5
Grp Sat Flow (s), veh/h/ln	0	1650	0	1900	0	1763	0	1707
Q Serve Time (g_s), s	0.0	3.1	0.0	0.4	0.0	7.1	0.0	0.1
Cycle Q Clear Time (g_c), s	0.0	3.1	0.0	0.4	0.0	7.1	0.0	0.1
Lane Grp Cap (c), veh/h	0	995	0	36	0	1229	0	783
V/C Ratio (X)	0.00	0.18	0.00	0.31	0.00	0.35	0.00	0.01
Avail Cap (c_a), veh/h	0	995	0	441	0	1229	0	1276
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	20.0	0.0	37.6	0.0	18.8	0.0	11.4
Incr Delay (d2), s/veh	0.0	0.4	0.0	4.8	0.0	0.8	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	20.4	0.0	42.3	0.0	19.6	0.0	11.4
1st-Term Q (Q1), veh/ln	0.0	1.1	0.0	0.2	0.0	2.6	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.1	0.0	0.3	0.0	2.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.06	0.00	0.01	0.00	0.08	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R						
Lanes in Grp	0	1	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1472	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	444	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	444	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Intersection	
Int Delay, s/veh	827.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	215	410	0	25	675	355	0	0	15	475	5	275
Future Vol, veh/h	215	410	0	25	675	355	0	0	15	475	5	275
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Free	-	-	None	-	-	Yield
Storage Length	315	-	200	370	-	230	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	0	0	0	13	13	13
Mvmt Flow	234	446	0	27	734	386	0	0	16	516	5	299

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	734	0	0	446	0	0	1338	1702	223	1479	1702	367
Stage 1	-	-	-	-	-	-	914	914	-	788	788	-
Stage 2	-	-	-	-	-	-	424	788	-	691	914	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.5	6.5	6.9	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.76	5.76	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.5	4	3.3	3.63	4.13	3.43
Pot Cap-1 Maneuver	860	-	-	1104	-	0	113	93	787	~ 79	81	599
Stage 1	-	-	-	-	-	0	298	355	-	~ 327	375	-
Stage 2	-	-	-	-	-	0	584	405	-	~ 376	326	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	860	-	-	1104	-	-	41	66	787	~ 60	58	599
Mov Cap-2 Maneuver	-	-	-	-	-	-	41	66	-	~ 60	58	-
Stage 1	-	-	-	-	-	-	217	258	-	~ 238	366	-
Stage 2	-	-	-	-	-	-	281	395	-	~ 268	237	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.7	0.3	9.7	$ 2291.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	787	860	-	-	1104	-	60	599
HCM Lane V/C Ratio	0.021	0.272	-	-	0.025	-	8.696	0.499
HCM Control Delay (s)	9.7	10.7	-	-	8.3	-	$ 3594.6	16.8
HCM Lane LOS	A	B	-	-	A	-	F	C
HCM 95th %tile Q(veh)	0.1	1.1	-	-	0.1	-	60.9	2.8

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

HCM 6th TWSC
5: Reservoir Dr & Jupiter Dev Access 2 08/17/2021

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	70	125	80	490	630	90
Future Vol, veh/h	70	125	80	490	630	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	0	150	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	13	13	6	6
Mvmt Flow	76	136	87	533	685	98

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1126	343	685	0	-	0
Stage 1	685	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.36	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.33	-	-	-
Pot Cap-1 Maneuver	199	653	834	-	-	-
Stage 1	462	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	178	653	834	-	-	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	414	-	-	-	-	-
Stage 2	616	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.9	1.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	834	-	178	653	-	-
HCM Lane V/C Ratio	0.104	-	0.427	0.208	-	-
HCM Control Delay (s)	9.8	-	39.5	12	-	-
HCM Lane LOS	A	-	E	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.9	0.8	-	-

HCM 6th TWSC
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Intersection	
Int Delay, s/veh	116

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	35	390	0	170	35	330	195	40	295	0
Future Vol, veh/h	0	0	35	390	0	170	35	330	195	40	295	0
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	-	-	Yield	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	0	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	17	17	17	6	6	6	4	4	4
Mvmt Flow	0	0	38	424	0	185	38	359	212	43	321	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	663	1054	161	788	948	286	321	0	0	571	0	0
Stage 1	407	407	-	541	541	-	-	-	-	-	-	-
Stage 2	256	647	-	247	407	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.84	6.84	7.24	4.22	-	-	4.18	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.84	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.84	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.67	4.17	3.47	2.26	-	-	2.24	-	-
Pot Cap-1 Maneuver	351	228	862	~ 257	235	668	1207	-	-	984	-	-
Stage 1	597	601	-	457	483	-	-	-	-	-	-	-
Stage 2	732	470	-	694	559	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	237	207	862	~ 229	214	668	1207	-	-	984	-	-
Mov Cap-2 Maneuver	237	207	-	~ 229	214	-	-	-	-	-	-	-
Stage 1	568	575	-	435	460	-	-	-	-	-	-	-
Stage 2	504	447	-	634	534	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	$ 306.9	0.6	1.1
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1207	-	-	862	229	668	984	-	-
HCM Lane V/C Ratio	0.032	-	-	0.044	1.851	0.277	0.044	-	-
HCM Control Delay (s)	8.1	0.2	-	9.4	$ 435.3	12.4	8.8	-	-
HCM Lane LOS	A	A	-	A	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	29.7	1.1	0.1	-	-

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

HCM 6th TWSC
10: Reservoir Dr & Riverstone Bluffs 08/17/2021

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	5	460	40	10	310
Future Vol, veh/h	25	5	460	40	10	310
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	27	5	500	43	11	337

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	691	250	0	0	500	0
Stage 1	500	-	-	-	-	-
Stage 2	191	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.18	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.24	-
Pot Cap-1 Maneuver	378	750	-	-	1046	-
Stage 1	575	-	-	-	-	-
Stage 2	822	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	373	750	-	-	1046	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	575	-	-	-	-	-
Stage 2	811	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	407	1046	-
HCM Lane V/C Ratio	-	-	0.08	0.01	-
HCM Control Delay (s)	-	-	14.6	8.5	0.1
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	410	0	25	675	355	0	0	15	475	5	275
Future Volume (veh/h)	215	410	0	25	675	355	0	0	15	475	5	275
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1900	1900	1900	1707	1707	1707
Adj Flow Rate, veh/h	234	446	0	27	734	0	0	0	16	516	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	0	0	0	13	13	13
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	297	1342		315	825		0	0	418	710	853	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.09	0.38	0.00	0.23	0.23	0.00	0.00	0.00	0.26	0.18	0.50	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	46.7	16.6	0.0	22.8	39.2	0.0	0.0	0.0	20.9	20.3	9.4	0.0
Ln Grp LOS	D	B		C	D		A	A	C	C	A	
Approach Vol, veh/h		680			761			16			521	
Approach Delay, s/veh		27.0			38.6			20.9			20.2	
Approach LOS		C			D			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Case No	1.2	8.0		4.0		3.0	2.0	5.3
Phs Duration (G+Y+Rc), s	18.0	24.0		33.0		42.0	11.0	22.0
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5	4.5	4.5
Max Green (Gmax), s	13.5	19.0		29.0		37.0	6.5	18.0
Max Allow Headway (MAH), s	3.7	5.7		4.9		4.9	3.7	4.9
Max Q Clear (g_c+I1), s	15.5	2.6		8.7		2.1	7.0	17.1
Green Ext Time (g_e), s	0.0	0.0		2.6		0.0	0.0	0.4
Prob of Phs Call (p_c)	1.00	1.00		1.00		1.00	0.99	1.00
Prob of Max Out (p_x)	1.00	0.00		0.01		0.00	1.00	1.00

Left-Turn Movement Data								
Assigned Mvmt	1	5					7	3
Mvmt Sat Flow, veh/h	1626	0					3428	936

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		0		3618		1707		3526

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1610		0		1447		1572

Left Lane Group Data								
Assigned Mvmt	1	5	0	0	0	0	7	3
Lane Assignment	L (Pr/Pm)						L (Prot)	L

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

Lanes in Grp	1	0	0	0	0	0	2	1
Grp Vol (v), veh/h	516	0	0	0	0	0	234	27
Grp Sat Flow (s), veh/h/ln	1626	0	0	0	0	0	1714	936
Q Serve Time (g_s), s	13.5	0.0	0.0	0.0	0.0	0.0	5.0	1.7
Cycle Q Clear Time (g_c), s	13.5	0.0	0.0	0.0	0.0	0.0	5.0	1.7
Perm LT Sat Flow (s_l), veh/h/ln	1275	0	0	0	0	0	0	936
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	21.5	0.0	0.0	0.0	0.0	0.0	0.0	17.5
Perm LT Serve Time (g_u), s	18.9	0.0	0.0	0.0	0.0	0.0	0.0	17.5
Perm LT Q Serve Time (g_ps), s	9.2	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Time to First Blk (g_f), s	0.0	19.5	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Lane Grp Cap (c), veh/h	710	0	0	0	0	0	297	315
V/C Ratio (X)	0.73	0.00	0.00	0.00	0.00	0.00	0.79	0.09
Avail Cap (c_a), veh/h	710	0	0	0	0	0	297	321
Upstream Filter (I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d1), s/veh	16.5	0.0	0.0	0.0	0.0	0.0	33.6	22.7
Incr Delay (d2), s/veh	3.7	0.0	0.0	0.0	0.0	0.0	13.2	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	20.3	0.0	0.0	0.0	0.0	0.0	46.7	22.8
1st-Term Q (Q1), veh/ln	5.7	0.0	0.0	0.0	0.0	0.0	1.9	0.3
2nd-Term Q (Q2), veh/ln	0.7	0.0	0.0	0.0	0.0	0.0	0.5	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00
%ile Back of Q (50%), veh/ln	6.4	0.0	0.0	0.0	0.0	0.0	2.5	0.4
%ile Storage Ratio (RQ%)	0.35	0.00	0.00	0.00	0.00	0.00	0.20	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T		T		T
Lanes in Grp	0	0	0	2	0	1	0	2
Grp Vol (v), veh/h	0	0	0	446	0	5	0	734
Grp Sat Flow (s), veh/h/ln	0	0	0	1763	0	1707	0	1763
Q Serve Time (g_s), s	0.0	0.0	0.0	6.7	0.0	0.1	0.0	15.1
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	6.7	0.0	0.1	0.0	15.1
Lane Grp Cap (c), veh/h	0	0	0	1342	0	853	0	825
V/C Ratio (X)	0.00	0.00	0.00	0.33	0.00	0.01	0.00	0.89
Avail Cap (c_a), veh/h	0	0	0	1363	0	853	0	846
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	16.5	0.0	9.4	0.0	27.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	11.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	16.6	0.0	9.4	0.0	39.2
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	2.4	0.0	0.0	0.0	5.7
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3

HCM 6th Signalized Intersection Capacity Analysis
2: Riverstone Common Cir/Reservoir Dr & Reinhardt College Pkwy 08/17/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	2.4	0.0	0.0	0.0	7.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.14
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R				R		R
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	16	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1610	0	0	0	1447	0	1572
Q Serve Time (g_s), s	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	418	0	0	0	723	0	368
V/C Ratio (X)	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	418	0	0	0	723	0	377
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	20.8	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	20.9	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	35	390	0	170	35	330	195	40	295	0
Future Volume (veh/h)	0	0	35	390	0	170	35	330	195	40	295	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1900	1900	1900	1648	1648	1648	1811	1811	1811	1841	1841	1841
Adj Flow Rate, veh/h	0	0	0	424	0	0	38	359	0	43	321	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	17	17	17	6	6	6	4	4	4
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	0	4		488	513		535	1272		523	1306	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.00	0.00	0.31	0.00	0.00	0.04	0.37	0.00	0.05	0.37	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.0	0.0	0.0	25.1	0.0	0.0	8.9	11.5	0.0	8.9	11.1	0.0
Ln Grp LOS	A	A		C	A		A	B		A	B	
Approach Vol, veh/h		0			424			397			364	
Approach Delay, s/veh		0.0			25.1			11.2			10.8	
Approach LOS					C			B			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Case No	1.1	3.0	2.0	8.0	1.1	4.0		4.0
Phs Duration (G+Y+Rc), s	6.7	22.7	19.8	0.0	6.5	22.9		19.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Max Green (Gmax), s	5.0	18.2	20.8	18.0	5.0	18.2		43.3
Max Allow Headway (MAH), s	3.7	4.9	3.9	0.0	3.7	4.9		0.0
Max Q Clear (g_c+I1), s	2.7	5.6	14.6	0.0	2.7	5.1		0.0
Green Ext Time (g_e), s	0.0	1.6	0.8	0.0	0.0	1.5		0.0
Prob of Phs Call (p_c)	0.44	1.00	1.00	0.00	0.41	1.00		0.00
Prob of Max Out (p_x)	1.00	0.00	0.34	0.00	1.00	0.00		0.00

Left-Turn Movement Data								
Assigned Mvmt	1		3	7	5			
Mvmt Sat Flow, veh/h	1753		1570	0	1725			

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		3441		-85500		3589		1648

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1535		0		0		0

Left Lane Group Data									
Assigned Mvmt	1	0	3	7	5	0	0	0	
Lane Assignment	L (Pr/Pm)		L (Prot)	L (Pr/Pm)					

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

Lanes in Grp	1	0	1	0	1	0	0	0
Grp Vol (v), veh/h	43	0	424	0	38	0	0	0
Grp Sat Flow (s), veh/h/ln	1753	0	1570	0	1725	0	0	0
Q Serve Time (g_s), s	0.7	0.0	12.6	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.7	0.0	12.6	0.0	0.7	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	1006	0	0	0	1025	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	18.2	0.0	0.0	0.0	18.2	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	14.6	0.0	0.0	0.0	15.3	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	-4.5	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	523	0	488	0	535	0	0	0
V/C Ratio (X)	0.08	0.00	0.87	0.00	0.07	0.00	0.00	0.00
Avail Cap (c_a), veh/h	622	0	663	0	639	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	8.8	0.0	16.0	0.0	8.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	9.1	0.0	0.1	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	8.9	0.0	25.1	0.0	8.9	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.2	0.0	3.9	0.0	0.2	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.2	0.0	5.2	0.0	0.2	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.05	0.00	0.14	0.00	0.03	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	359	0	0	0	321	0	0
Grp Sat Flow (s), veh/h/ln	0	1721	0	1900	0	1749	0	1648
Q Serve Time (g_s), s	0.0	3.6	0.0	0.0	0.0	3.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	3.6	0.0	0.0	0.0	3.1	0.0	0.0
Lane Grp Cap (c), veh/h	0	1272	0	4	0	1306	0	513
V/C Ratio (X)	0.00	0.28	0.00	0.00	0.00	0.25	0.00	0.00
Avail Cap (c_a), veh/h	0	1272	0	694	0	1306	0	1449
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	10.9	0.0	0.0	0.0	10.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.0	0.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	11.5	0.0	0.0	0.0	11.1	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.0	0.0	0.0	0.0	0.9	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis
7: Reservoir Dr & Grand Reserve/Hickory Log Dr 08/17/2021

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.1	0.0	0.0	0.0	1.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.06	0.00	0.00	0.00	0.03	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R						
Lanes in Grp	0	1	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1535	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	567	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	567	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Appendix G: Warrant Analysis

Reinhardt College Parkway at Reservoir Drive

Reinhardt College Pkwy @ Reservoir Dr
Warrant Volumes

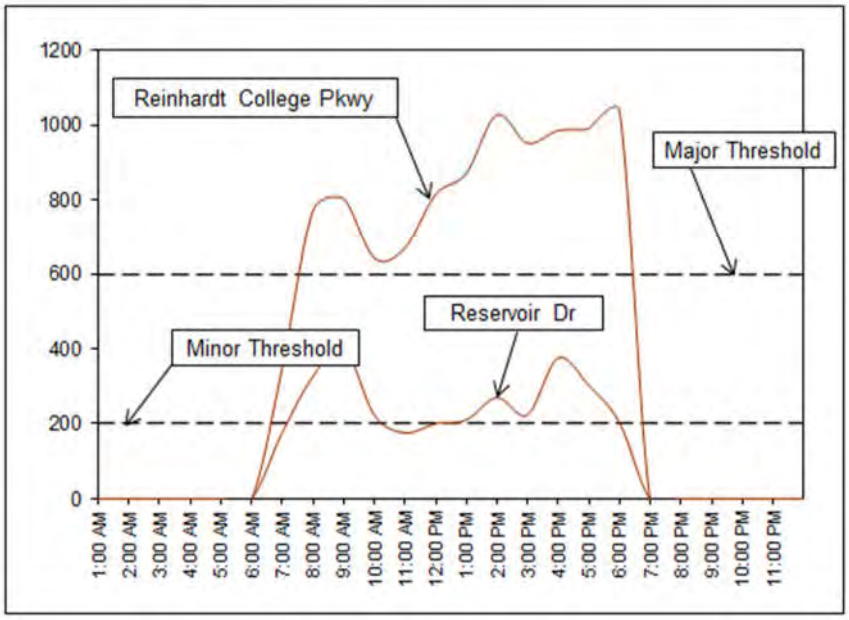
	Major Approaches					Minor Approach	
	Reinhardt College Pkwy					Reservoir Dr	
Hour Ending	EB	EB Adjusted	WB	WB Adjusted	Total Adjusted	SB	SB Adjusted
1:00 AM	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0
7:00 AM	286	285	101	64	348	244	177
8:00 AM	618	614	380	156	770	501	326
9:00 AM	593	585	439	217	802	658	406
10:00 AM	420	416	328	227	642	302	224
11:00 AM	388	388	394	281	668	224	176
12:00 PM	471	471	505	344	815	272	201
1:00 PM	495	490	587	380	870	289	210
2:00 PM	592	586	649	441	1027	395	270
3:00 PM	538	531	646	421	952	307	224
4:00 PM	524	523	746	462	986	602	376
5:00 PM	437	427	874	564	991	426	302
6:00 PM	466	460	873	578	1037	267	204
7:00 PM	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0
12:00 AM	0	0	0	0	0	0	0

Reinhardt College Pkwy @ Reservoir Dr
Warrant 1A Check: 2 lanes major, 2 lanes minor

Testing normal warrant requirements:

hour	major st volume	minor st volume	major st criteria	minor st criteria	test
1:00 AM	0	0	600	200	0
2:00 AM	0	0	600	200	0
3:00 AM	0	0	600	200	0
4:00 AM	0	0	600	200	0
5:00 AM	0	0	600	200	0
6:00 AM	0	0	600	200	0
7:00 AM	348	177	600	200	0
8:00 AM	770	326	600	200	1
9:00 AM	802	406	600	200	1
10:00 AM	642	224	600	200	1
11:00 AM	668	176	600	200	0
12:00 PM	815	201	600	200	1
1:00 PM	870	210	600	200	1
2:00 PM	1027	270	600	200	1
3:00 PM	952	224	600	200	1
4:00 PM	986	376	600	200	1
5:00 PM	991	302	600	200	1
6:00 PM	1037	204	600	200	1
7:00 PM	0	0	600	200	0
8:00 PM	0	0	600	200	0
9:00 PM	0	0	600	200	0
10:00 PM	0	0	600	200	0
11:00 PM	0	0	600	200	0
12:00 AM	0	0	600	200	0

Conclusion: Signal is Warranted SUM= **10**

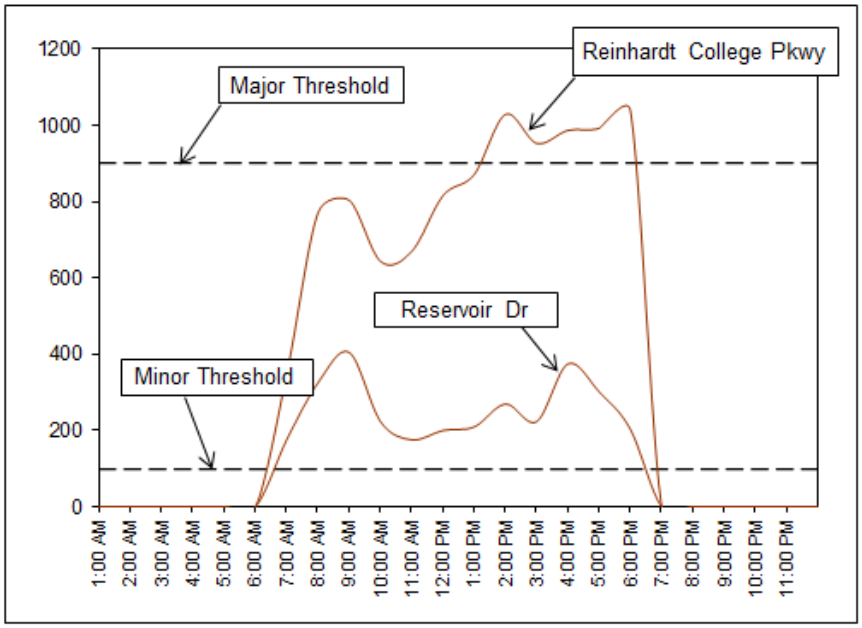


Reinhardt College Pkwy @ Reservoir Dr
Warrant 1B Check: 2 lanes major, 2 lanes minor

Testing normal warrant requirements:

hour	major st volume	minor st volume	major st criteria	minor st criteria	test
1:00 AM	0	0	900	100	0
2:00 AM	0	0	900	100	0
3:00 AM	0	0	900	100	0
4:00 AM	0	0	900	100	0
5:00 AM	0	0	900	100	0
6:00 AM	0	0	900	100	0
7:00 AM	348	177	900	100	0
8:00 AM	770	326	900	100	0
9:00 AM	802	406	900	100	0
10:00 AM	642	224	900	100	0
11:00 AM	668	176	900	100	0
12:00 PM	815	201	900	100	0
1:00 PM	870	210	900	100	0
2:00 PM	1027	270	900	100	1
3:00 PM	952	224	900	100	1
4:00 PM	986	376	900	100	1
5:00 PM	991	302	900	100	1
6:00 PM	1037	204	900	100	1
7:00 PM	0	0	900	100	0
8:00 PM	0	0	900	100	0
9:00 PM	0	0	900	100	0
10:00 PM	0	0	900	100	0
11:00 PM	0	0	900	100	0
12:00 AM	0	0	900	100	0

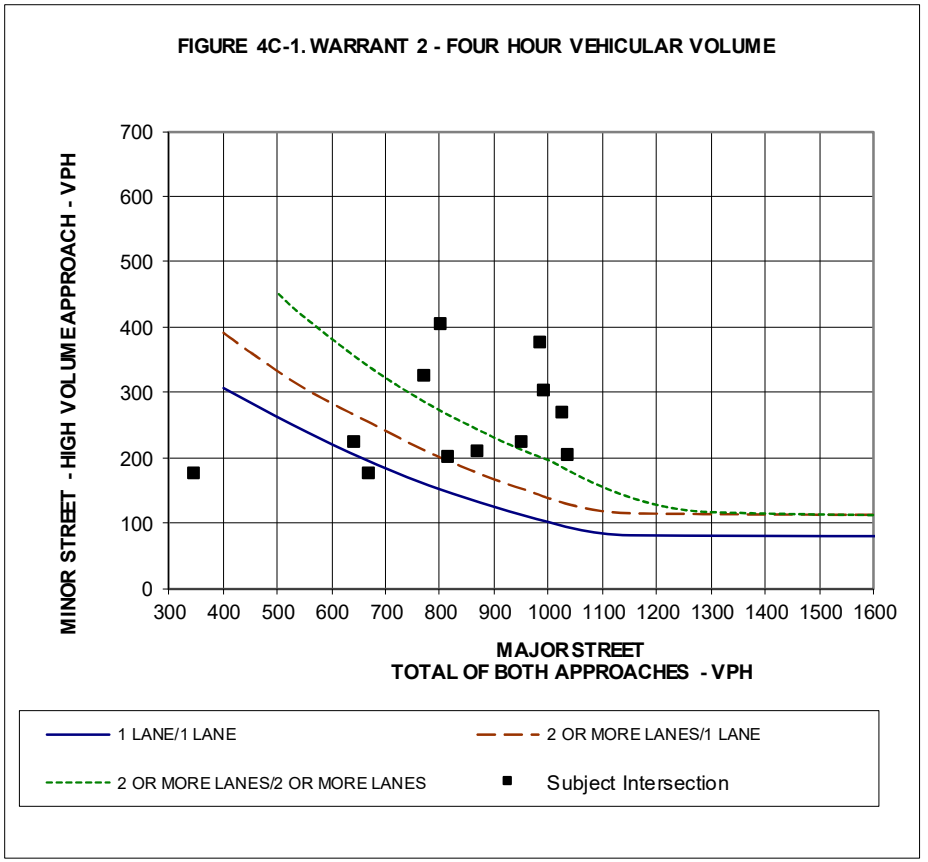
Conclusion: Signal is Not Warranted SUM= **5**



Reinhardt College Pkwy @ Reservoir Dr
Warrant 2 Check: 2 lanes major, 2 lanes minor

Hour	Major Street Volume*	Minor Street Approach	Minor Approach Criteria**	Criteria Satisfied
1:00 AM	0	0	115	No
2:00 AM	0	0	115	No
3:00 AM	0	0	115	No
4:00 AM	0	0	115	No
5:00 AM	0	0	115	No
6:00 AM	0	0	115	No
7:00 AM	348	177	115	Yes
8:00 AM	770	326	115	Yes
9:00 AM	802	406	115	Yes
10:00 AM	642	224	115	Yes
11:00 AM	668	176	115	Yes
12:00 PM	815	201	115	Yes
1:00 PM	870	210	115	Yes
2:00 PM	1027	270	115	Yes
3:00 PM	952	224	115	Yes
4:00 PM	986	376	115	Yes
5:00 PM	991	302	115	Yes
6:00 PM	1037	204	115	Yes
7:00 PM	0	0	115	No
8:00 PM	0	0	115	No
9:00 PM	0	0	115	No
10:00 PM	0	0	115	No
11:00 PM	0	0	115	No
12:00 AM	0	0	115	No

Conclusion: Signal is Warranted



Warrant is Satisfied when any Four Hours of an Average Day Exceed the Threshold

* Major Street Volume is Total for Both Approaches
** From MUTCD Figure 4C-1

Reservoir Dr @ Hickory Log Dr
Warrant Volumes

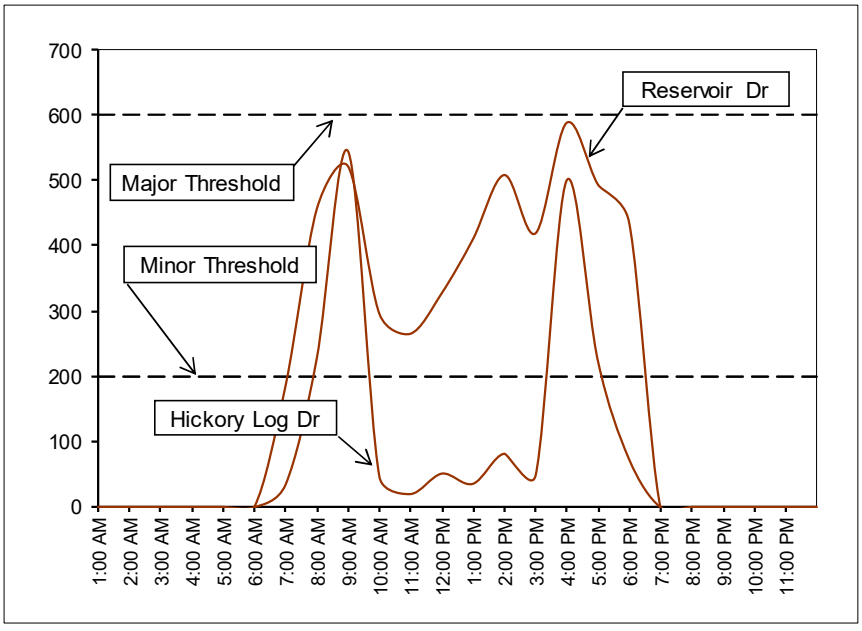
	Major Approaches					Minor Approach	
	Reservoir Dr					Hickory Log Dr	
Hour Ending	NB	NB Adjusted	SB	SB Adjusted	Total Adjusted	WB	WB Adjusted
1:00 AM	0	0	0	0	**0**	0	**0**
2:00 AM	0	0	0	0	**0**	0	**0**
3:00 AM	0	0	0	0	**0**	0	**0**
4:00 AM	0	0	0	0	**0**	0	**0**
5:00 AM	0	0	0	0	**0**	0	**0**
6:00 AM	0	0	0	0	**0**	0	**0**
7:00 AM	67	23	165	163	**186**	42	**35**
8:00 AM	453	96	361	360	**456**	308	**227**
9:00 AM	517	162	361	360	**522**	697	**544**
10:00 AM	170	104	193	192	**296**	58	**47**
11:00 AM	170	112	153	153	**265**	25	**20**
12:00 PM	236	144	186	184	**328**	61	**51**
1:00 PM	313	205	205	205	**410**	42	**36**
2:00 PM	363	229	280	280	**509**	103	**82**
3:00 PM	367	193	228	226	**419**	56	**48**
4:00 PM	494	241	349	348	**589**	672	**499**
5:00 PM	432	283	215	211	**494**	264	**223**
6:00 PM	399	271	168	166	**437**	86	**73**
7:00 PM	0	0	0	0	**0**	0	**0**
8:00 PM	0	0	0	0	**0**	0	**0**
9:00 PM	0	0	0	0	**0**	0	**0**
10:00 PM	0	0	0	0	**0**	0	**0**
11:00 PM	0	0	0	0	**0**	0	**0**
12:00 AM	0	0	0	0	**0**	0	**0**

Reservoir Dr @ Hickory Log Dr
Warrant 1A Check: 2 lanes major, 2 lanes minor

Testing normal warrant requirements:

hour	major st volume	minor st volume	major st criteria	minor st criteria	test
1:00 AM	0	0	600	200	0
2:00 AM	0	0	600	200	0
3:00 AM	0	0	600	200	0
4:00 AM	0	0	600	200	0
5:00 AM	0	0	600	200	0
6:00 AM	0	0	600	200	0
7:00 AM	186	35	600	200	0
8:00 AM	456	227	600	200	0
9:00 AM	522	544	600	200	0
10:00 AM	296	47	600	200	0
11:00 AM	265	20	600	200	0
12:00 PM	328	51	600	200	0
1:00 PM	410	36	600	200	0
2:00 PM	509	82	600	200	0
3:00 PM	419	48	600	200	0
4:00 PM	589	499	600	200	0
5:00 PM	494	223	600	200	0
6:00 PM	437	73	600	200	0
7:00 PM	0	0	600	200	0
8:00 PM	0	0	600	200	0
9:00 PM	0	0	600	200	0
10:00 PM	0	0	600	200	0
11:00 PM	0	0	600	200	0
12:00 AM	0	0	600	200	0

Conclusion: Signal is Not Warranted SUM= **0**

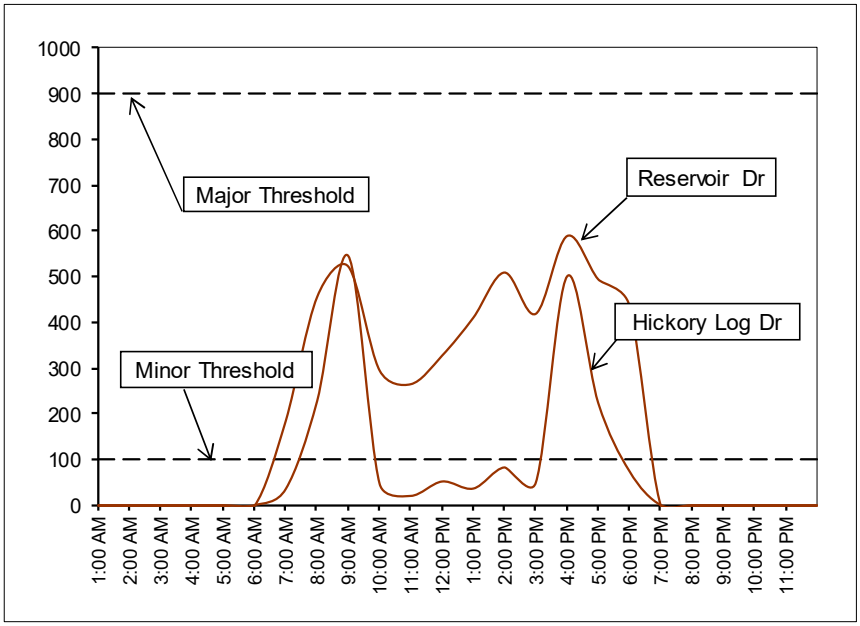


Reservoir Dr @ Hickory Log Dr
Warrant 1B Check: 2 lanes major, 2 lanes minor

Testing normal warrant requirements:

hour	major st volume	minor st volume	major st criteria	minor st criteria	test
1:00 AM	0	0	900	100	0
2:00 AM	0	0	900	100	0
3:00 AM	0	0	900	100	0
4:00 AM	0	0	900	100	0
5:00 AM	0	0	900	100	0
6:00 AM	0	0	900	100	0
7:00 AM	186	35	900	100	0
8:00 AM	456	227	900	100	0
9:00 AM	522	544	900	100	0
10:00 AM	296	47	900	100	0
11:00 AM	265	20	900	100	0
12:00 PM	328	51	900	100	0
1:00 PM	410	36	900	100	0
2:00 PM	509	82	900	100	0
3:00 PM	419	48	900	100	0
4:00 PM	589	499	900	100	0
5:00 PM	494	223	900	100	0
6:00 PM	437	73	900	100	0
7:00 PM	0	0	900	100	0
8:00 PM	0	0	900	100	0
9:00 PM	0	0	900	100	0
10:00 PM	0	0	900	100	0
11:00 PM	0	0	900	100	0
12:00 AM	0	0	900	100	0

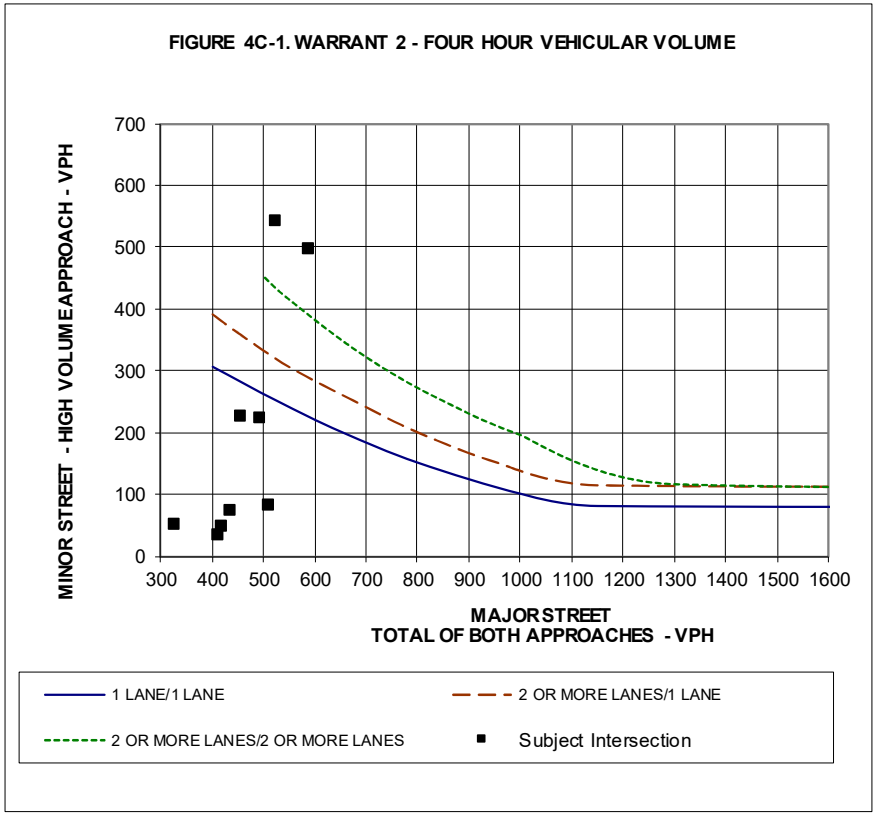
Conclusion: Signal is Not Warranted SUM= **0**



Reservoir Dr @ Hickory Log Dr
Warrant 2 Check: 2 lanes major, 2 lanes minor

Hour	Major Street Volume*	Minor Street Approach	Minor Approach Criteria**	Criteria Satisfied
1:00 AM	0	0	115	No
2:00 AM	0	0	115	No
3:00 AM	0	0	115	No
4:00 AM	0	0	115	No
5:00 AM	0	0	115	No
6:00 AM	0	0	115	No
7:00 AM	186	35	115	No
8:00 AM	456	227	115	Yes
9:00 AM	522	544	115	Yes
10:00 AM	296	47	115	No
11:00 AM	265	20	115	No
12:00 PM	328	51	115	No
1:00 PM	410	36	115	No
2:00 PM	509	82	115	No
3:00 PM	419	48	115	No
4:00 PM	589	499	115	Yes
5:00 PM	494	223	115	Yes
6:00 PM	437	73	115	No
7:00 PM	0	0	115	No
8:00 PM	0	0	115	No
9:00 PM	0	0	115	No
10:00 PM	0	0	115	No
11:00 PM	0	0	115	No
12:00 AM	0	0	115	No

Conclusion: Signal is Not Warranted



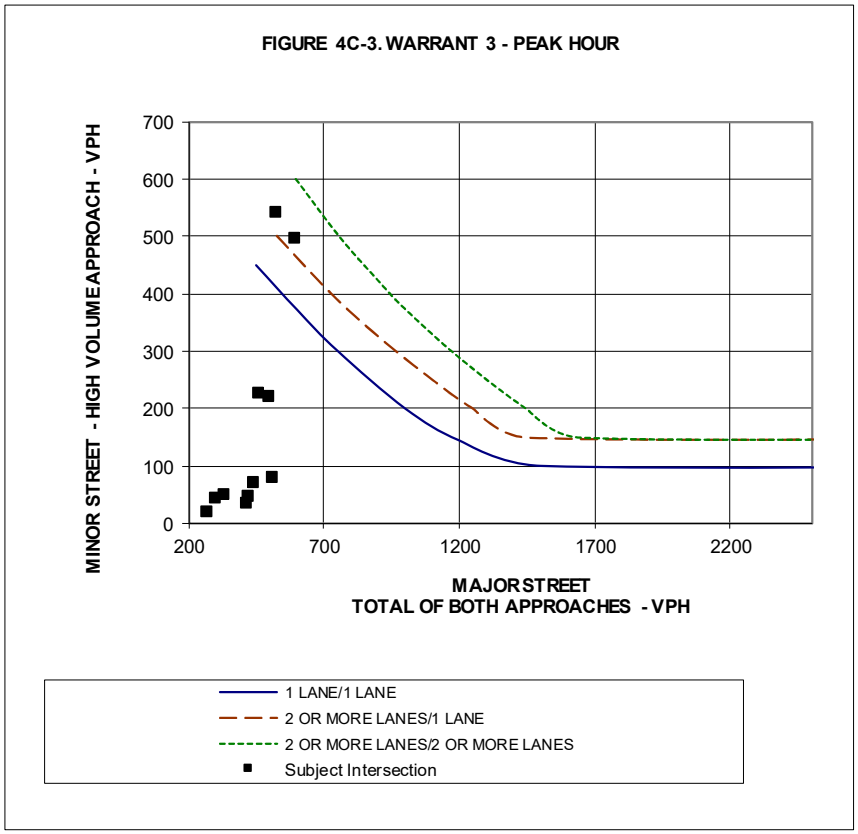
Warrant is Satisfied when any Four Hours of an Average Day Exceed the Threshold

* Major Street Volume is Total for Both Approaches
** From MUTCD Figure 4C-1

Reservoir Dr @ Hickory Log Dr
Warrant 3 Check: 2 lanes major, 2 lanes minor

Hour	Major Street Volume*	Minor Street Approach	Minor Approach Criteria**	Criteria Satisfied
1:00 AM	0	0	150	No
2:00 AM	0	0	150	No
3:00 AM	0	0	150	No
4:00 AM	0	0	150	No
5:00 AM	0	0	150	No
6:00 AM	0	0	150	No
7:00 AM	186	35	150	No
8:00 AM	456	227	150	Yes
9:00 AM	522	544	150	Yes
10:00 AM	296	47	150	No
11:00 AM	265	20	150	No
12:00 PM	328	51	150	No
1:00 PM	410	36	150	No
2:00 PM	509	82	150	No
3:00 PM	419	48	150	No
4:00 PM	589	499	150	Yes
5:00 PM	494	223	150	Yes
6:00 PM	437	73	150	No
7:00 PM	0	0	150	No
8:00 PM	0	0	150	No
9:00 PM	0	0	150	No
10:00 PM	0	0	150	No
11:00 PM	0	0	150	No
12:00 AM	0	0	150	No

Conclusion: Signal is Warranted



Warrant is Satisfied when any Hour of an Average Day Exceeds the Threshold

* Major Street Volume is Total for Both Approaches
** From MUTCD Figure 4C-3

Appendix H: Roundabout Analysis – GDOT Roundabout Analysis Tool (v 4.2) Reports

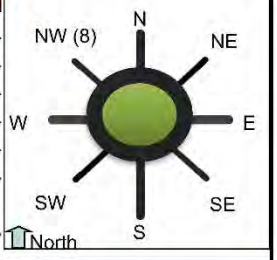
GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

General & Site Information v 4.2

Analyst:	Jimmy Adams
Agency/Co:	Atkins
Date:	4/27/2021
Project or PI#:	Not Applicable
Year, Peak Hour:	2025, AM Peak
County/District:	City of Canton, Cherokee County
Intersection:	Reinhardt College Pkwy at Reservoir Dr



Volumes

	Entry Legs (FROM)	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation		Left-Thru	Right-Thru	SELECT	SELECT	Left-Thru	Right-Thru	SELECT	SELECT
Exit Legs (TO)	N (1), vph						490		
	NE (2), vph								
	E (3), vph	505							
	SE (4), vph								
	S (5), vph		5			5			
	SW (6), vph								
	W (7), vph		330			245			
	NW (8), vph								
	Entry Volume, vph	505	335	0	0	250	490	0	0

	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Lf-Th-Rt	SELECT	SELECT	SELECT	Left-Thru	Right-Thru	SELECT	SELECT
N (1), vph	5				470			
NE (2), vph								
E (3), vph	30					395		
SE (4), vph								
S (5), vph						5		
SW (6), vph								
W (7), vph								
NW (8), vph								
Entry Volume, vph	35	0	0	0	470	400	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	2	0	2	0	1	0	2	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	92.0%	100.0%	95.0%	100.0%	100.0%	100.0%	93.0%	100.0%
% Heavy Vehicles	8.0%	0.0%	5.0%	0.0%	0.0%	0.0%	7.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	0	0	0	0
PHF	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*
F_{hv}	0.926	1.000	0.952	1.000	1.000	1.000	0.935	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Georgia Department of Transportation
Office of Traffic Operations

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	559	0	5	0	547	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	593	0	0	0	33	0	459	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	6	0	6	0	0	0	6	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	387	0	280	0	0	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	986	0	845	0	38	0	1012	0
	Entry flow Lane 1, pcu/h	593	0	285	0	38	0	547	0
	Entry flow Lane 2, pcu/h	393	0	559	0	0	0	465	0
	Conflicting flow, pcu/h	285	0	552	0	1599	0	604	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Left-Thru*	*Right-Thru*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*Lane 2*	*Left-Thru*	*Right-Thru*
Entry Capacity, veh/h	961	1032	774	846	365	NA	724	794
Entry Flow Rates, veh/h	549	364	272	533	38	0	511	435
V/C ratio	**0.57**	**0.35**	**0.35**	**0.63**	**0.10**		**0.71**	**0.55**
Control Delay, s/veh	**11.5**	**7.1**	**8.9**	**14.4**	**11.5**		**19.5**	**12.6**
LOS	B	A	A	B	B		C	B
Average Queue (ft)	44	18	17	53	3		69	38
95th % Queue (ft)	**101**	**43**	**42**	**120**	**9**		**158**	**90**
Approach Delay, LOS	9.7 sec, LOS A		12.5 sec, LOS B		11.5 sec, LOS B		16.4 sec, LOS C	

	NE		SE		SW		NW	
Lane Designations	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio								
Control Delay, sec/pcu								
LOS								
Average Queue (ft)								
95th % Queue (ft)								
Approach Delay, LOS								

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	12.9	Int LOS	B	Max Approach V/C	0.71

Notes:

v 4.2

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	2	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***	Default					
*Lane Flow in Exit Leg****	#N/A					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						

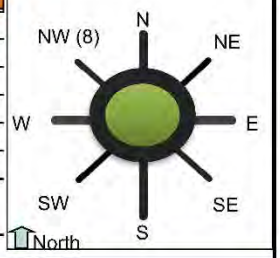
Georgia Department of Transportation
Office of Traffic Operations

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

General & Site Information	v 4.2
Analyst:	Jimmy Adams
Agency/Co:	Atkins
Date:	4/27/2021
Project or PI#:	Not Applicable
Year, Peak Hour:	2025, PM Peak
County/District:	City of Canton, Cherokee County
Intersection:	Reinhardt College Pkwy at Reservoir Dr



Volumes	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Left-Thru	Right-Thru	SELECT	SELECT
N (1), vph						290		
Exit NE (2), vph								
Legs E (3), vph	405							
(TO) SE (4), vph								
S (5), vph		5			20			
SW (6), vph								
W (7), vph		230			382	163		
NW (8), vph								
Entry Volume, vph	405	235	0	0	402	453	0	0

	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Lf-Th-Rt	SELECT	SELECT	SELECT	Left-Thru	Right-Thru	SELECT	SELECT
N (1), vph	0				200			
NE (2), vph								
E (3), vph	10				42	273		
SE (4), vph								
S (5), vph						0		
SW (6), vph								
W (7), vph								
NW (8), vph								
Entry Volume, vph	10	0	0	0	242	273	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	2	0	2	0	1	0	2	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	87.0%	100.0%	97.0%	100.0%	100.0%	100.0%	97.0%	100.0%
% Heavy Vehicles	13.0%	0.0%	3.0%	0.0%	0.0%	0.0%	3.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*
F_{hv}	0.885	1.000	0.971	1.000	1.000	1.000	0.971	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

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Office of Traffic Operations

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Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	325	0	0	0	224	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	497	0	0	0	11	0	353	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	6	0	22	0	0	0	0	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	283	0	610	0	0	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	786	0	957	0	11	0	577	0
	Entry flow Lane 1, pcu/h	497	0	450	0	11	0	271	0
	Entry flow Lane 2, pcu/h	289	0	507	0	0	0	306	0
	Conflicting flow, pcu/h	633	0	224	0	1074	0	526	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Left-Thru*	*Right-Thru*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*Lane 2*	*Left-Thru*	*Right-Thru*
Entry Capacity, veh/h	668	734	1067	1140	570	NA	808	882
Entry Flow Rates, veh/h	440	255	437	492	11	0	263	297
V/C ratio	**0.66**	**0.35**	**0.41**	**0.43**	**0.02**		**0.33**	**0.34**
Control Delay, s/veh	**18.5**	**9.2**	**7.7**	**7.7**	**6.5**		**8.2**	**7.8**
LOS	C	A	A	A	A		A	A
Average Queue (ft)	57	16	24	26			15	16
95th % Queue (ft)	**140**	**44**	**52**	**57**	**1**		**37**	**38**
Approach Delay, LOS	15.1 sec, LOS C		7.7 sec, LOS A		6.5 sec, LOS A		8 sec, LOS A	

	NE		SE		SW		NW	
Lane Designations	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio								
Control Delay, sec/pcu								
LOS								
Average Queue (ft)								
95th % Queue (ft)								
Approach Delay, LOS								

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**10.1**	**Int LOS**	**B**	**Max Approach V/C**	**0.66**

Notes: v 4.2

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	2	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***	Default					
*Lane Flow in Exit Leg****	#N/A					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						

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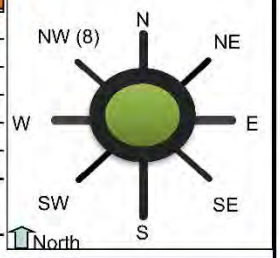
Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

General & Site Information	v 4.2
Analyst:	Jimmy Adams
Agency/Co:	Atkins
Date:	4/27/2021
Project or PI#:	Not Applicable
Year, Peak Hour:	2045, AM Peak
County/District:	City of Canton, Cherokee County
Intersection:	Reinhardt College Pkwy at Reservoir Dr



Volumes	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Left-Thru	Right-Thru	SELECT	SELECT
N (1), vph						570		
Exit NE (2), vph								
Legs E (3), vph	585							
(TO) SE (4), vph								
S (5), vph		5			5			
SW (6), vph								
W (7), vph		395			290			
NW (8), vph								
Entry Volume, vph	585	400	0	0	295	570	0	0
	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Lf-Th-Rt	SELECT	SELECT	SELECT	Left-Thru	Right-Thru	SELECT	SELECT
N (1), vph	5				520			
NE (2), vph								
E (3), vph	40					510		
SE (4), vph								
S (5), vph						5		
SW (6), vph								
W (7), vph								
NW (8), vph								
Entry Volume, vph	45	0	0	0	520	515	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	2	0	2	0	1	0	2	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	92.0%	100.0%	95.0%	100.0%	100.0%	100.0%	93.0%	100.0%
% Heavy Vehicles	8.0%	0.0%	5.0%	0.0%	0.0%	0.0%	7.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	0	0	0	0
PHF	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*
F_{hv}	0.926	1.000	0.952	1.000	1.000	1.000	0.935	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Georgia Department of Transportation
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GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	651	0	5	0	605	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	687	0	0	0	43	0	593	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	6	0	6	0	0	0	6	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	464	0	331	0	0	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	1156	0	987	0	49	0	1204	0
	Entry flow Lane 1, pcu/h	687	0	337	0	49	0	605	0
	Entry flow Lane 2, pcu/h	470	0	651	0	0	0	599	0
	Conflicting flow, pcu/h	337	0	610	0	1885	0	698	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Left-Thru*	*Right-Thru*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*Lane 2*	*Left-Thru*	*Right-Thru*
Entry Capacity, veh/h	917	988	733	805	286	NA	664	733
Entry Flow Rates, veh/h	636	435	321	620	49	0	565	560
V/C ratio	**0.69**	**0.44**	**0.44**	**0.77**	**0.17**		**0.85**	**0.76**
Control Delay, s/veh	**15.8**	**8.7**	**10.9**	**21.6**	**16.0**		**32.8**	**22.7**
LOS	C	A	B	C	C		D	C
Average Queue (ft)	70	26	24	93	5		129	88
95th % Queue (ft)	**157**	**62**	**59**	**198**	**15**		**258**	**194**
Approach Delay, LOS	12.9 sec, LOS B		17.9 sec, LOS C		16 sec, LOS C		27.8 sec, LOS D	

	NE		SE		SW		NW	
Lane Designations	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio								
Control Delay, sec/pcu								
LOS								
Average Queue (ft)								
95th % Queue (ft)								
Approach Delay, LOS								

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**19.7**	**Int LOS**	**C**	**Max Approach V/C**	**0.85**

Notes: v 4.2

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	2	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***	Default					
*Lane Flow in Exit Leg****	#N/A					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						

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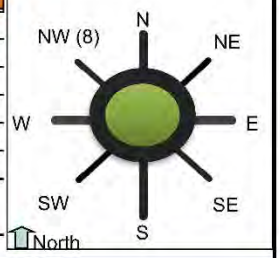
Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

General & Site Information	v 4.2
Analyst:	Jimmy Adams
Agency/Co:	Atkins
Date:	4/27/2021
Project or PI#:	Not Applicable
Year, Peak Hour:	2045, PM Peak
County/District:	City of Canton, Cherokee County
Intersection:	Reinhardt College Pkwy at Reservoir Dr



Volumes	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Left-Thru	Right-Thru	SELECT	SELECT
N (1), vph						355		
Exit NE (2), vph								
Legs E (3), vph	475							
(TO) SE (4), vph								
S (5), vph		5			25			
SW (6), vph								
W (7), vph		275			471	204		
NW (8), vph								
Entry Volume, vph	475	280	0	0	496	559	0	0
	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Lf-Th-Rt	SELECT	SELECT	SELECT	Left-Thru	Right-Thru	SELECT	SELECT
N (1), vph	0				215			
NE (2), vph								
E (3), vph	15				79	331		
SE (4), vph								
S (5), vph						0		
SW (6), vph								
W (7), vph								
NW (8), vph								
Entry Volume, vph	15	0	0	0	294	331	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	2	0	2	0	1	0	2	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	87.0%	100.0%	97.0%	100.0%	100.0%	100.0%	97.0%	100.0%
% Heavy Vehicles	13.0%	0.0%	3.0%	0.0%	0.0%	0.0%	3.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	0	0	0	0
PHF	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*
F_{hv}	0.885	1.000	0.971	1.000	1.000	1.000	0.971	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Georgia Department of Transportation
Office of Traffic Operations

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	397	0	0	0	241	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	583	0	0	0	16	0	459	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	6	0	28	0	0	0	0	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	338	0	756	0	0	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	927	0	1181	0	16	0	700	0
	Entry flow Lane 1, pcu/h	583	0	555	0	16	0	329	0
	Entry flow Lane 2, pcu/h	344	0	626	0	0	0	371	0
	Conflicting flow, pcu/h	784	0	241	0	1283	0	618	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Left-Thru*	*Right-Thru*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*Lane 2*	*Left-Thru*	*Right-Thru*
Entry Capacity, veh/h	581	646	1050	1124	477	NA	743	816
Entry Flow Rates, veh/h	516	304	539	608	16	0	320	360
V/C ratio	**0.89**	**0.47**	**0.51**	**0.54**	**0.03**		**0.43**	**0.44**
Control Delay, s/veh	**41.3**	**12.8**	**9.6**	**9.6**	**8.0**		**10.6**	**10.1**
LOS	E	B	A	A	A		B	B
Average Queue (ft)	148	27	36	41	1		24	25
95th % Queue (ft)	**295**	**71**	**78**	**86**	**3**		**56**	**59**
Approach Delay, LOS	30.8 sec, LOS D		9.6 sec, LOS A		8 sec, LOS A		10.3 sec, LOS B	

	NE		SE		SW		NW	
Lane Designations	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio								
Control Delay, sec/pcu								
LOS								
Average Queue (ft)								
95th % Queue (ft)								
Approach Delay, LOS								

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**16.3**	**Int LOS**	**C**	**Max Approach V/C**	**0.89**

Notes: v 4.2

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	2	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***	Default					
*Lane Flow in Exit Leg****	#N/A					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						

Georgia Department of Transportation
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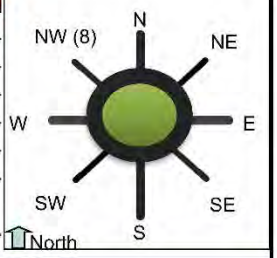
Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

General & Site Information	v 4.2
Analyst:	Jimmy Adams
Agency/Co:	Atkins
Date:	4/27/2021
Project or PI#:	Not Applicable
Year, Peak Hour:	2025, AM Peak
County/District:	City of Canton, Cherokee County
Intersection:	Reservoir Dr at Hickory Log Dr



Volumes	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Left Only	Right-Thru	SELECT	SELECT
N (1), vph						175		
Exit Legs (TO) NE (2), vph								
E (3), vph	200							
SE (4), vph								
S (5), vph	49	281			465			
SW (6), vph								
W (7), vph						5		
NW (8), vph								
Entry Volume, vph	249	281	0	0	465	180	0	0
	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Lf-Th-Rt	SELECT	SELECT	SELECT
N (1), vph	140				0			
NE (2), vph								
E (3), vph		775			10			
SE (4), vph								
S (5), vph					40			
SW (6), vph								
W (7), vph	10							
NW (8), vph								
Entry Volume, vph	150	775	0	0	50	0	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	2	0	2	0	2	0	1	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	97.0%	100.0%	87.0%	100.0%	89.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	3.0%	0.0%	13.0%	0.0%	11.0%	0.0%	0.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*
F_{hv}	0.971	1.000	0.885	1.000	0.901	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Georgia Department of Transportation
Office of Traffic Operations

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	215	0	169	0	0	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	224	0	0	0	935	0	11	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	369	0	571	0	0	0	43	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	0	0	6	0	12	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	593	0	792	0	1116	0	54	0
	Entry flow Lane 1, pcu/h	279	0	571	0	181	0	54	0
	Entry flow Lane 2, pcu/h	315	0	221	0	935	0	0	0
	Conflicting flow, pcu/h	589	0	181	0	235	0	1165	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Left-Thru*	*Right-Thru*	*Left Only*	*Right-Thru*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*Lane 2*
Entry Capacity, veh/h	762	835	1011	1077	980	1048	528	NA
Entry Flow Rates, veh/h	271	305	505	196	163	842	54	0
V/C ratio	**0.36**	**0.37**	**0.50**	**0.18**	**0.17**	**0.80**	**0.10**	
Control Delay, s/veh	**9.1**	**8.6**	**9.6**	**5.0**	**5.2**	**19.8**	**8.1**	
LOS	A	A	A	A	A	C	A	
Average Queue (ft)	17	18	34	7	6	116	3	
95th % Queue (ft)	**41**	**43**	**81**	**19**	**17**	**252**	**9**	
Approach Delay, LOS	8.8 sec, LOS A		8.3 sec, LOS A		17.4 sec, LOS C		8.1 sec, LOS A	

	NE		SE		SW		NW	
Lane Designations	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio								
Control Delay, sec/pcu								
LOS								
Average Queue (ft)								
95th % Queue (ft)								
Approach Delay, LOS								

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	12.4	Int LOS	B	Max Approach V/C	0.80

Notes: v 4.2

Georgia Department of Transportation
Office of Traffic Operations

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	2	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***						
*Lane Flow in Exit Leg****						
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						

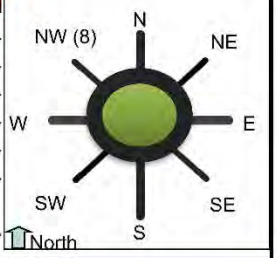
Georgia Department of Transportation
Office of Traffic Operations

GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

General & Site Information	v 4.2
Analyst:	Jimmy Adams
Agency/Co:	Atkins
Date:	4/27/2021
Project or PI#:	Not Applicable
Year, Peak Hour:	2025, PM Peak
County/District:	City of Canton, Cherokee County
Intersection:	Reservoir Dr at Hickory Log Dr



Volumes	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Left Only	Right-Thru	SELECT	SELECT
N (1), vph						140		
Exit Legs (TO) NE (2), vph								
E (3), vph	35							
SE (4), vph								
S (5), vph	97	148			330			
SW (6), vph								
W (7), vph						0		
NW (8), vph								
Entry Volume, vph	132	148	0	0	330	140	0	0
	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Lf-Th-Rt	SELECT	SELECT	SELECT
N (1), vph	201	74			0			
NE (2), vph								
E (3), vph		180			0			
SE (4), vph								
S (5), vph					30			
SW (6), vph								
W (7), vph	25							
NW (8), vph								
Entry Volume, vph	226	254	0	0	30	0	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	2	0	2	0	2	0	1	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	96.0%	100.0%	83.0%	100.0%	94.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	4.0%	0.0%	17.0%	0.0%	6.0%	0.0%	0.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*
F_{hv}	0.962	1.000	0.855	1.000	0.943	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

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Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	178	0	317	0	0	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	40	0	0	0	207	0	0	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	277	0	420	0	0	0	33	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	0	0	0	0	29	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	317	0	598	0	553	0	33	0
	Entry flow Lane 1, pcu/h	149	0	420	0	260	0	33	0
	Entry flow Lane 2, pcu/h	167	0	178	0	293	0	0	0
	Conflicting flow, pcu/h	448	0	346	0	40	0	736	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Left-Thru*	*Right-Thru*	*Left Only*	*Right-Thru*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*Lane 2*
Entry Capacity, veh/h	859	933	840	905	1228	1295	759	NA
Entry Flow Rates, veh/h	143	161	359	152	246	276	33	0
V/C ratio	**0.17**	**0.17**	**0.43**	**0.17**	**0.20**	**0.21**	**0.04**	
Control Delay, s/veh	**5.9**	**5.5**	**9.6**	**5.6**	**4.7**	**4.6**	**5.2**	
LOS	A	A	A	A	A	A	A	
Average Queue (ft)	6	6	24	6	8	9	1	
95th % Queue (ft)	**16**	**16**	**63**	**18**	**20**	**21**	**3**	
Approach Delay, LOS	5.7 sec, LOS A		8.4 sec, LOS A		4.6 sec, LOS A		5.2 sec, LOS A	

	NE		SE		SW		NW	
Lane Designations	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio								
Control Delay, sec/pcu								
LOS								
Average Queue (ft)								
95th % Queue (ft)								
Approach Delay, LOS								

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	6.3	Int LOS	A	Max Approach V/C	0.43

Notes: v 4.2

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Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	2	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***						
*Lane Flow in Exit Leg****						
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						

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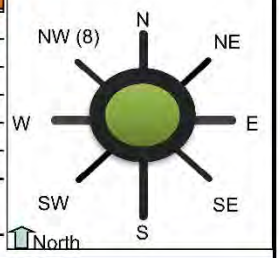
Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

General & Site Information	v 4.2
Analyst:	Jimmy Adams
Agency/Co:	Atkins
Date:	4/27/2021
Project or PI#:	Not Applicable
Year, Peak Hour:	2045, AM Peak
County/District:	City of Canton, Cherokee County
Intersection:	Reservoir Dr at Hickory Log Dr



Volumes	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Left Only	Right-Thru	SELECT	SELECT
N (1), vph						210		
Exit NE (2), vph								
Legs E (3), vph	225							
(TO) SE (4), vph								
S (5), vph	69	331			530			
SW (6), vph								
W (7), vph						5		
NW (8), vph								
Entry Volume, vph	294	331	0	0	530	215	0	0
	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Lf-Th-Rt	SELECT	SELECT	SELECT
N (1), vph	165				0			
NE (2), vph								
E (3), vph		875			10			
SE (4), vph								
S (5), vph					50			
SW (6), vph								
W (7), vph	15							
NW (8), vph								
Entry Volume, vph	180	875	0	0	60	0	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	2	0	2	0	2	0	1	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	97.0%	100.0%	87.0%	100.0%	89.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	3.0%	0.0%	13.0%	0.0%	11.0%	0.0%	0.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*
F_{hv}	0.971	1.000	0.885	1.000	0.901	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

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GDOT Georgia Department of Transportation

Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	258	0	199	0	0	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	252	0	0	0	1056	0	11	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	448	0	651	0	0	0	54	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	0	0	6	0	18	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	700	0	915	0	1273	0	65	0
	Entry flow Lane 1, pcu/h	329	0	651	0	217	0	65	0
	Entry flow Lane 2, pcu/h	371	0	264	0	1056	0	0	0
	Conflicting flow, pcu/h	675	0	217	0	263	0	1351	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Left-Thru*	*Right-Thru*	*Left Only*	*Right-Thru*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*Lane 2*
Entry Capacity, veh/h	704	777	978	1045	955	1023	450	NA
Entry Flow Rates, veh/h	320	360	576	234	196	951	65	0
V/C ratio	**0.45**	**0.46**	**0.59**	**0.22**	**0.20**	**0.93**	**0.14**	
Control Delay, s/veh	**11.6**	**10.9**	**11.8**	**5.6**	**5.8**	**33.8**	**10.1**	
LOS	B	B	B	A	A	D	B	
Average Queue (ft)	26	27	47	9	8	223	5	
95th % Queue (ft)	**61**	**64**	**112**	**24**	**21**	**414**	**13**	
Approach Delay, LOS	11.2 sec, LOS B		10 sec, LOS A		29 sec, LOS D		10.1 sec, LOS B	

	NE		SE		SW		NW	
Lane Designations	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio								
Control Delay, sec/pcu								
LOS								
Average Queue (ft)								
95th % Queue (ft)								
Approach Delay, LOS								

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	18.4	Int LOS	C	Max Approach V/C	0.93

Notes: v 4.2

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Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	2	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***						
*Lane Flow in Exit Leg****						
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						

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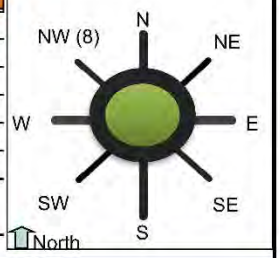
Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

General & Site Information	v 4.2
Analyst:	Jimmy Adams
Agency/Co:	Atkins
Date:	4/27/2021
Project or PI#:	Not Applicable
Year, Peak Hour:	2045, PM Peak
County/District:	City of Canton, Cherokee County
Intersection:	Reservoir Dr at Hickory Log Dr



Volumes	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Left Only	Right-Thru	SELECT	SELECT
N (1), vph						170		
Exit Legs (TO) NE (2), vph								
E (3), vph	40							
SE (4), vph								
S (5), vph	117	178			390			
SW (6), vph								
W (7), vph						0		
NW (8), vph								
Entry Volume, vph	157	178	0	0	390	170	0	0
	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Lf-Th-Rt	SELECT	SELECT	SELECT
N (1), vph	228	102			0			
NE (2), vph								
E (3), vph		195			0			
SE (4), vph								
S (5), vph					35			
SW (6), vph								
W (7), vph	35							
NW (8), vph								
Entry Volume, vph	263	297	0	0	35	0	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	2	0	2	0	2	0	1	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	96.0%	100.0%	83.0%	100.0%	94.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	4.0%	0.0%	17.0%	0.0%	6.0%	0.0%	0.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*	*0.92*	*0.95*
F_{hv}	0.962	1.000	0.855	1.000	0.943	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

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Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	216	0	380	0	0	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	45	0	0	0	225	0	0	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	333	0	496	0	0	0	38	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	0	0	0	0	40	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	379	0	712	0	645	0	38	0
	Entry flow Lane 1, pcu/h	177	0	496	0	303	0	38	0
	Entry flow Lane 2, pcu/h	201	0	216	0	342	0	0	0
	Conflicting flow, pcu/h	536	0	421	0	45	0	875	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Left-Thru*	*Right-Thru*	*Left Only*	*Right-Thru*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*Lane 2*
Entry Capacity, veh/h	793	866	784	849	1222	1289	675	NA
Entry Flow Rates, veh/h	171	193	424	185	286	323	38	0
V/C ratio	**0.22**	**0.22**	**0.54**	**0.22**	**0.23**	**0.25**	**0.06**	
Control Delay, s/veh	**6.9**	**6.5**	**12.6**	**6.5**	**5.0**	**5.0**	**5.9**	
LOS	A	A	B	A	A	A	A	
Average Queue (ft)	8	9	37	8	10	11	2	
95th % Queue (ft)	**21**	**22**	**96**	**24**	**24**	**26**	**4**	
Approach Delay, LOS	6.7 sec, LOS A		10.7 sec, LOS B		5 sec, LOS A		5.9 sec, LOS A	

	NE		SE		SW		NW	
Lane Designations	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*	*Lane 1*	*Lane 2*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio								
Control Delay, sec/pcu								
LOS								
Average Queue (ft)								
95th % Queue (ft)								
Approach Delay, LOS								

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	7.5	Int LOS	A	Max Approach V/C	0.54

Notes: v 4.2

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Roundabout Analysis Tool
Multi-Lane

8/23/2021
Version 4.2

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	2	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***						
*Lane Flow in Exit Leg****						
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						

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Appendix I: Roundabout Analysis – SIDRA 8 Reports

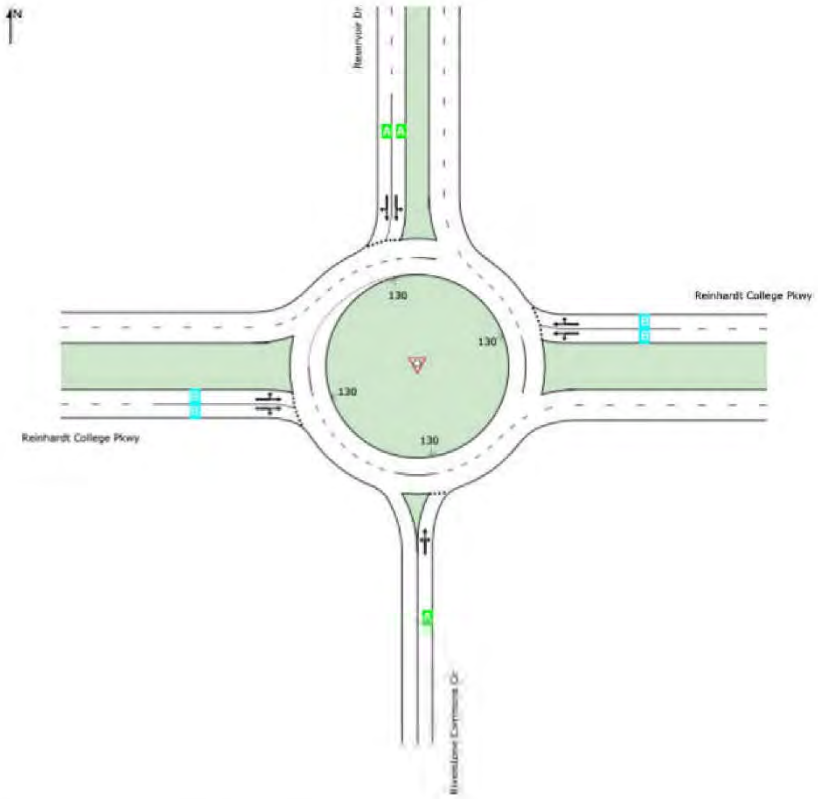
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Reinhardt College Pkwy @ Reservoir Dr 2025 AM - No Bypass]

Roundabout Analysis Multi-Lane
EF: 1.10
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	A	B	A	B	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Organisation: ATKINS NORTH AMERICA | Processed: Wednesday, August 18, 2021 7:11:02 AM
Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reinhardt College Pkwy @ Reservoir Dr_Final.sip8

MOVEMENT SUMMARY

Site: 101 [Reinhardt College Pkwy @ Reservoir Dr 2025 AM - No Bypass]

Roundabout Analysis Multi-Lane
EF: 1.10
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Riverstone Commons Cir												
3	L2	1	0.0	0.092	9.8	LOS A	0.5	11.5	0.81	0.80	0.81	15.1
8	T1	5	0.0	0.092	9.8	LOS A	0.5	11.5	0.81	0.80	0.81	14.9
18	R2	33	0.0	0.092	9.8	LOS A	0.5	11.5	0.81	0.80	0.81	14.7
Approach		39	0.0	0.092	9.8	LOS A	0.5	11.5	0.81	0.80	0.81	14.8
East: Reinhardt College Pkwy												
1	L2	5	5.0	0.404	11.0	LOS B	2.7	69.6	0.77	0.73	0.79	15.2
6	T1	266	5.0	0.404	11.0	LOS B	2.7	69.6	0.77	0.73	0.79	34.6
16	R2	533	5.0	0.618	13.8	LOS B	7.3	190.5	0.88	0.94	1.24	32.0
Approach		804	5.0	0.618	12.8	LOS B	7.3	190.5	0.84	0.87	1.09	32.6
North: Reservoir Dr												
7	L2	549	8.0	0.520	9.6	LOS A	4.0	106.4	0.65	0.49	0.65	32.1
4	T1	5	8.0	0.520	9.6	LOS A	4.0	106.4	0.65	0.49	0.65	15.0
14	R2	359	8.0	0.394	8.5	LOS A	2.6	68.0	0.59	0.46	0.59	34.2
Approach		913	8.0	0.520	9.2	LOS A	4.0	106.4	0.62	0.48	0.62	32.7
West: Reinhardt College Pkwy												
5	L2	511	7.0	0.604	13.6	LOS B	6.6	173.1	0.85	0.94	1.22	30.6
2	T1	429	7.0	0.595	14.9	LOS B	6.0	158.9	0.85	0.97	1.23	32.6
12	R2	5	7.0	0.595	14.9	LOS B	6.0	158.9	0.85	0.97	1.23	14.8
Approach		946	7.0	0.604	14.2	LOS B	6.6	173.1	0.85	0.95	1.22	31.3
All Vehicles		2702	6.6	0.618	12.0	LOS B	7.3	190.5	0.77	0.77	0.97	31.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: ATKINS NORTH AMERICA | Processed: Wednesday, August 18, 2021 7:11:02 AM
Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reinhardt College Pkwy @ Reservoir Dr_Final.sip8

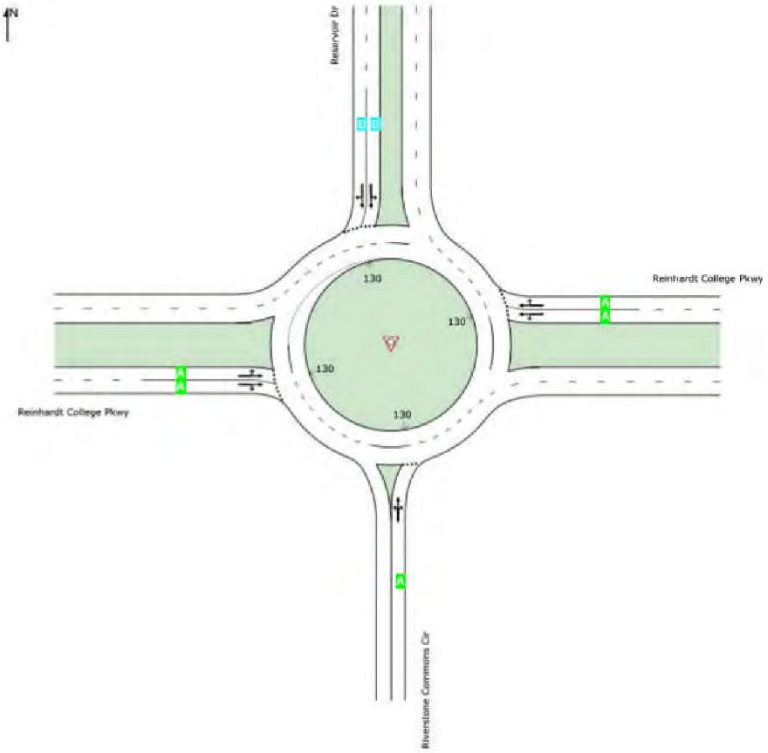
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Reinhardt College Pkwy @ Reservoir Dr 2025 PM - No Bypass]

Roundabout Analysis Multi-Lane
EF: 1.10
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	B	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 101 [Reinhardt College Pkwy @ Reservoir Dr 2025 PM - No Bypass]

Roundabout Analysis Multi-Lane
EF: 1.10
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Riverstone Commons Cir												
3	L2	1	0.0	0.020	5.8	LOS A	0.1	2.2	0.64	0.52	0.64	15.5
8	T1	1	0.0	0.020	5.8	LOS A	0.1	2.2	0.64	0.52	0.64	15.3
18	R2	11	0.0	0.020	5.8	LOS A	0.1	2.2	0.64	0.52	0.64	15.1
Approach		13	0.0	0.020	5.8	LOS A	0.1	2.2	0.64	0.52	0.64	15.2
East: Reinhardt College Pkwy												
1	L2	22	3.0	0.405	7.5	LOS A	2.7	70.2	0.52	0.36	0.52	15.5
6	T1	592	3.0	0.405	7.4	LOS A	2.8	71.5	0.51	0.36	0.51	36.6
16	R2	315	3.0	0.405	7.1	LOS A	2.8	71.5	0.51	0.35	0.51	35.7
Approach		929	3.0	0.405	7.3	LOS A	2.8	71.5	0.51	0.35	0.51	35.2
North: Reservoir Dr												
7	L2	440	13.0	0.526	11.5	LOS B	4.2	115.6	0.73	0.82	1.00	30.8
4	T1	5	13.0	0.526	11.5	LOS B	4.2	115.6	0.73	0.82	1.00	14.9
14	R2	250	13.0	0.377	10.6	LOS B	2.0	56.0	0.68	0.70	0.74	32.5
Approach		696	13.0	0.526	11.2	LOS B	4.2	115.6	0.72	0.78	0.91	31.1
West: Reinhardt College Pkwy												
5	L2	217	3.0	0.312	7.8	LOS A	1.9	47.8	0.67	0.59	0.67	34.1
2	T1	342	3.0	0.312	7.1	LOS A	1.9	49.7	0.66	0.57	0.66	36.7
12	R2	1	3.0	0.312	7.1	LOS A	1.9	49.7	0.66	0.56	0.66	15.6
Approach		561	3.0	0.312	7.4	LOS A	1.9	49.7	0.67	0.57	0.67	35.5
All Vehicles		2199	6.1	0.526	8.5	LOS A	4.2	115.6	0.62	0.54	0.68	33.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: ATKINS NORTH AMERICA | Processed: Wednesday, August 18, 2021 7:11:05 AM
Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reinhardt College Pkwy @ Reservoir Dr_Final.sip8

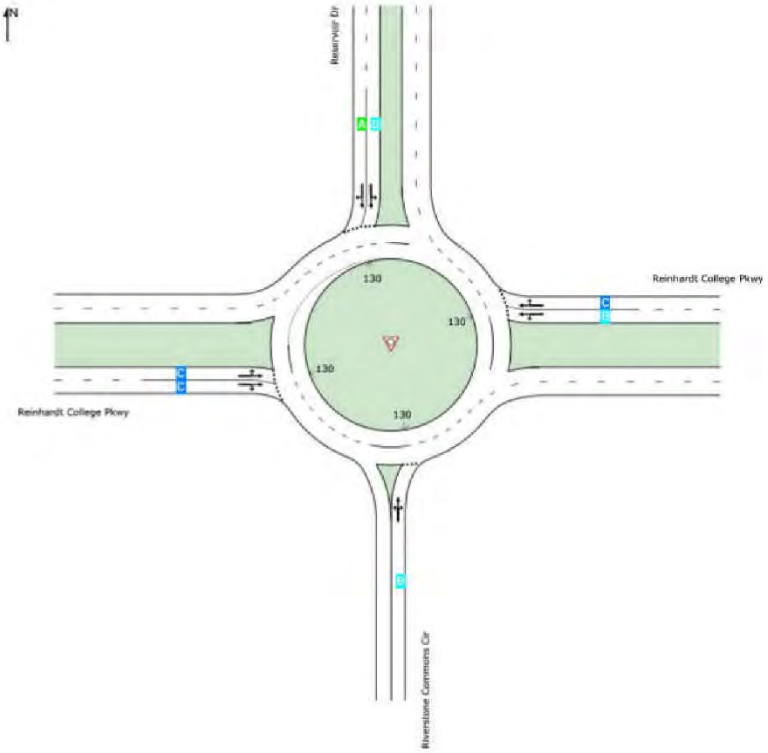
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Reinhardt College Pkwy @ Reservoir Dr 2045 AM - No Bypass]

Roundabout Analysis Multi-Lane
EF: 1.05
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	B	C	B	C	C



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 101 [Reinhardt College Pkwy @ Reservoir Dr 2045 AM - No Bypass]

Roundabout Analysis Multi-Lane
EF: 1.05
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Riverstone Commons Cir												
3	L2	1	0.0	0.147	13.2	LOS B	0.8	20.6	0.90	0.90	0.90	14.8
8	T1	5	0.0	0.147	13.2	LOS B	0.8	20.6	0.90	0.90	0.90	14.6
18	R2	43	0.0	0.147	13.2	LOS B	0.8	20.6	0.90	0.90	0.90	14.4
Approach		50	0.0	0.147	13.2	LOS B	0.8	20.6	0.90	0.90	0.90	14.5
East: Reinhardt College Pkwy												
1	L2	5	5.0	0.495	13.4	LOS B	4.2	109.9	0.86	0.89	1.06	15.0
6	T1	315	5.0	0.495	13.4	LOS B	4.2	109.9	0.86	0.89	1.06	33.4
16	R2	620	5.0	0.738	19.0	LOS C	12.1	314.6	1.00	1.19	1.67	29.7
Approach		940	5.0	0.738	17.1	LOS C	12.1	314.6	0.95	1.09	1.46	30.7
North: Reservoir Dr												
7	L2	636	8.0	0.596	11.2	LOS B	6.4	169.8	0.74	0.65	0.88	31.5
4	T1	5	8.0	0.596	11.2	LOS B	6.4	169.8	0.74	0.65	0.88	14.9
14	R2	429	8.0	0.476	9.9	LOS A	3.4	90.0	0.68	0.56	0.68	33.4
Approach		1071	8.0	0.596	10.7	LOS B	6.4	169.8	0.72	0.61	0.80	32.0
West: Reinhardt College Pkwy												
5	L2	565	7.0	0.763	21.1	LOS C	12.4	326.2	1.00	1.28	1.81	28.1
2	T1	554	7.0	0.763	24.2	LOS C	12.4	326.2	0.99	1.29	1.85	28.6
12	R2	5	7.0	0.763	24.5	LOS C	11.2	296.5	0.99	1.30	1.86	14.0
Approach		1125	7.0	0.763	22.6	LOS C	12.4	326.2	0.99	1.29	1.83	28.2
All Vehicles		3186	6.6	0.763	16.8	LOS C	12.4	326.2	0.89	1.00	1.36	29.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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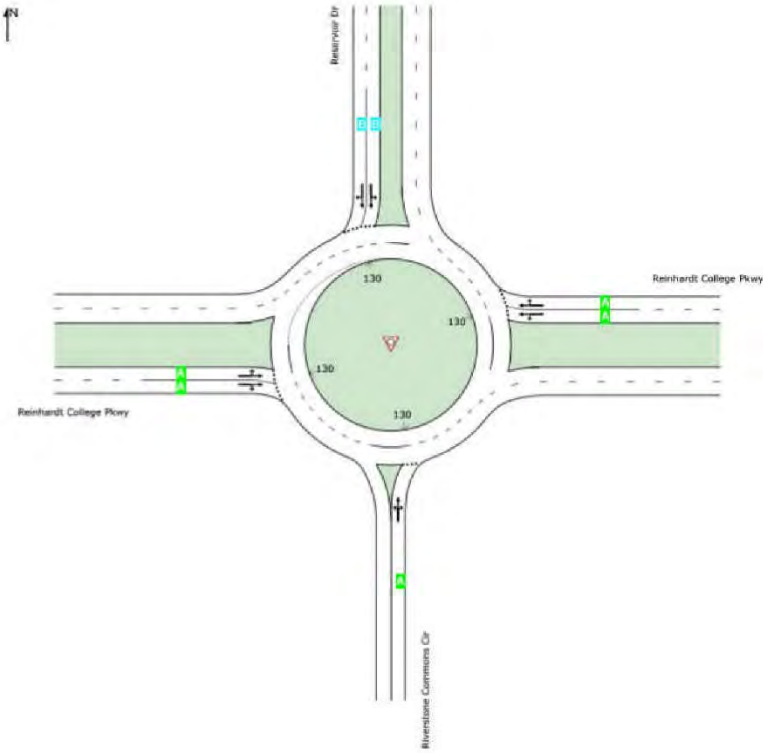
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Reinhardt College Pkwy @ Reservoir Dr 2045 PM - No Bypass]

Roundabout Analysis Multi-Lane
EF: 1.05
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	B	A	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 101 [Reinhardt College Pkwy @ Reservoir Dr 2045 PM - No Bypass]

Roundabout Analysis Multi-Lane
EF: 1.05
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Riverstone Commons Cir												
3	L2	1	0.0	0.030	6.2	LOS A	0.1	3.5	0.71	0.60	0.71	15.5
8	T1	1	0.0	0.030	6.2	LOS A	0.1	3.5	0.71	0.60	0.71	15.3
18	R2	16	0.0	0.030	6.2	LOS A	0.1	3.5	0.71	0.60	0.71	15.1
Approach		18	0.0	0.030	6.2	LOS A	0.1	3.5	0.71	0.60	0.71	15.1
East: Reinhardt College Pkwy												
1	L2	27	3.0	0.489	8.8	LOS A	3.7	94.5	0.59	0.42	0.59	15.4
6	T1	734	3.0	0.489	8.6	LOS A	3.8	97.4	0.58	0.42	0.58	35.9
16	R2	386	3.0	0.489	8.1	LOS A	3.8	97.4	0.57	0.40	0.57	35.1
Approach		1147	3.0	0.489	8.4	LOS A	3.8	97.4	0.58	0.41	0.58	34.6
North: Reservoir Dr												
7	L2	516	13.0	0.631	14.7	LOS B	6.3	172.6	0.83	1.00	1.33	29.6
4	T1	5	13.0	0.631	14.7	LOS B	6.3	172.6	0.83	1.00	1.33	14.6
14	R2	299	13.0	0.475	13.2	LOS B	3.2	87.2	0.76	0.85	1.02	31.3
Approach		821	13.0	0.631	14.1	LOS B	6.3	172.6	0.80	0.95	1.22	30.0
West: Reinhardt College Pkwy												
5	L2	234	3.0	0.399	9.7	LOS A	2.6	67.0	0.76	0.71	0.77	33.4
2	T1	446	3.0	0.399	8.7	LOS A	2.8	71.1	0.76	0.68	0.76	35.8
12	R2	1	3.0	0.399	8.4	LOS A	2.8	71.1	0.76	0.68	0.76	15.5
Approach		680	3.0	0.399	9.0	LOS A	2.8	71.1	0.76	0.69	0.77	34.8
All Vehicles		2666	6.1	0.631	10.3	LOS B	6.3	172.6	0.70	0.65	0.82	32.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reinhardt College Pkwy @ Reservoir Dr_Final.sip8

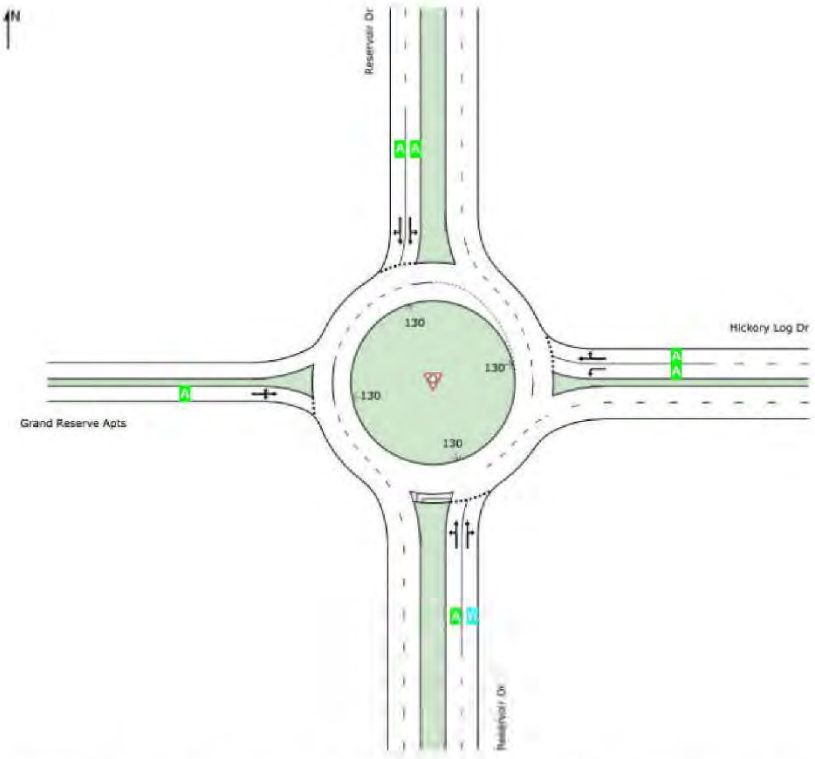
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Reservoir Dr @ Hickory Log Dr 2025 AM]

Roundabout Analysis Multi-Lane
EF: 1.10
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	B	A	A	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Organisation: ATKINS NORTH AMERICA | Processed: Wednesday, August 18, 2021 6:54:18 AM
Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reservoir Dr @ Hickory Log Dr_Final.sip8

MOVEMENT SUMMARY

Site: 101 [Reservoir Dr @ Hickory Log Dr 2025 AM]

Roundabout Analysis Multi-Lane
EF: 1.10
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Reservoir Dr												
3	L2	11	11.0	0.183	5.9	LOS A	1.1	28.6	0.49	0.34	0.49	31.3
8	T1	152	11.0	0.183	5.9	LOS A	1.1	28.6	0.49	0.34	0.49	36.5
18	R2	842	11.0	0.647	10.9	LOS B	6.5	176.9	0.70	0.49	0.70	27.1
Approach		1005	11.0	0.647	10.1	LOS B	6.5	176.9	0.67	0.46	0.67	28.3
East: Hickory Log Dr												
1	L2	505	13.0	0.452	8.1	LOS A	3.1	86.3	0.48	0.32	0.48	26.3
6	T1	5	13.0	0.234	6.8	LOS A	1.2	33.8	0.42	0.29	0.42	23.1
16	R2	190	13.0	0.234	6.8	LOS A	1.2	33.8	0.42	0.29	0.42	27.5
Approach		701	13.0	0.452	7.7	LOS A	3.1	86.3	0.47	0.31	0.47	26.6
North: Reservoir Dr												
7	L2	217	3.0	0.326	8.1	LOS A	1.9	48.3	0.68	0.61	0.68	28.8
4	T1	359	3.0	0.326	7.4	LOS A	2.0	50.4	0.67	0.59	0.67	36.5
14	R2	1	3.0	0.326	7.3	LOS A	2.0	50.4	0.67	0.58	0.67	28.7
Approach		577	3.0	0.326	7.7	LOS A	2.0	50.4	0.67	0.60	0.67	33.1
West: Grand Reserve Apts												
5	L2	1	0.0	0.094	7.3	LOS A	0.4	11.0	0.71	0.67	0.71	29.5
2	T1	11	0.0	0.094	7.3	LOS A	0.4	11.0	0.71	0.67	0.71	23.0
12	R2	43	0.0	0.094	7.3	LOS A	0.4	11.0	0.71	0.67	0.71	28.5
Approach		55	0.0	0.094	7.3	LOS A	0.4	11.0	0.71	0.67	0.71	27.2
All Vehicles		2339	9.4	0.647	8.7	LOS A	6.5	176.9	0.61	0.46	0.61	28.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: ATKINS NORTH AMERICA | Processed: Wednesday, August 18, 2021 6:54:18 AM
Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reservoir Dr @ Hickory Log Dr_Final.sip8

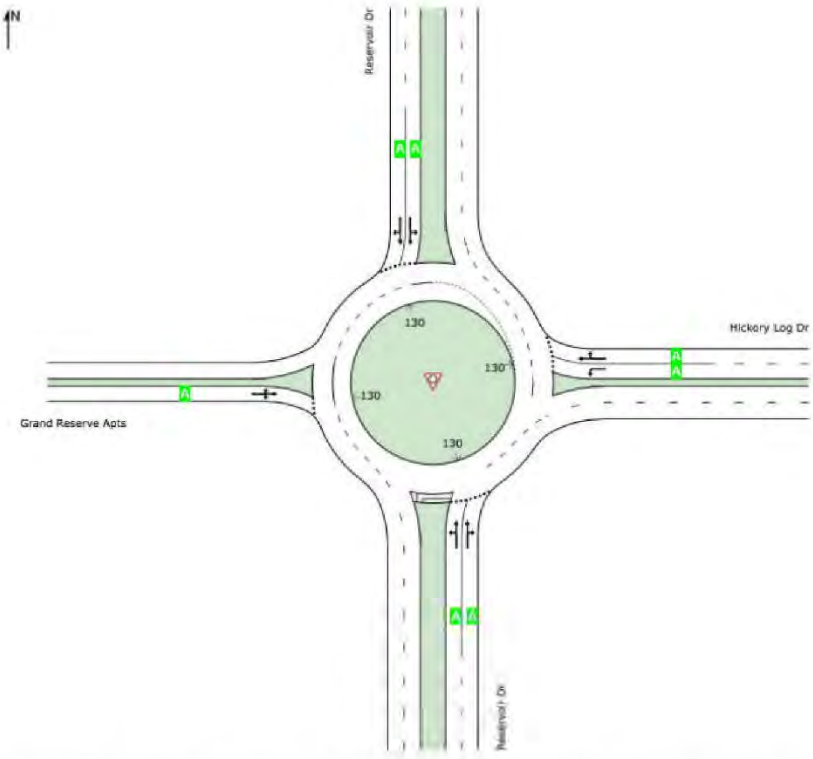
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Reservoir Dr @ Hickory Log Dr 2025 PM]

Roundabout Analysis Multi-Lane
EF: 1.10
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Organisation: ATKINS NORTH AMERICA | Processed: Wednesday, August 18, 2021 6:54:19 AM
Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reservoir Dr @ Hickory Log Dr_Final.sip8

MOVEMENT SUMMARY

Site: 101 [Reservoir Dr @ Hickory Log Dr 2025 PM]

Roundabout Analysis Multi-Lane
EF: 1.10
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Reservoir Dr												
3	L2	27	6.0	0.175	4.0	LOS A	1.1	27.9	0.18	0.06	0.18	32.0
8	T1	299	6.0	0.175	3.9	LOS A	1.1	28.5	0.18	0.06	0.18	38.3
18	R2	196	6.0	0.175	3.6	LOS A	1.1	28.5	0.17	0.06	0.17	29.8
Approach		522	6.0	0.175	3.8	LOS A	1.1	28.5	0.18	0.06	0.18	34.3
East: Hickory Log Dr												
1	L2	359	17.0	0.365	7.6	LOS A	1.9	54.1	0.52	0.42	0.52	26.2
6	T1	1	17.0	0.208	7.2	LOS A	0.9	26.2	0.50	0.42	0.50	23.0
16	R2	152	17.0	0.208	7.2	LOS A	0.9	26.2	0.50	0.42	0.50	27.0
Approach		512	17.0	0.365	7.5	LOS A	1.9	54.1	0.51	0.42	0.51	26.4
North: Reservoir Dr												
7	L2	38	4.0	0.156	5.4	LOS A	0.8	20.3	0.54	0.42	0.54	31.0
4	T1	266	4.0	0.156	5.1	LOS A	0.8	20.9	0.53	0.41	0.53	37.8
14	R2	1	4.0	0.156	4.9	LOS A	0.8	20.9	0.53	0.40	0.53	29.5
Approach		305	4.0	0.156	5.2	LOS A	0.8	20.9	0.53	0.41	0.53	36.8
West: Grand Reserve Apts												
5	L2	1	0.0	0.045	5.2	LOS A	0.2	5.0	0.58	0.47	0.58	30.3
2	T1	1	0.0	0.045	5.2	LOS A	0.2	5.0	0.58	0.47	0.58	23.5
12	R2	33	0.0	0.045	5.2	LOS A	0.2	5.0	0.58	0.47	0.58	29.2
Approach		35	0.0	0.045	5.2	LOS A	0.2	5.0	0.58	0.47	0.58	29.1
All Vehicles		1374	9.5	0.365	5.5	LOS A	1.9	54.1	0.39	0.28	0.39	31.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reservoir Dr @ Hickory Log Dr_Final.sip8

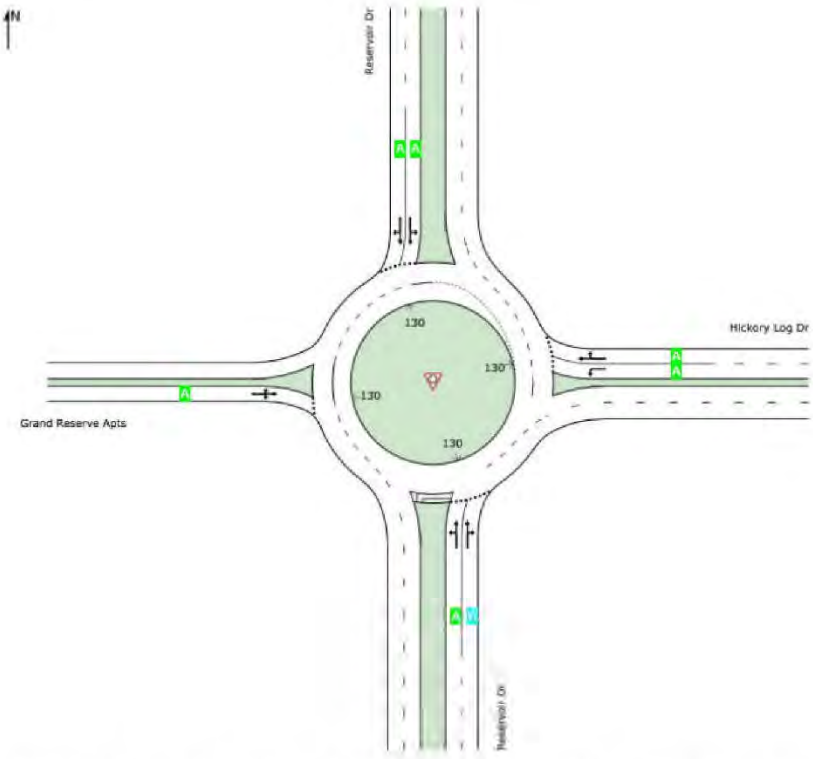
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Reservoir Dr @ Hickory Log Dr 2045 AM]

Roundabout Analysis Multi-Lane
EF: 1.05
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	B	A	A	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reservoir Dr @ Hickory Log Dr_Final.sip8

MOVEMENT SUMMARY

Site: 101 [Reservoir Dr @ Hickory Log Dr 2045 AM]

Roundabout Analysis Multi-Lane
EF: 1.05
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Reservoir Dr												
3	L2	16	11.0	0.206	5.8	LOS A	1.2	33.8	0.52	0.36	0.52	31.3
8	T1	179	11.0	0.206	5.8	LOS A	1.2	33.8	0.52	0.36	0.52	36.5
18	R2	951	11.0	0.708	12.4	LOS B	10.7	291.8	0.78	0.64	0.93	26.6
Approach		1147	11.0	0.708	11.3	LOS B	10.7	291.8	0.74	0.59	0.86	27.9
East: Hickory Log Dr												
1	L2	576	13.0	0.502	8.8	LOS A	3.7	102.0	0.54	0.38	0.54	26.1
6	T1	5	13.0	0.269	7.0	LOS A	1.5	40.5	0.47	0.33	0.47	23.0
16	R2	228	13.0	0.269	7.0	LOS A	1.5	40.5	0.47	0.33	0.47	27.4
Approach		810	13.0	0.502	8.3	LOS A	3.7	102.0	0.52	0.37	0.52	26.4
North: Reservoir Dr												
7	L2	245	3.0	0.397	9.6	LOS A	2.5	64.4	0.75	0.72	0.77	28.3
4	T1	435	3.0	0.397	8.5	LOS A	2.6	67.1	0.75	0.68	0.75	35.9
14	R2	1	3.0	0.397	8.3	LOS A	2.6	67.1	0.74	0.67	0.74	28.3
Approach		680	3.0	0.397	8.9	LOS A	2.6	67.1	0.75	0.69	0.76	32.7
West: Grand Reserve Apts												
5	L2	1	0.0	0.118	7.9	LOS A	0.6	14.7	0.76	0.74	0.76	29.2
2	T1	11	0.0	0.118	7.9	LOS A	0.6	14.7	0.76	0.74	0.76	22.9
12	R2	54	0.0	0.118	7.9	LOS A	0.6	14.7	0.76	0.74	0.76	28.3
Approach		66	0.0	0.118	7.9	LOS A	0.6	14.7	0.76	0.74	0.76	27.2
All Vehicles		2703	9.3	0.708	9.7	LOS A	10.7	291.8	0.67	0.55	0.73	28.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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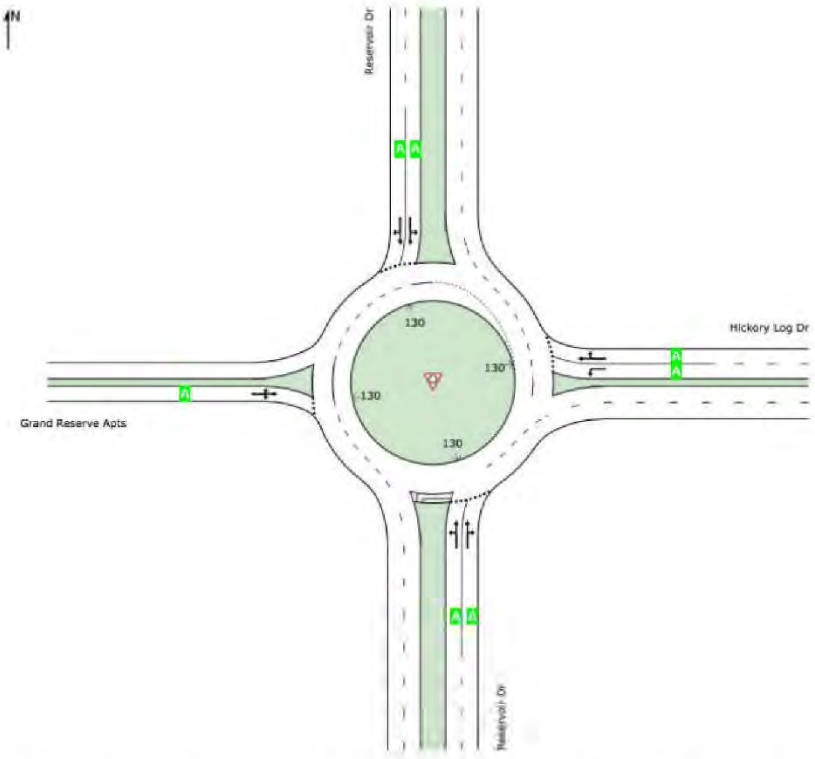
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Reservoir Dr @ Hickory Log Dr 2045 PM]

Roundabout Analysis Multi-Lane
EF: 1.05
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	A	A	A	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reservoir Dr @ Hickory Log Dr_Final.sip8

MOVEMENT SUMMARY

Site: 101 [Reservoir Dr @ Hickory Log Dr 2045 PM]

Roundabout Analysis Multi-Lane
EF: 1.05
Site Category: (None)
Roundabout

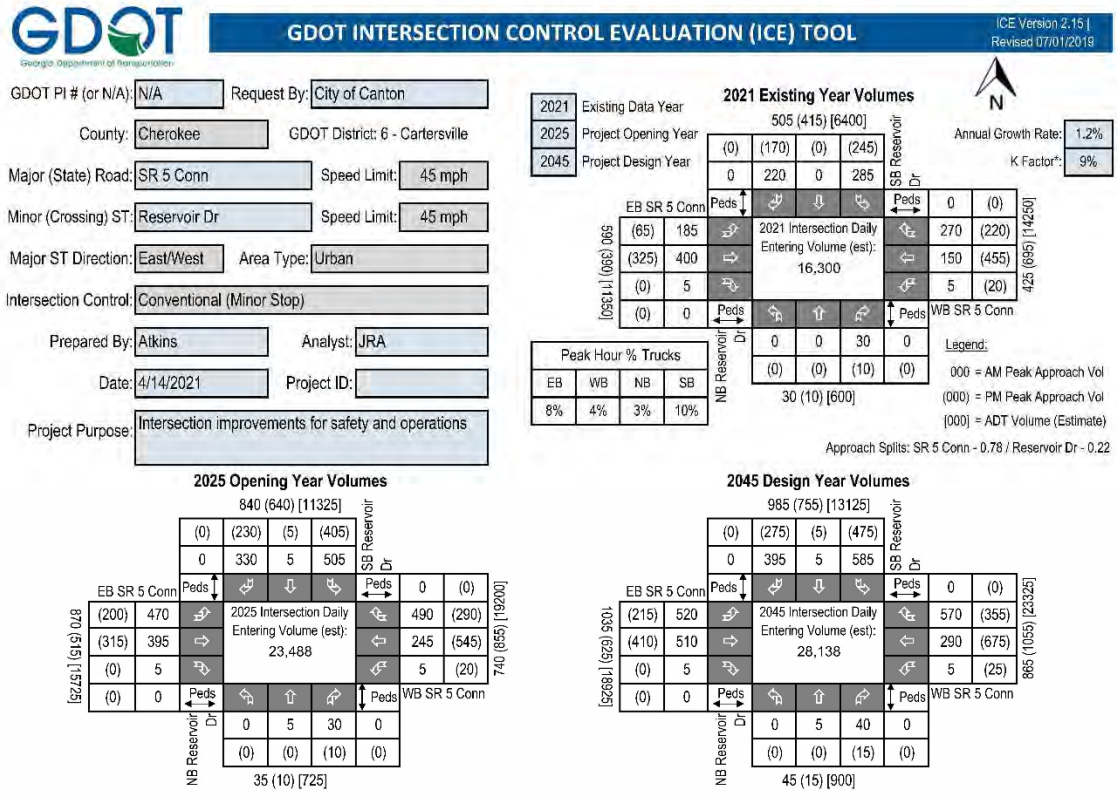
Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Reservoir Dr												
3	L2	38	6.0	0.198	4.2	LOS A	1.3	32.9	0.20	0.07	0.20	31.9
8	T1	359	6.0	0.198	4.0	LOS A	1.3	33.9	0.20	0.07	0.20	38.2
18	R2	212	6.0	0.198	3.7	LOS A	1.3	33.9	0.19	0.06	0.19	29.8
Approach		609	6.0	0.198	3.9	LOS A	1.3	33.9	0.20	0.07	0.20	34.4
East: Hickory Log Dr												
1	L2	424	17.0	0.422	8.3	LOS A	2.3	65.0	0.57	0.49	0.57	26.0
6	T1	1	17.0	0.248	7.6	LOS A	1.1	31.7	0.53	0.47	0.53	22.9
16	R2	185	17.0	0.248	7.6	LOS A	1.1	31.7	0.53	0.47	0.53	26.9
Approach		610	17.0	0.422	8.1	LOS A	2.3	65.0	0.56	0.49	0.56	26.2
North: Reservoir Dr												
7	L2	43	4.0	0.191	6.1	LOS A	1.0	26.0	0.60	0.50	0.60	30.8
4	T1	321	4.0	0.191	5.6	LOS A	1.1	27.3	0.59	0.48	0.59	37.5
14	R2	1	4.0	0.191	5.3	LOS A	1.1	27.3	0.59	0.47	0.59	29.4
Approach		365	4.0	0.191	5.6	LOS A	1.1	27.3	0.59	0.49	0.59	36.5
West: Grand Reserve Apts												
5	L2	1	0.0	0.053	5.3	LOS A	0.2	6.1	0.62	0.52	0.62	30.2
2	T1	1	0.0	0.053	5.3	LOS A	0.2	6.1	0.62	0.52	0.62	23.5
12	R2	38	0.0	0.053	5.3	LOS A	0.2	6.1	0.62	0.52	0.62	29.2
Approach		40	0.0	0.053	5.3	LOS A	0.2	6.1	0.62	0.52	0.62	29.0
All Vehicles		1624	9.5	0.422	5.9	LOS A	2.3	65.0	0.43	0.33	0.43	31.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: ATKINS NORTH AMERICA | Processed: Wednesday, August 18, 2021 6:54:20 AM
Project: M:\TPTemp\TP_Projects\2021\Canton_Reservoir Dr\SIDRA\Revised_Reservoir Dr @ Hickory Log Dr_Final.sip8

Appendix J: Intersection Control Evaluation (ICE)



Introduction: In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

Tool Goal: The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

Requirements: An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the **"Waiver"** tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

Two-Stage Process: A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

Stage 1: Screening Decision Record Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

Stage 2: Alternative Selection Decision Record Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

Documentation: A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

GDOT ICE STAGE 1: SCREENING DECISION RECORD

ICE Version 2.15 | Revised 07/01/2019

GDOT PI #	N/A
Project Location:	SR 5 Conn @ Reservoir Dr
Existing Control:	Conventional (Minor Stop)
Prepared by:	Atkins
Date:	4/14/2021

Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column

Note: Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2

	Intersection Alternative (see "Intersections" tab for detailed description of intersection/interchange type)	1. Does alternative address the project need in a balanced manner and in scale with the project?	2. Does alternative improve safety performance in terms of reducing severe crashes?	3. Does alternative incorporate safety, convenience and accessibility for pedestrians and/or bicyclists?	4. Does alternative improve (or preserve) traffic operations (congestion, delay, reliability, etc.)?	5. Does alternative appear feasible given the site characteristics, constrains & location context?	6. Does alternative appear feasible with respect to other project factors?	7. Overall feasible alternative (select alternative for further evaluation in Stage 2)?	**Screening Decision Justification:**
Unsignalized Intersections	Conventional (Minor Stop)	No	No	No	No	No	No	No	Existing Condition
	Conventional (All-Way Stop)	**Yes**	**Yes**	**Yes**	No	**Yes**	No	No	Volume and Context Not to Scale
	Mini Roundabout	No	No	No	No	No	No	No	Volume and Context Not to Scale
	Single Lane Roundabout	**Yes**	**Yes**	**Yes**	No	No	No	No	Major/Minor Streets are multi-lane
	Multilane Roundabout	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Potential Alternative to Evaluate
	RCUT (stop control)	No	**Yes**	**Yes**	No	No	No	No	Minor street left-turn volumes are too high
	RIRO w/down stream U-Turn	No	**Yes**	**Yes**	No	No	No	No	Minor street left-turn volumes are too high
	High-T (unsignalized)	No	No	No	No	No	No	No	Not a T Intersection
	Offset-T Intersections	No	No	No	No	No	No	No	Will have Significant ROW Impact
	Diamond Interch (Stop Control)	No	No	No	No	No	No	No	Volume and Context Not to Scale
	Diamond Interch (RAB Control)	No	No	No	No	No	No	No	Volume and Context Not to Scale
	Add one LT Lane on Reservoir Dr No RT Lane Improvements	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	Volume and Context Not to Scale
	Other unsignalized (provide description):	No	No	No	No	No	No	No	N/A
Signalized Intersections	Traffic Signal	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Potential Alternative to Evaluate
	Median U-Turn (Indirect Left)	No	No	No	No	No	No	No	Volumes and Context Not to Scale
	RCUT (signalized)	No	No	No	No	No	No	No	Driveway at median opening: driveways should not be opposite side of arterial
	Displaced Left Turn (CFI)	No	No	No	No	No	No	No	Volumes and Context Not to Scale
	Continuous Green-T	No	No	No	No	No	No	No	Not a T Intersection
	Jughandle	No	No	No	No	No	No	No	Volumes and Context Not to Scale
	Quadrant Roadway	No	No	No	No	No	No	No	Volumes and Context Not to Scale
	Diamond Interch (Signal Control)	No	No	No	No	No	No	No	Volumes and Context Not to Scale
	Diverging Diamond	No	No	No	No	No	No	No	Volumes and Context Not to Scale
	Single Point Interchange	No	No	No	No	No	No	No	Volumes and Context Not to Scale
	No LT Lane Improvements No RT Lane Improvements	No	No	No	No	No	No	No	N/A
	Other Signalized (provide description):	No	No	No	No	No	No	No	N/A

☐ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record

GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.15 | Revised 07/01/2019

GDOT PI # (or N/A): N/A
County: Cherokee
Project Location: SR 5 Conn @ Reservoir Dr
Existing Intersection Control: Conventional (Minor Stop)

GDOT District: 6 - Cartersville
Area Type: Urban

Date: 4/14/2021
Agency/Firm: Atkins
Analyst: JRA
Type of Analysis: Conventional Non-Safety Funded Project

Opening / Design Year Traffic Operations

Intersection meets signal/AWS warrants?	Meets Signal Warrants	
Traffic Analysis Measure of Effectiveness	Intersection Delay	
Traffic Analysis Software Used	Synchro 10	
Analysis Time Period	AM Peak Hr	PM Peak Hr
2025 Opening Yr No-Build Peak Hr Intersection Delay	500.0 sec	500.0 sec
2025 Opening Yr No-Build Peak Hr Intersection V/C	5.00	4.59
2045 Design Yr No-Build Peak Hr Intersection Delay	500.0 sec	500.0 sec
2045 Design Yr No-Build Peak Hr Intersection V/C ratio	5.00	5.00

Complete Streets Warrants Met?
- ☐ PEDESTRIANS
- ☐ BICYCLES
- ☐ TRANSIT

Crash Type (Crash Data: Enter most recent 5 years of crash data)	Crash Severity: PDO	Injury Crash*	Fatal Crash*	
Angle	4	5	0	53%
Head-On	0	0	0	0%
Rear End	3	1	0	24%
Sideswipe - same	2	1	0	18%
Sideswipe - opposite	0	0	0	0%
Not Collision w/Motor Veh	1	0	0	6%
TOTALS:	10	7	0	17

* Number of crashes resulting in injuries / fatalities, not number of persons

Alternatives Analysis:	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Proposed Control Type/Improvement:	Multilane Roundabout	Traffic Signal	N/A	N/A	N/A
Project Cost: (From CostEst Worksheet)	*Additional description here*	*Add LT bays (2) on Minor ST*			
Construction Cost	$2,392,000	$288,000			
ROW Cost	$313,000	$0			
Environmental Cost	$13,000	$10,000			
Reimbursable Utility Cost	$142,000	$5,000			
Design & Contingency Cost	$678,000	$104,000			
Cost Adjustment (justification req'd)	0%	0%			
Total Cost	$3,538,000	$407,000			
Traffic Operations:					
Traffic Analysis Software Used	SIDRA 7	Synchro 10			
Analysis Period	AM Peak Hr / PM Peak Hr	AM Peak Hr / PM Peak Hr			
2045 Design Yr Build Intersection Delay	16.8 sec / 10.3 sec	37.1 sec / 29.6 sec			
2045 Design Yr Build Intersection V/C	0.76 / 0.63	0.96 / 0.89			
Safety Analysis:					
Predefined CRF: PDO	32%	39%			
Predefined CRF: Fatal/Inj	71%	40%			
Predefined CRF Source:	FHWA Clearinghouse #s 236 / 237	FHWA Clearinghouse #s 325 / 7984			
User Defined CRF: PDO					
User Defined CRF: Fatal/Inj					
User Defined CRF Source (write in if applicable):					
Environmental Impacts:[1]					
Historic District/Property	None	None			
Archaeology Resources	None	None			
Graveyard	None	None			
Stream	None	None			
Underground Tank/Hazmat	None	None			
Park Land	None	None			
EJ Community	None	None			
Wooded Area	Minimal	Minimal			
Wetland	None	None			
Stakeholder Posture:	*Note: If environmental impact is significant (RED), provide justification impact won't jeopardize project delivery using "Env" worksheet*				
Local Community Support	Negative	Supportive			
GDOT Support	Supportive	Supportive			
Final ICE Stage 2 Score:	5.7	5.8			
Rank of Control Type Alternatives:	2	1			

[1] *Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept report*

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):

Appendix K: Right-of-Way Information

Appendix L: Environmental Screening

Currently there is a school, Teasley Middle School, in the northeast quadrant of Reservoir Drive and Hickory Log Drive. An intermittent stream is in the northwest and southwest quadrants of Reinhardt College Parkway and Reservoir Drive. There were not any structures that were identified as potential historical resources. However, any historical resources to be considered eligible by the State Historic Preservation Office (SHPO) would be further investigated during a Concept phase and any eligibility determinations would be made by the SHPO at that time.

Teasley Middle School

Intermittent Stream

Appendix M: Utility Risks

Currently there are utility poles, fire hydrants, telephone boxes, buried cable and other utilities at each of the identified intersections. Site visits were conducted on February 10th at Reinhardt College Parkway and Reservoir Drive and at Reservoir Drive and Hickory Log Drive and all utilities are underground.

Appendix N: Important Documents/Other Risks/Site Visits

Project Name: Reservoir Dr Corridor Study

Project No.: 100073738 16.02.L

GDOT P.I. #: **N/A**

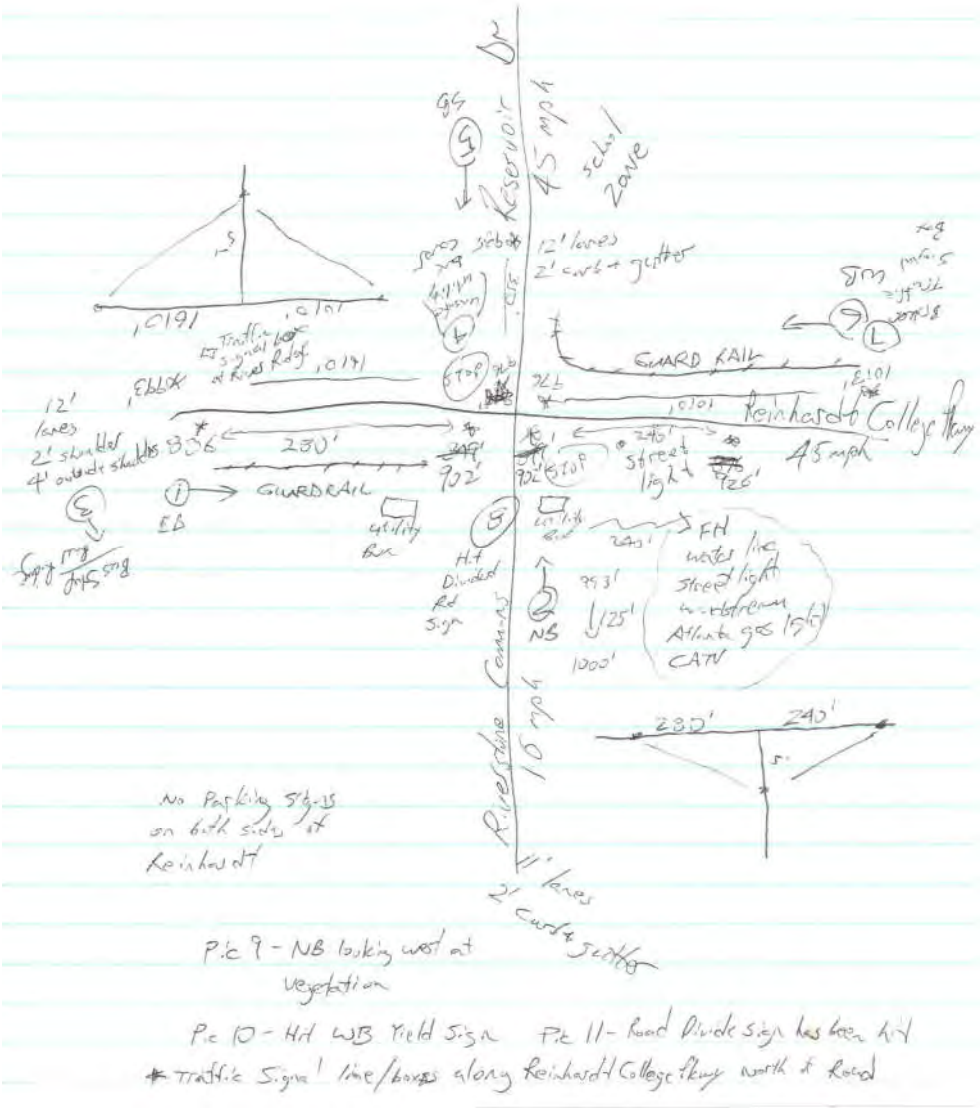
Staff: Jimmy Adams

Location: Reservoir Dr at Reinhardt College Pkwy

County: Cherokee

Date of Site Visit: Wednesday, 02/10/2021

Sketch of Intersection



Roadway Geometrics

Curves: ☐ Slight ☐ Minimal ☒ Extreme (Reinhardt College Pkwy, east of Reservoir Dr)

Grade: ☐ 0 to 2% ☐ 2 to 5% ☒ Greater than 5%

Major St No. of Lanes: ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ Greater than 6

Minor St No. of Lanes: ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ Greater than 6

Lane Usage:

Northbound

☐ Shared Thru/Left ☐ Shared Thru/Right ☐ Left-turn ☐ Right-Turn

☐ Thru ☒ Thru/Left/Right

Southbound

☒ Shared Thru/Left ☐ Shared Thru/Right ☐ Left-turn ☒ Right-Turn

☐ Thru ☐ Thru/Left/Right

Eastbound

☐ Shared Thru/Left ☐ Shared Thru/Right ☒ Left-turn ☒ Right-Turn

☒ Thru ☐ Thru/Left/Right

Westbound

☐ Shared Thru/Left ☐ Shared Thru/Right ☒ Left-turn ☒ Right-Turn

☒ Thru ☐ Thru/Left/Right

Median Type: ☐ None ☒ Grassed ☐ Concrete

Width of Lanes

Reinhardt College Pkwy: ☐ 10 feet ☐ 11 feet ☒ 12 feet

Reservoir Dr: ☐ 10 feet ☐ 11 feet ☒ 12 feet

Riverstone Commons Cir: ☐ 10 feet ☒ 11 feet ☐ 12 feet

Width of Median: ☐ None ☐ Less than 10 feet ☐ 10 to 16 feet ☒ > 16 feet (20 ft at turn lanes)

Width of Shoulders

Reinhardt College Pkwy: ☐ None ☒ 2 feet (inside) ☒ 4 feet (outside) ☐ 10 feet

Reservoir Dr: ☐ None ☐ 2 feet ☐ 4 feet ☐ 10 feet ☒ 2' Curb and Gutter

Riverstone Commons Cir: ☐ None ☐ 2 feet ☐ 4 feet ☐ 10 feet ☒ 2' Curb and Gutter

Notes: predominantly residential in nature with commercial dispersed along Reinhardt College Pkwy

Traffic Control

Traffic Control: TWSC for minor-streets

Phasing: ☒ None ☐ All Permitted Phases ☐ pm + pt Left-turn ☐ pt Left-turn

Major-Street Posted Speed Limit: 45 mph

Minor-Street Posted Speed Limit: 45 mph (Riverstone Commons Cir is 10 mph)

Regulatory Signs: ☐ None ☐ No left-turn ☐ No right-turn ☒ No parking

☐ No U-turn ☐ Pedestrian Crossing ☒ Stop ☒ Yield ☐ Driveways

Other: Roadway Divide

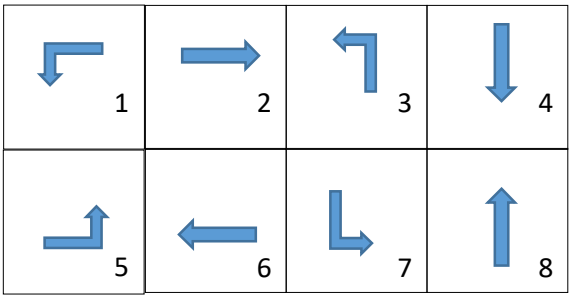
Regulatory Pavement Markings: ☐ None ☒ Left-turn Only ☒ Right-turn Only

☐ Bicycle Lane ☒ Pedestrian Crossing (only for Riverstone Commons Cir)

☐ Railroad Crossing ☐ Bus Stop ☐ Stop-Ahead

Other: Click here to enter text.

Crosswalk: **Not Applicable**



Cycle Length: Not Applicable

Multimodal Conditions and Other Issues

Vulnerable Population: ☐ Present ☒ Not Present

Sidewalk: ☐ None ☐ Continuous ☒ Gaps

Bicycle Path: ☒ None ☐ Share-the-Road ☐ Bicycle Lane

Multi-Use Path: ☒ None ☐ Asphalt ☐ Concrete

Transit Stop: ☐ None ☒ Covered (west of Reservoir Dr) ☒ Uncovered
(east of Reservoir Dr)

Transit Signage: ☒ Yes (CATS) ☐ No

Route Number/Frequency of Service: 100

Type of Transit Service: ☒ Bus ☐ Transit Coach ☐ Paratransit

☐ Trolley ☐ Not Applicable

Indication of Traffic Congestion: ☒ None ☐ Traffic Queues ☐ Potential

Sight Distance Issues: ☒ Yes (NB approach limited sight distance) ☐ No

New (under construction) intersecting roadways or driveways: ☐ Yes ☒ No

Side Streets with AADT over 50 vpd: ☐ Yes ☒ No

Land Use and Development

Adjacent Land Uses: ☒ Undeveloped ☒ Residential ☐ Commercial

☐ Office ☐ Industrial ☐ Public/Institutional

☐ Mixed-Use

Multi-Story Buildings: ☒ Yes (multi-storied residential townhomes) ☐ No

Special Traffic Generators: ☒ Yes (Teasley Middle School) ☐ No

Evidence of newly developed or redeveloping sites: ☒ Yes (Grand Reserve Apts) ☐ No

Notes: Multi-Family attached residential

Other Data

Pavement Conditions:	☐ Poor	☐ Fair	☒ Good
On-Street Parking:	☐ Yes	☒ No	
Street Lighting:	☒ Yes	☐ No	
Major Street Route Number:	SR 5 Conn		
Major Street Road Name:	Reinhardt College Parkway		
Minor Street Route Number:	CR 805		
Minor Street Road Name:	Reservoir Drive		
Governmental Jurisdiction:	City of Canton, Cherokee County		
Notes:	Click here to enter text.		

Reservoir Dr SB

Reinhardt College Pkwy WB

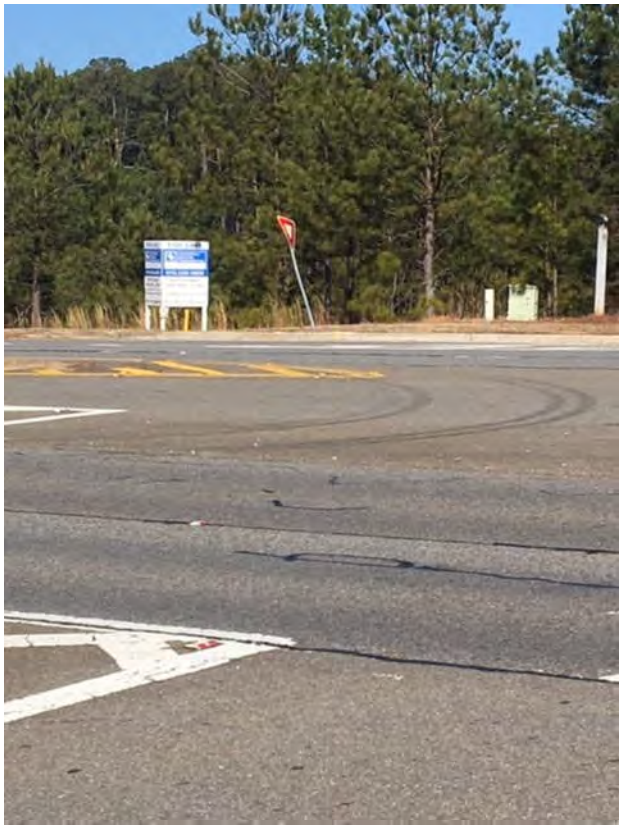
Riverstone Commons Cir NB

Reinhardt College Pkwy EB

Hit Road Divide Sign on Riverstone Commons Cir

Hit Road Divide Sign on Reservoir Dr

Hit Yield Sign for Reservoir Dr SB Right-Turn



Hit Road Divide Sign on Reservoir Dr

Covered Bus Stop at River Ridge

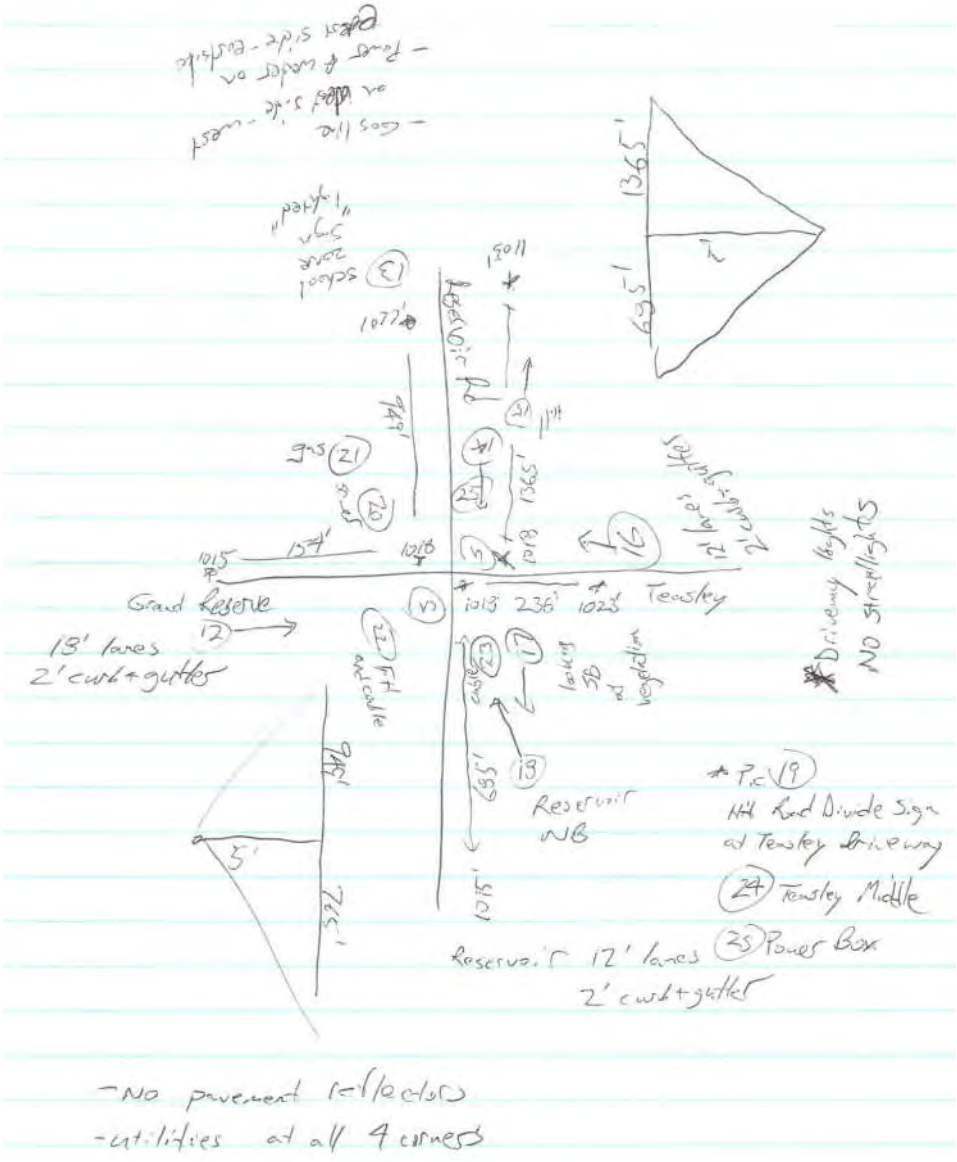
NB view of West vegetation

Uncovered Traffic Signal Box

Uncovered Traffic Signal Box

Project Name:	Reservoir Dr Corridor Study
Project No.:	100073738 16.03.L
GDOT P.I. #:	**N/A**
Staff:	Jimmy Adams
Location:	Reservoir Dr at Hickory Log Dr
County:	Cherokee
Date of Site Visit:	Wednesday, 02/10/2021

Sketch of Intersection



Roadway Geometrics

Curves: ☐ Slight ☒ Minimal ☐ Extreme (Reinhardt College Pkwy, east of Reservoir Dr)

Grade: ☐ 0 to 2% ☐ 2 to 5% ☒ Greater than 5% (north leg)

Major St No. of Lanes: ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ Greater than 6

Minor St No. of Lanes: ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ Greater than 6

Lane Usage:

Northbound

☒ Shared Thru/Left ☒ Shared Thru/Right ☐ Left-turn ☐ Right-Turn

☐ Thru ☐ Thru/Left/Right

Southbound

☐ Shared Thru/Left ☒ Shared Thru/Right ☒ Left-turn ☐ Right-Turn

☒ Thru ☐ Thru/Left/Right

Eastbound

☒ Shared Thru/Left ☐ Shared Thru/Right ☒ Left-turn ☒ Channelized Right-Turn

☐ Thru ☐ Thru/Left/Right

Westbound

☒ Shared Thru/Left ☐ Shared Thru/Right ☐ Left-turn ☒ Right-Turn

☐ Thru ☐ Thru/Left/Right

Median Type: ☐ None ☒ Grassed ☐ Concrete

Width of Lanes

Reservoir Dr: ☐ 10 feet ☐ 11 feet ☒ 12 feet

Hickory Log Dr: ☐ 10 feet ☐ 11 feet ☒ 12 feet

Grand Reserve Apts: ☐ 10 feet ☐ 11 feet ☒ 18 feet

Width of Median: ☐ None ☐ Less than 10 feet ☐ 10 to 16 feet ☒ > 16 feet

Width of Shoulders

Reservoir Dr: ☐ None ☐ 2 feet ☐ 4 feet ☐ 10 feet ☒ 2' Curb and Gutter

Hickory Log Dr: ☐ None ☐ 2 feet ☐ 4 feet ☐ 10 feet ☒ 2' Curb and Gutter

Notes: predominantly residential, Teasley Middle School

Traffic Control

Traffic Control: TWSC for minor-streets

Phasing: ☒ None ☐ All Permitted Phases ☐ pm + pt Left-turn ☐ pt Left-turn

Major-Street Posted Speed Limit: 45 mph

Minor-Street Posted Speed Limit: 25 mph

Regulatory Signs: ☐ None ☐ No left-turn ☐ No right-turn ☐ No parking

☐ No U-turn ☐ Pedestrian Crossing ☒ Stop ☒ Yield ☐ Driveways

Other: Roadway Divide, School Zone

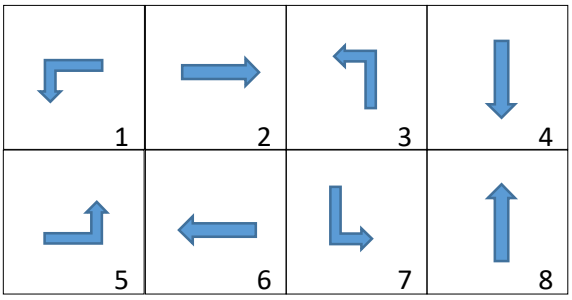
Regulatory Pavement Markings: ☐ None ☒ Left-turn Only ☒ Right-turn Only

☐ Bicycle Lane ☒ Pedestrian Crossing (only on minor-streets)

☐ Railroad Crossing ☐ Bus Stop ☐ Stop-Ahead

Other: Click here to enter text.

Crosswalk: **Not Applicable**



Cycle Length: Not Applicable

Multimodal Conditions and Other Issues

Vulnerable Population: ☐ Present ☒ Not Present

Sidewalk: ☐ None ☒ Continuous ☐ Gaps

Bicycle Path: ☒ None ☐ Share-the-Road ☐ Bicycle Lane

Multi-Use Path: ☒ None ☐ Asphalt ☐ Concrete

Transit Stop: ☒ None ☐ Covered ☒ Uncovered

Transit Signage: ☐ Yes ☒ No

Route Number/Frequency of Service: N/A

Type of Transit Service: ☐ Bus ☐ Transit Coach ☐ Paratransit ☐ Trolley ☒ Not Applicable

Indication of Traffic Congestion: ☒ None ☐ Traffic Queues ☐ Potential

Sight Distance Issues: ☐ Yes ☒ No

New (under construction) intersecting roadways or driveways: ☐ Yes ☒ No

Side Streets with AADT over 50 vpd: ☐ Yes ☒ No

Land Use and Development

Adjacent Land Uses: ☒ Undeveloped ☒ Residential ☐ Commercial ☐ Office ☐ Industrial ☒ Public/Institutional ☐ Mixed-Use

Multi-Story Buildings: ☒ Yes (multi-storied residential apartments) ☐ No

Special Traffic Generators: ☒ Yes (Teasley Middle School) ☐ No

Evidence of newly developed or redeveloping sites: ☒ Yes (Grand Reserve Apts) ☐ No

Notes: Multi-Family attached residential, Middle School

Other Data

Pavement Conditions:	☐ Poor	☐ Fair	☒ Good
On-Street Parking:	☐ Yes	☒ No	
Street Lighting:	☐ Yes	☒ No	
Major Street Route Number:	CR 805		
Major Street Road Name:	Reservoir Drive		
Minor Street Route Number:	N/A		
Minor Street Road Name:	Hickory Log Drive		
Governmental Jurisdiction:	City of Canton, Cherokee County		
Notes:	Click here to enter text.		

Reservoir Dr SB

Hickory Log Dr WB

Reservoir Dr NB

Grand Reserve Apartments EB

Exposed Cable Conduit SE Quadrant

Fire Hydrant and Cable Boxes SW Quadrant

Gasline Pipes NW Quadrant

Hillcrest north of Hickory Log Dr

Hit Road Divide Sign at Teasley Middle School

SB view from Teasley Middle School Driveway

Power Box NE Quadrant

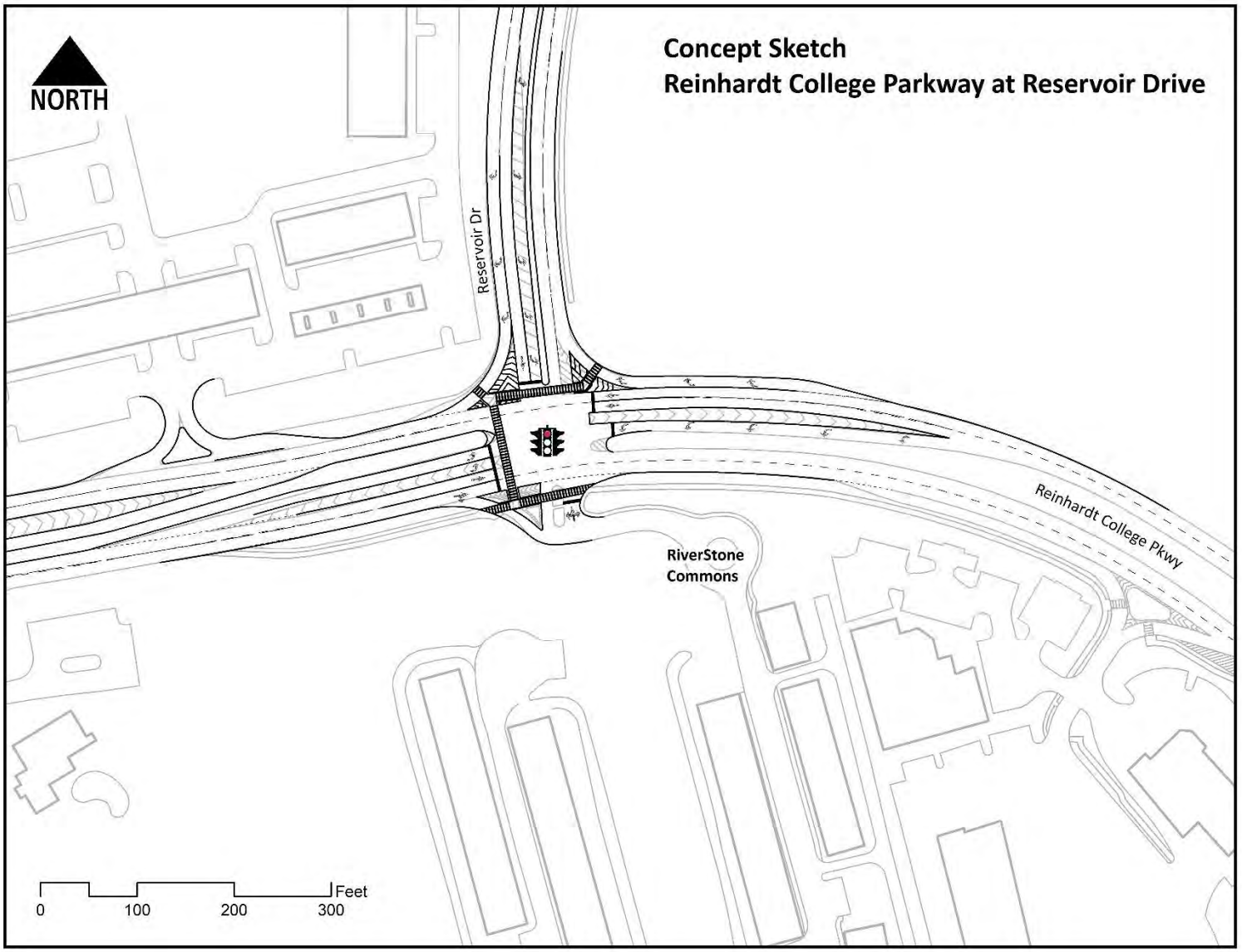
Reservoir Dr NB School Zone Alert

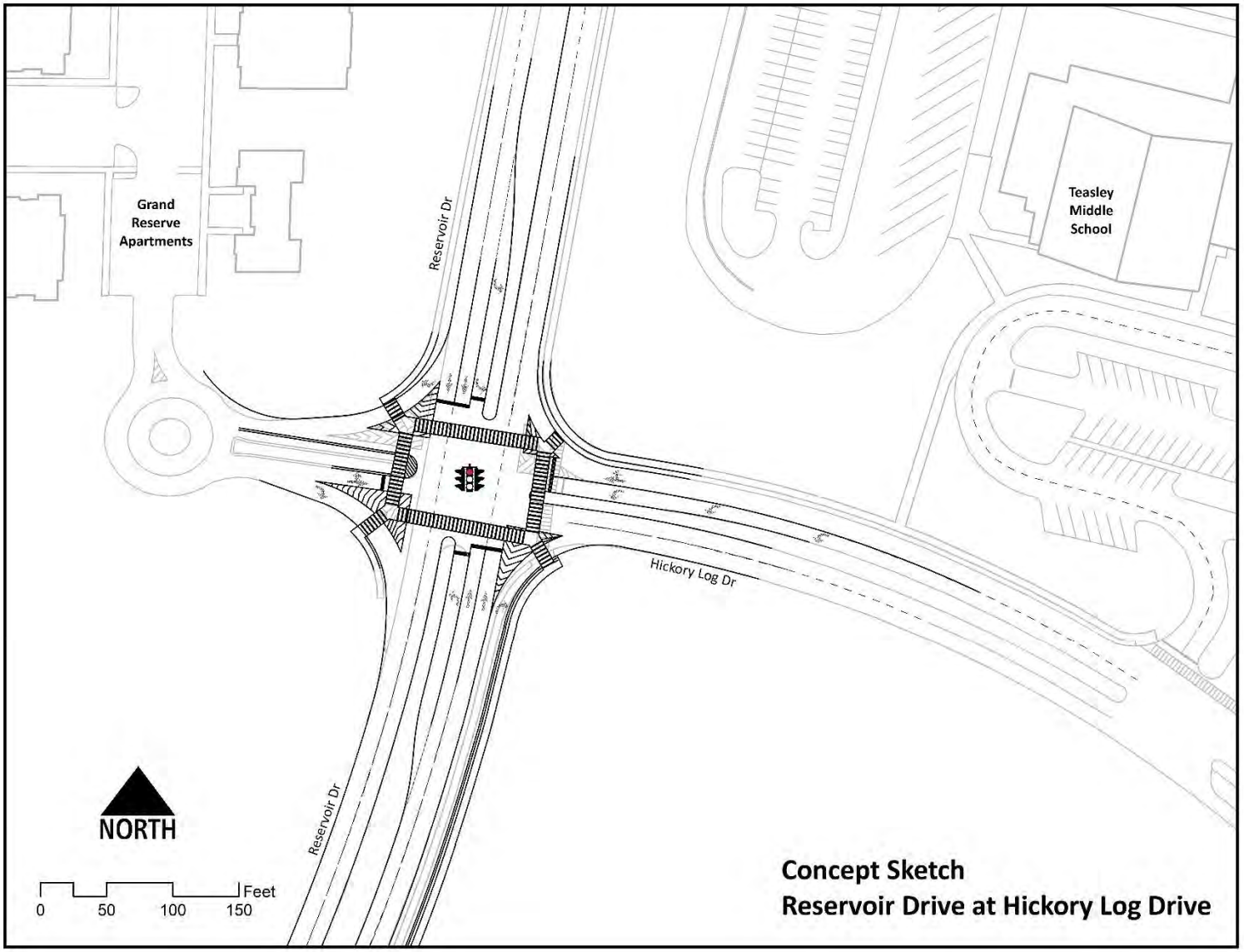
Reservoir Dr SB School Zone Alert

Manhole NW Quadrant

Teasley Middle School

Appendix O: Proposed Conceptual Sketches




Grand Reserve Apartments
Reservoir Dr
Teasley Middle School
Hickory Log Dr
Reservoir Dr
NORTH
0 50 100 150 Feet
Concept Sketch
Reservoir Drive at Hickory Log Drive