Steam Mill Road Traffic Engineering Study

Steam Mill Road Corridor Improvements from Buena Vista Road to Pinecrest Drive

Columbus Consolidated Government, Muscogee County, GA

Prepared for:

Columbus Consolidated Government

Prepared by:

Stantec Consulting Services Inc.

Sign-off Sheet

This document entitled Steam Mill Road Traffic Engineering Study was prepared by Stantec Consulting Services Inc. (“Stantec”) for the account of Columbus Consolidated Government (the “Client”). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by Joshua Ekstedt

(signature)

Joshua Ekstedt, EIT

Reviewed by Michael B. Holt

(signature)

Mike Holt, PE, PTOE

Approved by Mitchell Greenway

(signature)

Mitchell Greenway, PE

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 EXECUTIVE SUMMARY

The purpose of this study is to recommend safety improvements to the City of Columbus for the Steam Mill Road corridor from Buena Vista Road to Pinecrest Drive. These recommendations need to improve safety while maintaining or improving the functionality of the corridor. This traffic engineering report describes the existing functionality of Steam Mill Road, the future functionality under increasing traffic volumes, and performs roundabout and signal warrant analyses at key locations.

Average daily traffic (ADT) counts were taken at the following four locations: east of Honolulu Drive, east of Dogwood Drive, east of Georgia Drive, and east of Minnie Lee Drive. Turning movement counts (TMC) were collected at 10 key intersections. This data provides base line volumes for this traffic study.

A growth rate of 1.5% was determined by using nearby GDOT traffic count stations and US Census Bureau data for Muscogee County/City of Columbus. This growth rate was applied to the collected traffic data to project traffic volumes in the year 2040. These volumes were input into Synchro 10 to determine the level of service (LOS) of the 10 key intersections and each of their approaches. Under existing traffic volumes, all but two approaches are operating at an acceptable LOS. However, once the volumes are increased to the projected 2040 volumes, more approaches begin to show failing LOS scores. In addition to failing approaches, the entire Southern Pines Dr/McCartha Dr intersection received a failing LOS score in 2040 if no improvements are constructed.

After making field visits to the corridor, it was determined that roundabout analyses would be performed at the following three intersections: Dogwood Drive, Southern Pines Drive/McCartha Drive, and Northstar Drive. In all cases which were reviewed, the roundabouts were determined to perform more efficiently than the existing intersection layout at the three locations.

Signal warrant analysis was carried out for the Southern Pines Drive/McCartha Drive intersection and the Northstar Drive intersection. Northstar Drive only passed warrant 3 with the increased 2040 volumes and with the 70% factor applied. This further supports rebuilding Northstar Drive as a roundabout. Under 2020 volumes, Southern Pines Drive/McCartha Drive only passed warrant 3 with the 70% factor applied. However, once increased to 2040 volumes this intersection passes signal warrant 3 without the 70% factor. This could support the case for upgrading this intersection to a roundabout as well, since two-way stop control may not be sufficient.

This traffic engineering report indicates that most of Steam Mill Road is currently operating at acceptable levels, although there are some locations which can be improved. Roundabouts were found to function more efficiently than existing layouts at Dogwood Drive, Southern Pines/McCartha Drive, and Northstar Drive. These roundabouts would improve both function and safety at these locations.

2.0 INTRODUCTION

The purpose of this report is to document the traffic analysis results for the Steam Mill Road corridor for the Columbus Consolidated Government (CCG). The observations and analysis available in this report, in conjunction with a Road Safety Audit, will serve to develop improvement recommendations along the corridor. The goal of these improvements is to create a safe walking and driving environment that lowers accident rates for vehicles and pedestrians throughout the corridor. In the following sections, the analysis of traffic operations is described for existing conditions in 2020 and for future No-Build conditions in 2040, as well as future Build conditions that include roundabouts at three study intersections. The roundabout study intersections were conducted for Dogwood Drive, Southern Pines/McCartha Drive, and Northstar Drive/Shirley Winston Park Driveway.

Dogwood Drive was selected as one of the roundabout intersections due to observations made during the field visits. First, it was observed that the north and south approaches to this intersection are so steep that it is difficult to see pedestrians crossing at this intersection. Additionally, two of the four reported fatal collisions recorded during the five-year study period occurred near this intersection. Lastly, the Dimon Elementary School is located at this intersection, which further raises the importance of improving safety at this location. A roundabout at this location could provide safer crossings for pedestrians and act as a traffic calming measure to slow down traffic. Therefore, this intersection was chosen for a roundabout analysis.

The intersection at Southern Pines Drive/McCartha Drive was selected for a roundabout analysis largely due to operational issues. Geometric constraints at Dogwood Drive may require removing the north leg from the intersection if it is reconstructed as a roundabout. The traffic from the north leg of Dogwood Drive would be redirected to the Southern Pines Drive/McCartha Drive intersection. Reconstructing this two-way stop-controlled intersection as a roundabout may improve how well it handles this increased traffic.

Last, during the field visits it was observed that the traffic volumes at the signalized intersection at Northstar Drive/Shirley Winston Park Driveway may not be high enough to require a traffic signal. It was also observed that cars would be stopped on the side streets waiting for a green light when little to no traffic was present on Steam Mill Road. Therefore, this study will consider whether or not a traffic signal is warranted and if it could operate more efficiently as a roundabout.

Capacity analysis is one step in identifying needs and potential improvement alternatives for the study of the Steam Mill Road corridor. This study identifies areas along the corridor that currently have or are expected to have operational deficiencies via the following processes:

- Capacity analyses along the corridor for existing and projected future volumes under no build conditions
- Roundabout analyses
- Signal warrant analyses
- Documentation of results

3.0 INVENTORY OF TRAFFIC CONDITIONS

3.1 CORRIDOR DESCRIPTION

For the purpose of this report, Steam Mill Road is referred to as an east-west route throughout the entire study area. The project area is on Steam Mill Road from Buena Vista Road to Pinecrest Drive. Steam Mill Road is a two-lane road and is classified as a Major Collector with a speed limit of 35 miles per hour. As illustrated in **Figure 1**, the ten study intersections include:

1. Steam Mill Road at Buena Vista Road
2. Steam Mill Road at Honolulu Drive
3. Steam Mill Road at Chandler Drive
4. Steam Mill Road at Dogwood Drive
5. Steam Mill Road at Southern Pines Drive /McCartha Drive
6. Steam Mill Road at Englewood Drive /Henson Drive
7. Steam Mill Road at Cardinal Drive /Wickham Drive
8. Steam Mill Road at Georgia Drive
9. Steam Mill Road at Mt Pleasant Drive
10. Steam Mill Road at Northstar Drive /Shirley Winston Park Driveway

3.2 ROADWAY INVENTORY & EXISTING CONDITIONS

To determine existing traffic conditions of the study corridor, an inventory was made of Steam Mill Road, the 10 study intersections, and other key roadways influencing the study area.

Steam Mill Road is an east-west roadway that is classified as a Major Collector, providing access from Buena Vista Road to the residential neighborhoods to its east, as well as four churches, an elementary school, and a public park. The subject corridor is approximately 2.2 miles. The cross-section along the corridor is primarily two-lane undivided with 10’ lanes. In certain areas, the cross-section includes left turn lanes. Residential Driveways are located frequently along the corridor. The posted speed limit along the corridor is 35 miles per hour (mph). Average annual daily traffic (AADT) volumes along the corridor are between 3,000 and 5,000 vehicles per day (vpd), with higher AADTs closer to Buena Vista Road. All intersections within the study area are on Steam Mill Road. A site location map that illustrates intersection control type, as well as data collection sites, is provided in

3.3 INTERSECTION INVENTORY & EXISTING CONDITIONS

The following is a brief inventory of the existing conditions at each of the 10 intersections, as summarized in Table 1.

1. Steam Mill Road at Buena Vista Road

   This signalized intersection marks the western end of Steam Mill Road. As the east leg of this three-legged intersection, Steam Mill Road approaches Buena Vista at a skew. In place of a west leg, there is a Driveway for a small business. There is only one left turn lane at this intersection, which is located on the SB approach. This movement receives a permissive-only left turn phase. The north and east legs of the intersection have crosswalks, though no curb ramps or sidewalks are installed. Lane widths on Buena Vista Road are approximately 11'.

2. Steam Mill Road at Honolulu Drive

   This three-legged intersection is controlled by a stop sign located on the northbound approach of Honolulu Drive. There are no sidewalks, but there is a wide shoulder along the south side of Steam Mill Road.

3. Steam Mill Road at Chandler Drive

   This three-legged intersection is controlled by a stop sign located on the northbound approach of Chandler Drive. There is a crosswalk across Chandler Drive and sidewalks along the south side of Steam Mill Road.

4. Steam Mill Road at Dogwood Drive

   This signalized intersection operates under split phasing with protected left-turns. There are crosswalks across all four legs, but only sidewalks and curb ramps on the south side of Steam Mill Road and the east side of Dogwood Drive. Dimon Elementary School is just southeast of this intersection, which puts this intersection in a school zone. The speed limit drops to 25 mph on Steam Mill Road, and 20 mph on Dogwood Drive from 7:00 to 9:00 AM, and 2:30 to 4:30 PM on school days.

5. Steam Mill Road at Southern Pines Drive /McCartha Drive

   This four-legged intersection is controlled by stop signs located on the northbound and southbound approaches of McCartha Drive and Southern Pines Drive, respectively. There are sidewalks along the south side of Steam Mill Road as well as the north side, but only east of McCartha Drive. Crosswalks are present across all but the east leg. The north leg of this intersection is divided by a median.

6. Steam Mill Road at Englewood Drive /Henson Drive

   This four-legged intersection is controlled by stop signs located on the northbound and southbound approaches of Henson Drive and Englewood Drive, respectively. There is a crosswalk on the south leg. There are sidewalks along the south side of Steam Mill Road, as well as the north side, but only west of Englewood Drive.

7. Steam Mill Road at Cardinal Drive /Wickham Drive

   This four-legged intersection is controlled by stop signs located on the northbound and southbound approaches of Wickham Drive and Cardinal Drive, respectively. There are no striped crosswalks, but there are sidewalks along the south side of Steam Mill Road

8. Steam Mill Road at Georgia Drive

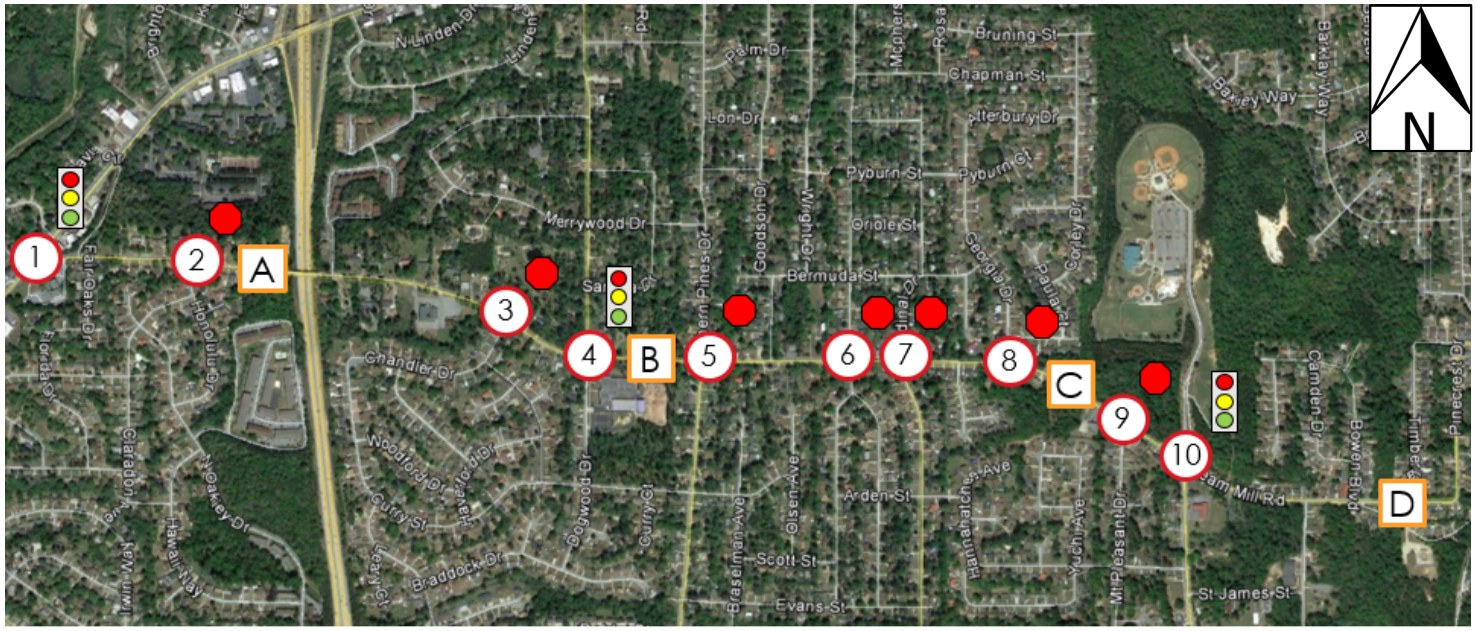
   This three-legged intersection is controlled by a stop sign located on the southbound approach of Georgia Drive. There are no striped crosswalks, but there are sidewalks along the north and south sides of Steam Mill Road.

9. Steam Mill Road at Mt Pleasant Drive

   This three-legged intersection is controlled by a stop sign located on the northbound approach of Mt Pleasant Drive. There is a crosswalk across Mt Pleasant Drive and sidewalks along the south side of Steam Mill Road.

10. Steam Mill Road at Northstar Drive/Shirley Winston Park Driveway

    This signalized intersection has left turn lanes at each approach, which are serviced under a protected leading left turn phase. There is a channelized southbound right turn from the Shirley Winston Park Driveway with yield control. There are crosswalks across the north, south, and west legs, but the striping has been partially eradicated. Sidewalks are present on all sides of this intersection.



TMC Intersections

1. Buena Vista Rd @ Steam Mill Rd
2. Honolulu Dr @ Steam Mill Rd
3. Chandler Dr @ Steam Mill Rd
4. Dogwood Dr @ Steam Mill Rd
5. McCartha Dr/Southern Pines Dr @ Steam Mill Rd
6. Henson Dr/Englewoord Dr @ Steam Mill Rd
7. Wickham Dr/Cardinal Dr @ Steam Mill Rd
8. Georgia Dr @ Steam Mill Rd
9. Mt Pleasant Dr @ Steam Mill Rd
10. Northstar Dr/Shirley Winston Park Dwy @ Steam Mill Rd

ADT Count Locations

A. East of Honolulu Drive
B. East of Dogwood Drive
C. East of Georgia Drive
D. East of Minnie Lee Drive

Figure 1 Site Location Map

Table 1. Existing Conditions

Road Name	Primary Cross-Section	Functional Classification	AADT (vpd)	Speed Limit (mph)
Steam Mill Road	2-Lane Undivided	Major Collector	4,325	35
Buena Vista Road	5-Lane Undivided	Principal Arterial	18,400*	35
Honolulu Drive	2-Lane Undivided	Local	-	30
Chandler Drive	2-Lane Undivided	Local	-	30
Dogwood Drive	2-Lane Undivided	Major Collector	3,820*	25
Southern Pines Drive / McCartha Drive	2-Lane Undivided	Local	-	30
Englewood Drive / Henson Drive	2-Lane Undivided	Local	3,040*	30
Cardinal Drive / Wickham Drive	2-Lane Undivided	Local	1,370*	30
Georgia Drive	2-Lane Undivided	Local	-	30
Mt Pleasant Drive	2-Lane Undivided	Local	-	30
Northstar Drive / Shirley Winston Park Driveway	2-Lane Divided North Leg 2-Lane Undivided South Leg	Local	-	35

*AADT values are taken from the most recent available GDOT TADA Count Station

4.0 CAPACITY ANALYSIS EXPLANATION & METHODOLOGY

4.1 TRAFFIC DATA COLLECTION

Turning movement counts were collected at the 10 Steam Mill Road study intersections on March 3, 2020 (See Appendix C). Bidirectional speed and classification counts were also taken at 4 locations along Steam Mill Road on March 3-4, 2020. As seen by the collection dates, the traffic data was collected before the impacts of the COVID-19 pandemic began to manifest and well before the shelter in place order that was issued by Governor Brian Kemp on April 3, 2020. Therefore, the traffic volumes that were collected in this analysis were not impacted by the COVID-19 pandemic and are representative of traffic volumes along Steam Mill Road.

Once the turning movement counts were collected, the turning movement volumes during each intersection's peak hour were compiled into a table. These are the base year volumes to which growth rates were applied to generate future volumes for the capacity analysis.

4.2 GROWTH RATE DEVELOPMENT

Two sources were used to determine the growth rate that would be used to project traffic volumes into the year 2040. First, historic traffic volume data from GDOT count stations located on or near Steam Mill Road were analyzed. Looking at the three stations that were located nearby, which only provided information up to 2018, it was found that the average trend growth rate in this area was 2.1% over the 5-year period from 2014-2018.

US Census Bureau data for Muscogee County/Columbus City, GA showed an average annual growth rate of 0.8% from 2010-2017. Averaging this with the 2.1% growth rate calculated from trends in historic count data obtained from nearby GDOT count stations, a growth rate of **1.5%** was chosen for this corridor. Using this growth rate, turning movement counts for the projected year 2040 were used to model future traffic conditions in the no-build condition. Note that these turning movement counts were not balanced between adjacent intersections.

4.3 CAPACITY ANALYSIS METHODOLOGY

Capacity analysis models of each study intersection were completed using the software program Synchro 10, which outputs operating condition statistics. Level of service (LOS) is a term used to describe different traffic conditions and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists or passengers." LOS varies from Level A, representing free flow, to Level F where traffic breakdown conditions are evident. Generally, LOS D is acceptable for signalized intersections in suburban areas during peak periods. For unsignalized intersections, LOS D is desirable, but it is not uncommon for some minor street movements or approaches to operate at LOS F during peak hour conditions, which is not necessarily indicative of needed improvements.

Traffic conditions at unsignalized intersections, with stop control on the minor street only, are evaluated for the minor street approaches and for the left turns from the major street. This is because the major street traffic is assumed to have no delay since there is no control (no STOP sign). Inadequate LOS for minor street approaches to unsignalized intersections are not uncommon, as the continuous flow traffic will always get the priority.

The Highway Capacity Manual Level of Service criteria for signalized intersections are shown in **Table 2**.

Table 2. HCM Intersection Level of Service Criteria

LOS	Control Delay (seconds per vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10	≤ 10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	> 80	> 50

5.0 2020 & 2040 NO-BUILD CONDITIONS CAPACITY ANALYSIS

Table 3 shows the LOS and overall intersection delay (in seconds per vehicle) for the study intersections during both the 2020 and 2040 no-build conditions. This is also illustrated in **Figure 2** and **Figure 3**.

As shown in **Table 3**, all of the study intersections are currently operating at adequate Levels of Service (LOS) during both peak periods. At the intersection with Southern Pines Drive /McCartha Drive, one side street approach fails in the PM peak hour. The capacity analysis Synchro printouts are included in **Appendix E**.

In the future conditions only one intersection, Steam Mill Road at Southern Pines Drive /McCartha Drive, operates under a failing condition. However, many individual approaches along the corridor are operating insufficiently. Except for Steam Mill Road at Northstar Drive, each failing approach represents a side-street approach at a two-way stop-controlled intersection. This signifies a lack of sufficient gaps in traffic flow on Steam Mill Road, resulting in large delays for vehicles turning from side streets. In conditions such as these, Drivers are more likely to make high-risk maneuvers, subsequently making this both a safety and operational concern.

Table 3. Existing Conditions Capacity Analysis Summary

LOS/Delay			2020 No-Build		2040 No-Build	
			AM	PM	AM	PM
1	Buena Vista Rd	**Overall**	**B (12.0)**	**B (11.2)**	**B (16.5)**	**B (19.8)**
		EB	-	B (13.8)	-	B (11.3)
		WB	C (25.8)	C (24.9)	C (27.8)	C (25.9)
		NB	A (8.8)	B (10.3)	B (12.7)	C (21.4)
		SB	B (10.5)	A (9.7)	B (16.3)	B (17.1)
2	Honolulu Dr	**Overall**	**A (2.6)**	**A (2.1)**	**A (3.0)**	**A (2.8)**
		EB	-	-	-	-
		WB	A (0.9)	A (1.4)	A (0.9)	A (1.5)
		NB	B (11.8)	B (13.6)	B (14.5)	C (19.2)
		SB	-	-	-	-
3	Chandler Dr	**Overall**	**A (1.7)**	**A (1.3)**	**A (2)**	**A (1.7)**
		EB	-	-	-	-
		WB	A (0.2)	A (0.6)	A (0.1)	A (0.7)
		NB	B (12.4)	B (14)	C (15.1)	C (18.9)
		SB	-	-	-	-
4	Dogwood Dr	**Overall**	**D (39.4)**	**C (26.8)**	**D (39.8)**	**D (37.8)**
		EB	D (48.2)	C (23.9)	D (38.9)	D (43.5)
		WB	D (47.2)	B (17.2)	D (37.4)	C (21.7)
		NB	C (22.1)	D (37.3)	D (40.6)	D (45.3)
		SB	D (42.8)	D (41.3)	D (44.4)	D (43.2)
5	Southern Pines Dr/McCartha Dr	**Overall**	**A (5.6)**	**C (20.5)**	**A (9.9)**	**F (153.4)**
		EB	A (0.8)	A (0.2)	A (0.9)	A (0.2)
		WB	A (2.9)	A (2.5)	A (3.1)	A (2.8)
		NB	C (16.3)	F (55.5)	E (36.6)	F (424.8)
		SB	C (20.2)	D (30.7)	E (38.0)	F(282.1)
6	Englewood Dr/Henson Dr	**Overall**	**A (4.2)**	**A (7.2)**	**A (5.8)**	**D (41.5)**
		EB	A (2.1)	A (1.9)	A (2.2)	A (2.0)
		WB	A (0.2)	A (0.2)	A (0.1)	A (0.2)
		NB	C (16.7)	C (21.4)	D (26.3)	E (43.6)
		SB	B (15.2)	D (32.7)	C (22.9)	F (250.2)
7	Cardinal Dr/Wickham Dr	**Overall**	**A (3.3)**	**A (3.9)**	**A (4.3)**	**A (7.9)**
		EB	A (0.4)	A (0.4)	A (0.3)	A (0.4)
		WB	A (0.5)	A (0.6)	A (0.6	A (0.8)
		NB	B (15)	C (19.1)	C (21.7)	E (43.1)
		SB	B (12.4)	B (14.4)	B (14.2)	C (20)
8	Georgia Dr	**Overall**	**A (1.5)**	**A (1.3)**	**A (1.8)**	**A (1.4)**
		EB	A (0.6)	A (0.9)	A (0.7)	A (0.9)
		WB	-	-	-	-
		NB	-	-	-	-
		SB	B (10.8)	B (11.6)	B (12.2)	B (13.7)
9	Mt Pleasant Dr	**Overall**	**A (1.4)**	**A (1.2)**	**A (1.5)**	**A (1.3)**
		EB	-	-	-	-
		WB	A (0.3)	A (0.4)	A (0.2)	A (0.3)
		NB	B (11.5)	B (12.2)	B (13.2)	B (14.6)
		SB	-	-	-	-
10	Northstar Dr/Shirley Winston Park Dwy	**Overall**	**C (28.0)**	**C (31.6)**	**C (29.6)**	**C (25.7)**
		EB	D (50.3)	E (56.2)	E (56.7)	D (42.0)
		WB	C (34.5)	C (30.1)	C (34.0)	C (22.5)
		NB	A (5.7)	A (7.8)	A (6.5)	B (11.9)
		SB	-	A (6.3)	-	A (7.3)

Legend:	
X (X)	LOS (Delay)
	Unsignalized Movement
	Signalized Movement
-	No Movement/Insignificant Delay
##	Exceeds Capacity

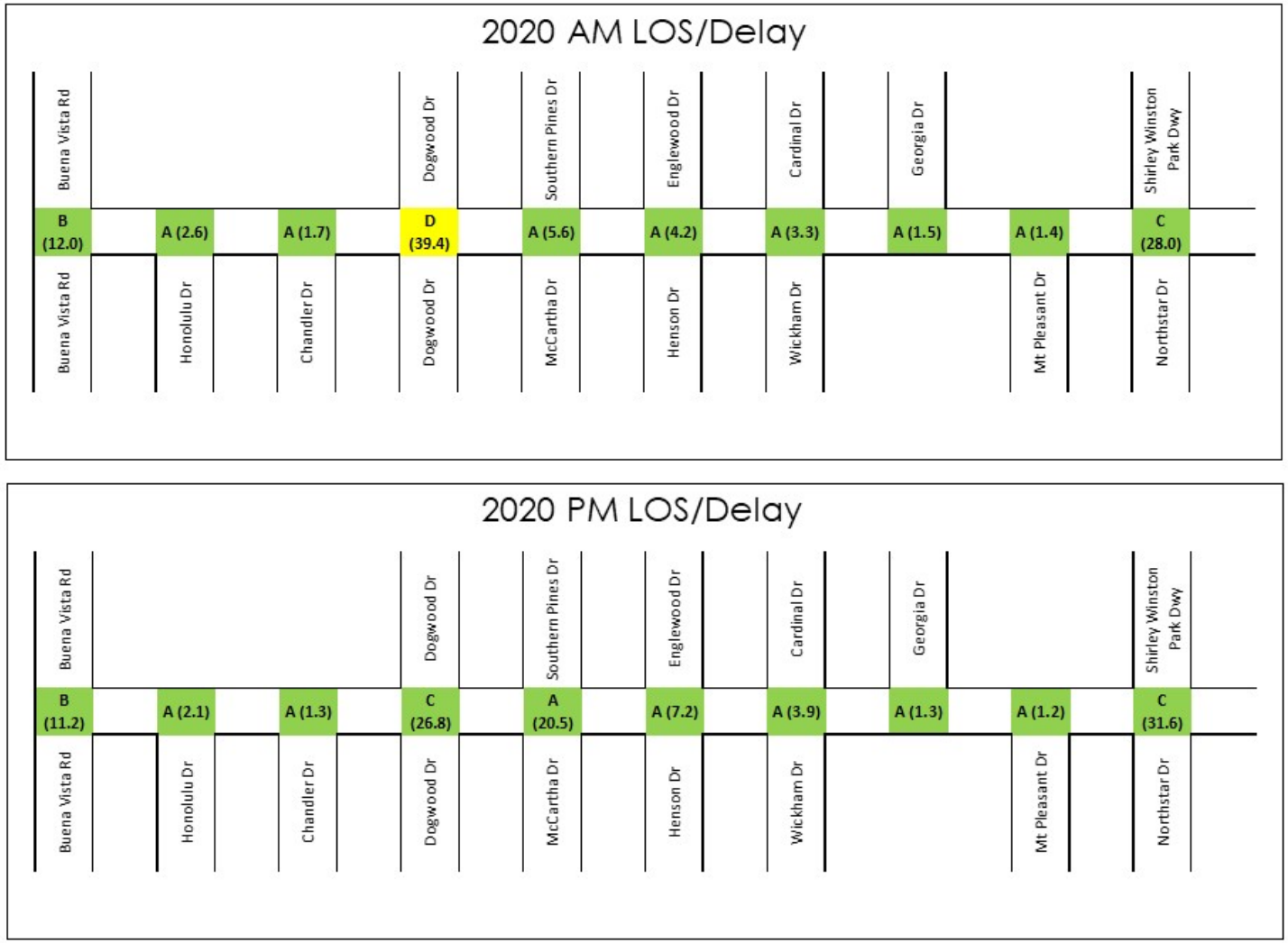


Figure 2. 2020 No-Build LOS / Delay

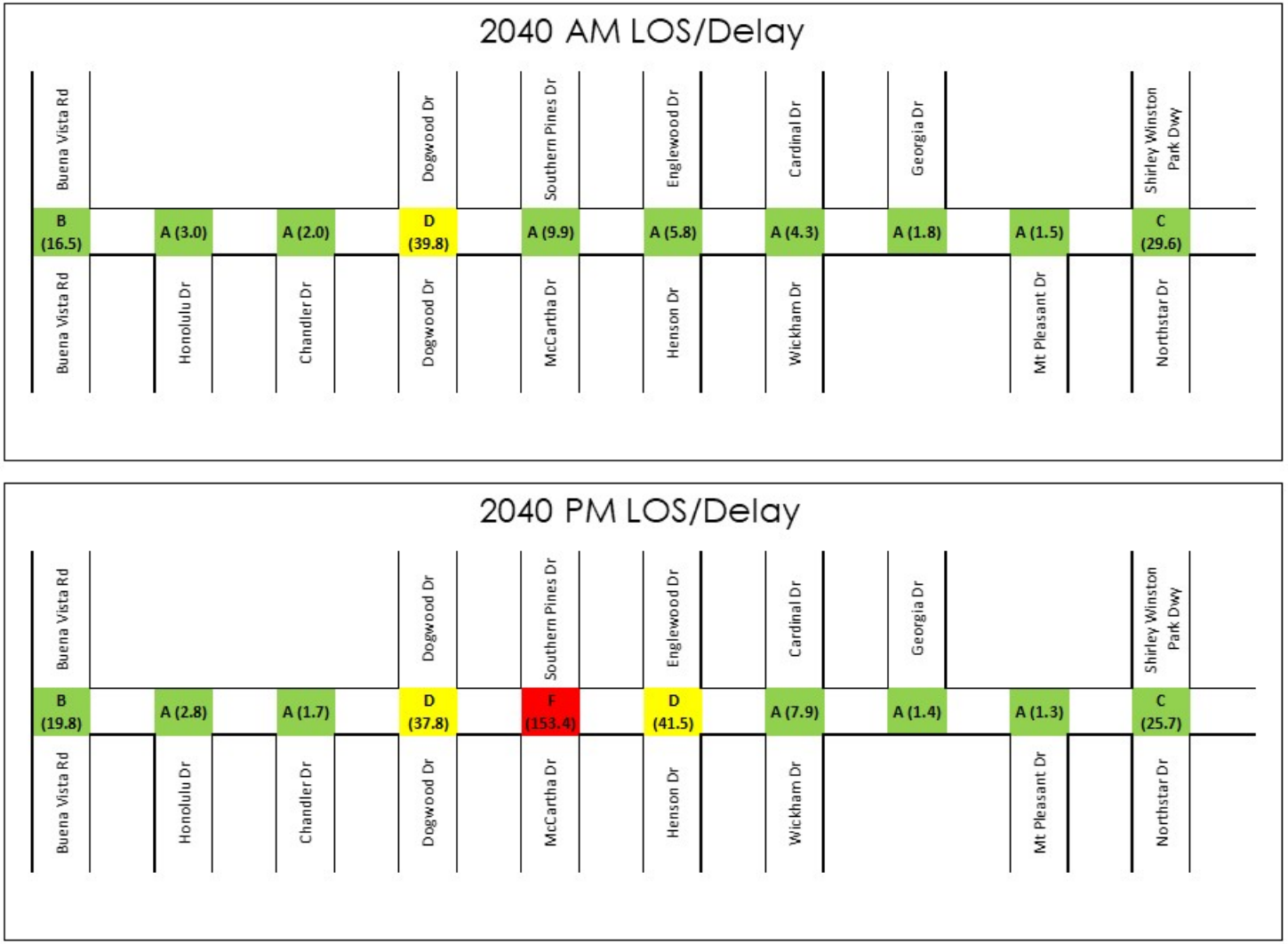


Figure 3. 2040 No-Build LOS / Delay

6.0 2020 & 2040 ROUNDABOUT ANALYSIS

As part of this analysis, the GDOT Roundabout Tool was used to measure the effectiveness of installing single-lane roundabouts at 3 intersections along the corridor:

- Steam Mill Road at Dogwood Drive
- Steam Mill Road at Southern Pines Drive / McCartha Drive
- Steam Mill Road at Northstar Drive / Shirley Winston Park Driveway

At Dogwood Drive, the north leg of the intersection would be removed due to constructability issues with the steep uphill grade of the SB approach. These constructability issues would result in a 3-legged roundabout being the most feasible design. Removal of the north leg would redistribute traffic volumes to the intersection of Southern Pines Drive /McCartha Drive. Because of this interdependency, three different scenarios were modeled:

- **Scenario A**: 3-legged Roundabout at Dogwood Drive + Roundabout at Southern Pines/McCartha (with additional volumes from removed leg)
- **Scenario B**: 3-legged Roundabout at Dogwood Drive + existing two-way stop control at Southern Pines/McCartha (with additional volumes)
- **Scenario C**: Existing signal at Dogwood Drive + Roundabout at Southern Pines/McCartha (with no additional volumes)

Table 4 and **Table 5** depict with further detail the traffic operations data resulting from this analysis. The model outputs from Synchro (analyzing existing traffic in no-build conditions) are compared to those output from the GDOT Roundabout Analysis Tool. Across nearly all intersections and approaches, an improvement in performance is observed when a roundabout is implemented. The removal of the north leg at the intersection with Dogwood Drive adds a significant volume of traffic to the intersection with Southern Pines/McCartha, resulting in longer delays, higher v/c ratio, and longer queue lengths. This intersection operates at the worst LOS when the control type remains a two-way stop. However, when a roundabout is installed, the additional volumes do not have as significant of an impact. As shown in **Figure 4** through **Figure 7**, the best overall results for the intersections at Dogwood Drive and at Southern Pines/McCartha are achieved in Scenario A, when roundabouts are implemented at both intersections.

Table 4: 2020 Roundabout Capacity Analysis Summary

Intersection		Approach	2020											
			AM						PM					
			LOS/Delay (sec)		95% Queue (Veh)		V/C Ratio		LOS/Delay (sec)		95% Queue (Veh)		V/C Ratio	
			Existing	Roundabout	Existing	Roundabout	Existing	Roundabout	Existing	Roundabout	Existing	Roundabout	Existing	Roundabout
4	Dogwood Dr	**Overall/Max**	**D (39.4)**	**A (4.6)**	**8.1**	**0.8**	**0.78**	**0.2**	**C (26.8)**	**A (4.6)**	**11.8**	**1.1**	**0.58**	**0.3**
		EB	D (48.2)	A (4.3)	6.6	0.7	0.78	0.18	C (23.9)	A (4.9)	11.8	1.1	0.58	0.26
		WB	D (47.2)	A (4.7)	8.1	0.8	0.76	0.20	B (17.2)	A (4.0)	7.0	0.6	0.34	0.16
		NB	C (22.1)	A (4.7)	5.6	0.7	0.38	0.19	D (37.3)	A (4.8)	4.1	0.4	0.29	0.10
		SB	D (42.8)	N/A	4.9	N/A	0.54	N/A	D (41.3)	N/A	4.6	N/A	0.35	N/A
5	Southern Pines Dr/McCartha Dr	**Overall/Max**	**A (5.6)**	**A (5.8)**	**1.3**	**1.9**	**0.30**	**0.4**	**C (20.5)**	**A (7.0)**	**10.0**	**2.2**	**0.91**	**0.4**
		EB	A (0.8)	A (5.3)	0.0	0.8	0.02	0.22	A (0.2)	A (6.6)	0.0	1.7	0.01	0.37
		WB	A (2.9)	A (6.5)	0.4	1.9	0.12	0.39	A (2.5)	A (5.7)	0.2	1.2	0.08	0.28
		NB	C (16.3)	A (4.5)	1.3	0.5	0.30	0.13	F (55.5)	A (9.1)	10.0	2.2	0.91	0.42
		SB	C (20.2)	A (5.3)	0.6	0.2	0.18	0.07	D (30.7)	A (4.6)	1.1	0.2	0.28	0.06
5a	Southern Pines Dr/McCartha Dr (+ Dogwood Volumes)	**Overall/Max**	**E (45.4)**	**A (8.4)**	**11.6**	**3.5**	**1.11**	**0.6**	**F (220.8)**	**A (9.4)**	**34.1**	**3.3**	**2.12**	**0.5**
		EB	A (3)	A (6.5)	0.3	1.3	0.09	0.29	A (1.4)	A (8.9)	0.2	2.8	0.07	0.49
		WB	A (2.2)	A (9.8)	0.4	3.5	0.12	0.55	A (1.7)	A (8.6)	0.2	2.4	0.08	0.45
		NB	F (153.5)	A (5.6)	9.8	0.8	1.11	0.21	F (##)	B (12.2)	34.1	3.3	2.12	0.53
		SB	F (97.6)	A (9.0)	11.6	1.8	1.03	0.36	F (##)	A (7.4)	20.3	1.3	1.84	0.31
10	Northstar Dr/Shirley Winston Park Dwy	**Overall/Max**	**C (28.0)**	**A (5.2)**	**5.6**	**1.1**	**0.63**	**0.3**	**C (31.6)**	**A (5.8)**	**9.6**	**1.5**	**0.82**	**0.3**
		EB	D (50.3)	A (4.8)	5.6	0.7	0.63	0.19	E (56.2)	A (5.8)	9.6	1.2	0.82	0.29
		WB	C (34.5)	A (5.4)	5.5	1.1	0.34	0.26	C (30.1)	A (4.9)	4.4	0.8	0.39	0.22
		NB	A (5.7)	A (5.5)	2.1	1.0	0.17	0.26	A (7.8)	A (6.7)	1.8	1.5	0.24	0.34
		SB	-	A (4.4)	-	0.1	0.01	0.04	A (6.3)	A (4.1)	0.3	0.2	0.02	0.04

Legend:	
X (X)	LOS (Delay)
	Existing Control
	Roundabout
-	No Movement/Insignificant Delay
##	Exceeds Capacity

Table 5: 2040 Roundabout Capacity Analysis Summary

Intersection		Approach	2040											
			AM						PM					
			LOS/Delay (sec)		95% Queue (Veh)		V/C Ratio		LOS/Delay (sec)		95% Queue (Veh)		V/C Ratio	
			Existing	Roundabout	Existing	Roundabout	Existing	Roundabout	Existing	Roundabout	Existing	Roundabout	Existing	Roundabout
4	Dogwood Dr	**Overall/Max**	**D (39.8)**	**A (5.5)**	**11.5**	**1.6**	**0.8**	**0.4**	**D (37.8)**	**A (5.5)**	**24.7**	**1.6**	**0.9**	**0.4**
		EB	D (38.9)	A (5.9)	9.4	1.6	0.75	0.36	D (43.5)	A (5.9)	24.7	1.6	0.89	0.36
		WB	D (37.4)	A (4.5)	11.5	0.8	0.72	0.21	C (21.7)	A (4.5)	11.8	0.8	0.48	0.21
		NB	D (40.6)	A (5.9)	8.4	0.6	0.72	0.16	D (45.3)	A (5.9)	5.2	0.6	0.61	0.16
		SB	D (44.4)	N/A	6.2	N/A	0.64	N/A	D (43.2)	N/A	5.8	N/A	0.66	N/A
5	Southern Pines Dr/McCartha Dr	**Overall/Max**	**A (9.9)**	**A (7.6)**	**4.0**	**3.4**	**0.6**	**0.5**	**F (153.4)**	**B (10.9)**	**35.7**	**5.2**	**1.8**	**0.7**
		EB	A (0.9)	A (6.6)	0.1	1.4	0.03	0.31	A (0.2)	A (9.2)	0.0	3.2	0.01	0.53
		WB	A (3.1)	A (8.8)	0.6	3.4	0.17	0.54	A (2.8)	A (7.6)	0.4	2.0	0.12	0.41
		NB	E (36.6)	A (5.4)	4.0	0.7	0.63	0.19	F (424.8)	C (16.6)	35.7	5.2	1.85	0.66
		SB	E (38.0)	A (6.6)	1.5	0.4	0.35	0.10	F(282.1)	A (5.6)	5.9	0.3	1.17	0.09
5a	Southern Pines Dr/McCartha Dr (+ Dogwood Volumes)	**Overall/Max**	**F (##)**	**B (14.9)**	**15.0**	**9.0**	**0.2**	**0.8**	**F (##)**	**C (20.4)**	**11.0**	**10.7**	**0.1**	**0.9**
		EB	A (4.3)	A (9.3)	12.0	2.3	0.14	0.44	A (2.8)	C (17.1)	10.0	6.9	0.12	0.74
		WB	A (3.9)	C (19.4)	15.0	9.0	0.17	0.80	A (3.2)	C (15.2)	11.0	5.5	0.13	0.68
		NB	F (##)	A (7.4)	##	1.4	##	0.31	F (##)	E (36.0)	##	10.7	##	0.87
		SB	F (##)	C (16.2)	##	4.1	##	0.59	F (##)	B (11.7)	##	2.8	##	0.50
10	Northstar Dr/Shirley Winston Park Dwy	**Overall/Max**	**C (29.6)**	**A (6.5)**	**7.2**	**1.7**	**0.8**	**0.4**	**C (25.7)**	**A (7.8)**	**12.1**	**2.9**	**0.8**	**0.5**
		EB	E (56.7)	A (5.7)	7.2	1.1	0.8	0.26	D (42.0)	A (7.5)	12.1	2.1	0.8	0.42
		WB	C (34.0)	A (6.7)	6.7	1.7	0.46	0.36	C (22.5)	A (6.1)	4.9	1.3	0.43	0.31
		NB	A (6.5)	A (7.0)	2.9	1.7	0.23	0.36	B (11.9)	A (9.6)	2.8	2.9	0.39	0.50
		SB	A (0.0)	A (5.1)	0.0	0.2	0.01	0.05	A (7.3)	A (4.8)	0.3	0.2	0.03	0.06

Legend:	
X (X)	LOS (Delay)
	Existing Control
	Roundabout
-	No Movement/Insignificant Delay
##	Exceeds Capacity

Figure 4. 2020 AM Roundabout Scenarios

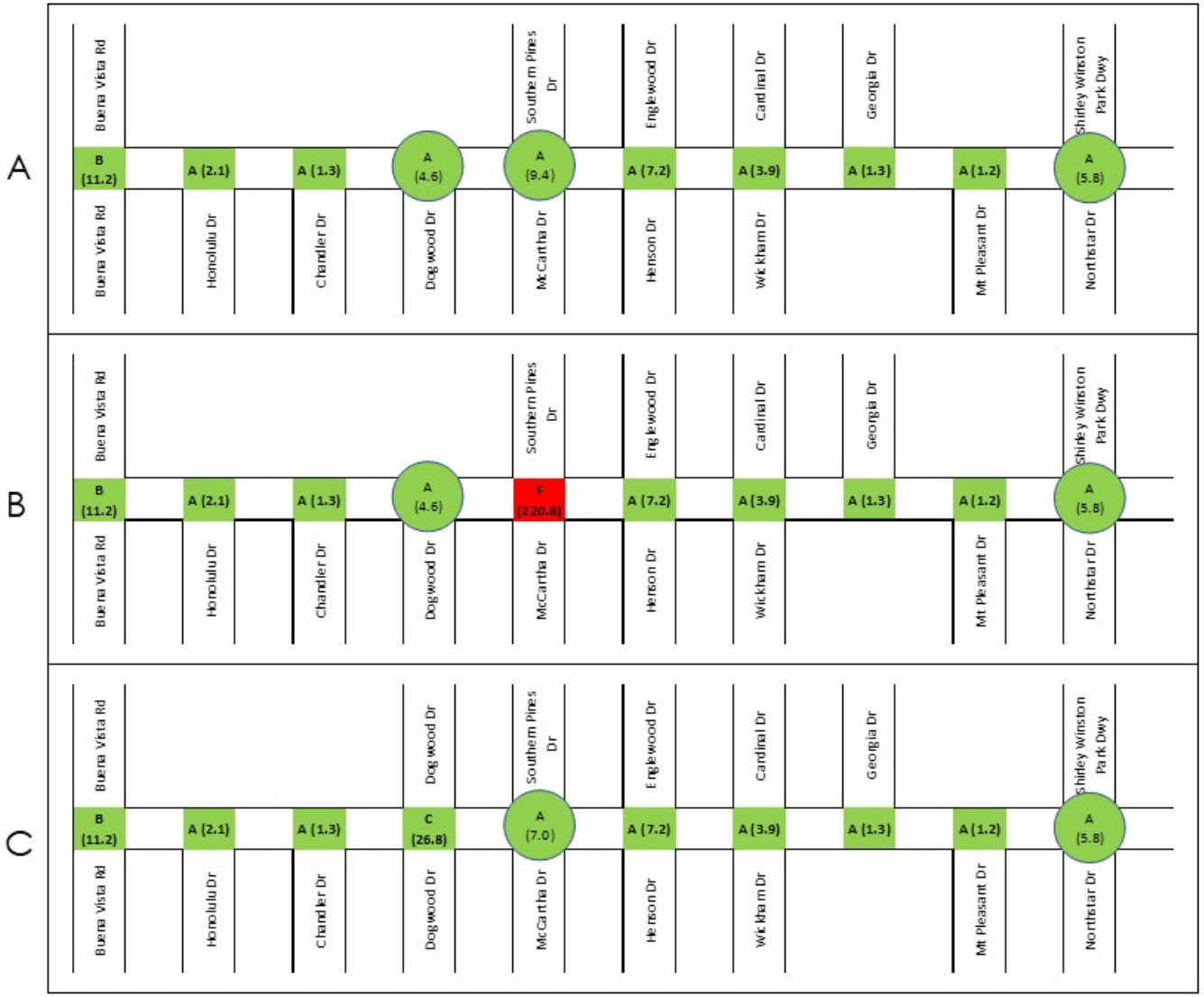


Figure 5. 2020 PM Roundabout Scenarios

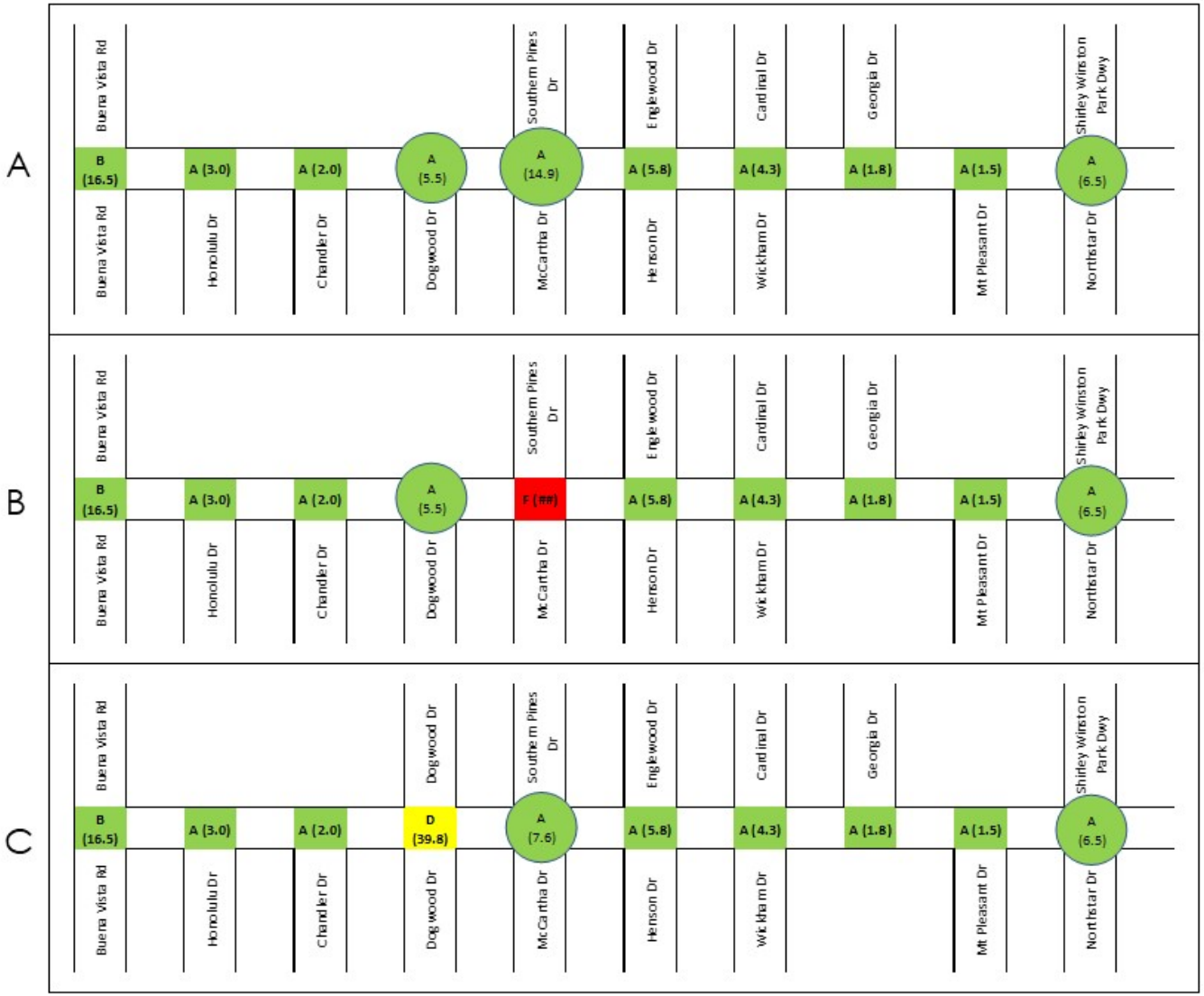


Figure 6. 2040 AM Roundabout Scenarios

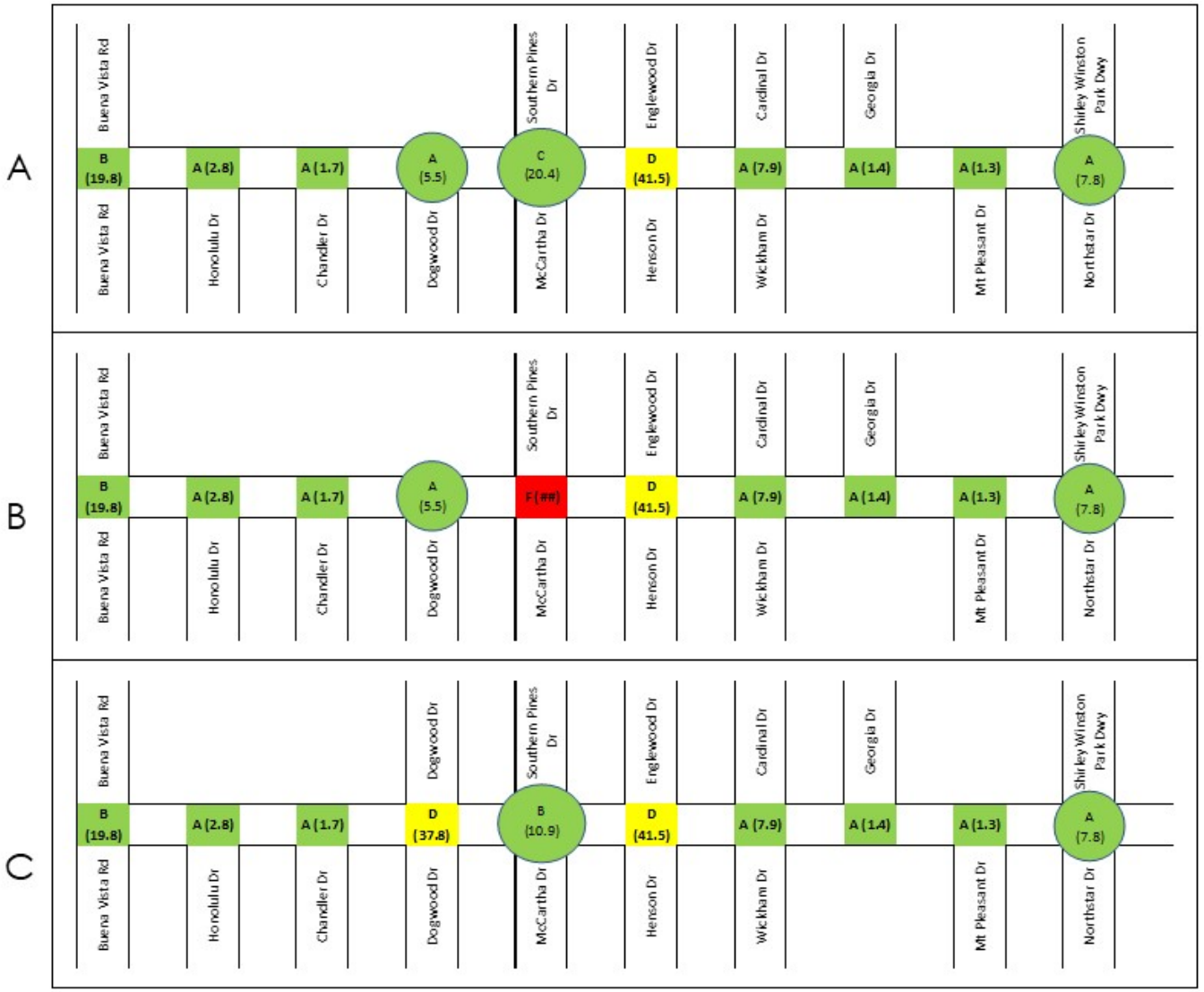


Figure 7. 2040 PM Roundabout Scenarios

7.0 SIGNAL WARRANT ANALYSIS

In addition to the existing conditions (no-build) analysis, and the roundabout analysis, a signal warrant was performed at the intersections of Steam Mill Road with McCartha Drive /Southern Pines Drive and Northstar Drive/Shirley Winston Park Driveway. These warrants were performed according to Section 4C of the MUTCD (2009).

It is important to note that at each of these intersections 24-hour counts were not taken. Turning movement counts were only collected from 7 a.m. until 9 a.m. in the morning and from 4 p.m. until 6 p.m. in the afternoon. Because of this the 8-hour warrant could not be performed.

Additionally, speed counts taken at 4 locations along Steam Mill Road indicate that the 85th percentile speed is at or just above 40 mph. Speed counts can be found in Appendix B. When performing a signal warrant, a 70% factor can be applied if the statutory speed limit or 85th percentile speed on the major road exceeds 40 mph. This means that the volumes needed to pass a warrant are only 70% of their original value. Since the recorded speeds are close to the 40-mph threshold, and the speed limit is 35 mph, both conditions have been shown in each table below.

Currently, the existing control at McCartha Drive /Southern Pines Drive is a two-way stop. As shown in **Table 6** and **Table 7**, the existing volumes at this intersection only pass warrant 3, given the 70% factor is applied. When the projected volumes are applied for the 2040 conditions, warrant 2 is passed with the 70% factor, and warrant 3 is passed in either condition.

At the intersection with Northstar Drive/Shirley Winston Park Driveway, the existing control is already a signal. However, both field observations and capacity analysis results indicated that a signal may not be warranted. As shown in Table 6 and Table 7, a signal was not found to be warranted in the existing conditions, and only warrant 3 was passed under the 70% factor for the 2040 conditions.

The difference in results between the 100% and 70% signal warrant requirements illustrates that traffic calming methods implemented to lower vehicle speeds could alter the need for a signal. For example, at the intersection with Northstar Drive/Shirley Winston Park Driveway, installing chicanes, lane shifts, or a roundabout would likely lower the 85th percentile to be closer to the speed limit. If so, a signal would no longer be warranted in either the current or future year conditions. However, due to the Shirley Winston Park Driveway utilizing this intersection, the signal may be needed during events that cause higher volumes of traffic. The counts used in this warrant would not have included any volumes from a special event taking place at the park.

At the intersection with McCartha Drive/Southern Pines Drive, bringing the 85th percentile speed down and removing the 70% factor would result in only one warrant passing in the future condition. When paired with the results of the roundabout analysis is **Section 6**, this fact could support the case for the installation of a roundabout at this intersection.

Table 6: Signal Warrant Summary – 2020 Existing Volumes

	McCartha Dr/Southern Pines Dr		Northstar Dr/Shirley Winston Park Dwy	
		with 70% Factor		with 70% Factor
Warrant 1 - Eight Hour Vehicular Volume	N/A	N/A	N/A	N/A
Warrant 2 - Four Hour Vehicular Volume	Fail	Fail	Fail	Fail
Warrant 3 - Peak Hour	Fail	**Pass**	Fail	Fail
Warrant 4 - Pedestrian Volume	Fail	Fail	Fail	Fail
Warrant 5 - School Crossing	Fail	Fail	Fail	Fail
Warrant 6 - Coordinated Signal System	N/A	N/A	N/A	N/A
Warrant 7 - Crash Expereince	Fail	Fail	Fail	Fail
Warrant 8 - Roadway Network	N/A	N/A	N/A	N/A
Warrant 9 - Intersection Near a Grade Crossing	N/A	N/A	N/A	N/A

Table 7: Signal Warrant Summary – 2040 Projected Volumes

	McCartha Dr/Southern Pines Dr		Northstar Dr/Shirley Winston Park Dwy	
		with 70% Factor		with 70% Factor
Warrant 1 - Eight Hour Vehicular Volume	N/A	N/A	N/A	N/A
Warrant 2 - Four Hour Vehicular Volume	Fail	**Pass**	Fail	Fail
Warrant 3 - Peak Hour	**Pass**	**Pass**	Fail	**Pass**
Warrant 4 - Pedestrian Volume	Fail	Fail	Fail	Fail
Warrant 5 - School Crossing	Fail	Fail	Fail	Fail
Warrant 6 - Coordinated Signal System	N/A	N/A	N/A	N/A
Warrant 7 - Crash Experience	Fail	Fail	Fail	Fail
Warrant 8 - Roadway Network	N/A	N/A	N/A	N/A
Warrant 9 - Intersection Near a Grade Crossing	N/A	N/A	N/A	N/A

Full worksheets for signal warrants 1-3 are included in **Appendix G.**

8.0 CONCLUSIONS

From examining the traffic conditions along Steam Mill Road in a composite fashion, it is apparent that in the existing year the corridor is operating at acceptable levels of service at all intersections. However, when observing the individual approaches, it becomes clear that some movements from side-streets suffer from lengthy delays and higher queues, especially as volumes grow toward the future 2040 condition. This increase in delay for vehicles making movements from side streets can result in higher crash frequencies.

Through the roundabout analysis it is clear that reconstructing the intersections at Dogwood Drive, Southern Pines Drive/McCartha Drive, and Northstar Drive as roundabouts would improve traffic operations at each of these locations. By calming traffic on the main road and removing the stop or signal control on the side street, a roundabout can vastly improve the safety and operation of each intersection analyzed in **Section 5.** While **Section 6** shows that two of these intersection pass signal warrants, it is important to note that calming traffic and lowering speeds along Steam Mill Road could remove the need for a signal.

The results and analysis described in this report, along with a Road Safety Audit, will serve to develop improvement recommendations along the corridor with a focus on traffic operations and safety.

APPENDICES

Appendix A TRAFFIC VOLUME COUNTS

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Steam Mill Rd E/O Honolulu Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,524	2,809	6,333

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00	0	0	9		4		13		12:00	0	0	55		28		83	
0:15	0	0	7		9		16		12:15	0	0	44		34		78	
0:30	0	0	9		4		13		12:30	0	0	41		39		80	
0:45	0	0	10	35	5	22	15	57	12:45	0	0	51	191	37	138	88	329
1:00	0	0	3		2		5		13:00	0	0	38		42		80	
1:15	0	0	9		4		13		13:15	0	0	50		40		90	
1:30	0	0	5		6		11		13:30	0	0	68		53		121	
1:45	0	0	7	24	2	14	9	38	13:45	0	0	68	224	50	185	118	409
2:00	0	0	9		2		11		14:00	0	0	39		44		83	
2:15	0	0	1		5		6		14:15	0	0	59		37		96	
2:30	0	0	6		1		7		14:30	0	0	57		41		98	
2:45	0	0	2	18	3	11	5	29	14:45	0	0	64	219	57	179	121	398
3:00	0	0	4		4		8		15:00	0	0	59		42		101	
3:15	0	0	7		2		9		15:15	0	0	63		48		111	
3:30	0	0	3		3		6		15:30	0	0	51		51		102	
3:45	0	0	1	15	7	16	8	31	15:45	0	0	53	226	26	167	79	393
4:00	0	0	2		2		4		16:00	0	0	79		55		134	
4:15	0	0	0		6		6		16:15	0	0	65		49		114	
4:30	0	0	2		5		7		16:30	0	0	77		67		144	
4:45	0	0	6	10	4	17	10	27	16:45	0	0	92	313	53	224	145	537
5:00	0	0	3		7		10		17:00	0	0	100		68		168	
5:15	0	0	8		9		17		17:15	0	0	116		52		168	
5:30	0	0	10		9		19		17:30	0	0	99		54		153	
5:45	0	0	4	25	12	37	16	62	17:45	0	0	100	415	55	229	155	644
6:00	0	0	6		14		20		18:00	0	0	84		52		136	
6:15	0	0	13		29		42		18:15	0	0	60		48		108	
6:30	0	0	17		20		37		18:30	0	0	67		36		103	
6:45	0	0	16	52	23	86	39	138	18:45	0	0	67	278	40	176	107	454
7:00	0	0	27		36		63		19:00	0	0	46		51		97	
7:15	0	0	39		57		96		19:15	0	0	61		31		92	
7:30	0	0	58		89		147		19:30	0	0	51		29		80	
7:45	0	0	52	176	85	267	137	443	19:45	0	0	35	193	34	145	69	338
8:00	0	0	50		61		111		20:00	0	0	52		24		76	
8:15	0	0	30		49		79		20:15	0	0	49		25		74	
8:30	0	0	36		54		90		20:30	0	0	50		29		79	
8:45	0	0	24	140	31	195	55	335	20:45	0	0	46	197	31	109	77	306
9:00	0	0	35		40		75		21:00	0	0	42		24		66	
9:15	0	0	39		37		76		21:15	0	0	34		23		57	
9:30	0	0	46		41		87		21:30	0	0	34		19		53	
9:45	0	0	41	161	38	156	79	317	21:45	0	0	31	141	15	81	46	222
10:00	0	0	38		30		68		22:00	0	0	29		10		39	
10:15	0	0	41		37		78		22:15	0	0	23		16		39	
10:30	0	0	30		42		72		22:30	0	0	23		13		36	
10:45	0	0	36	145	27	136	63	281	22:45	0	0	18	93	16	55	34	148
11:00	0	0	29		25		54		23:00	0	0	19		15		34	
11:15	0	0	53		31		84		23:15	0	0	15		14		29	
11:30	0	0	31		22		53		23:30	0	0	23		7		30	
11:45	0	0	48	161	35	113	83	274	23:45	0	0	15	72	15	51	30	123
TOTALS				962		1070		2032	TOTALS				2562		1739		4301
SPLIT %				47.3%		52.7%		32.1%	SPLIT %				59.6%		40.4%		67.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,524	2,809	6,333

AM Peak Hour			7:15	7:15	7:15	PM Peak Hour	17:00	16:30	17:00
AM Pk Volume			199	292	491	PM Pk Volume	415	240	644
Pk Hr Factor			0.858	0.820	0.835	Pk Hr Factor	0.894	0.882	0.958
7 - 9 Volume	0	0	316	462	778	4 - 6 Volume	0 0	728	453	1181
7 - 9 Peak Hour			7:15	7:15	7:15	4 - 6 Peak Hour		17:00	16:30	17:00
7 - 9 Pk Volume	0	0	199	292	491	4 - 6 Pk Volume	0 0	415	240	644
Pk Hr Factor	0.000	0.000	0.858	0.820	0.835	Pk Hr Factor	0.000 0.000	0.894	0.882	0.958

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Steam Mill Rd E/O Honolulu Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,312	2,620	5,932

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00	0	0	9		3		12		12:00	0	0	51		33		84	
0:15	0	0	3		3		6		12:15	0	0	49		46		95	
0:30	0	0	4		5		9		12:30	0	0	40		33		73	
0:45	0	0	7	23	5	16	12	39	12:45	0	0	45	185	41	153	86	338
1:00	0	0	10		4		14		13:00	0	0	39		39		78	
1:15	0	0	5		2		7		13:15	0	0	48		33		81	
1:30	0	0	9		5		14		13:30	0	0	57		38		95	
1:45	0	0	9	33	3	14	12	47	13:45	0	0	55	199	43	153	98	352
2:00	0	0	6		4		10		14:00	0	0	57		45		102	
2:15	0	0	9		4		13		14:15	0	0	57		40		97	
2:30	0	0	4		5		9		14:30	0	0	57		40		97	
2:45	0	0	4	23	5	18	9	41	14:45	0	0	68	239	49	174	117	413
3:00	0	0	5		3		8		15:00	0	0	66		52		118	
3:15	0	0	3		4		7		15:15	0	0	52		41		93	
3:30	0	0	3		2		5		15:30	0	0	48		52		100	
3:45	0	0	1	12	3	12	4	24	15:45	0	0	72	238	37	182	109	420
4:00	0	0	5		5		10		16:00	0	0	73		50		123	
4:15	0	0	1		4		5		16:15	0	0	58		44		102	
4:30	0	0	7		11		18		16:30	0	0	73		59		132	
4:45	0	0	9	22	5	25	14	47	16:45	0	0	79	283	44	197	123	480
5:00	0	0	4		9		13		17:00	0	0	79		54		133	
5:15	0	0	7		10		17		17:15	0	0	96		64		160	
5:30	0	0	8		16		24		17:30	0	0	94		44		138	
5:45	0	0	8	27	14	49	22	76	17:45	0	0	90	359	47	209	137	568
6:00	0	0	6		21		27		18:00	0	0	67		33		100	
6:15	0	0	7		16		23		18:15	0	0	60		49		109	
6:30	0	0	23		34		57		18:30	0	0	50		38		88	
6:45	0	0	19	55	23	94	42	149	18:45	0	0	71	248	37	157	108	405
7:00	0	0	20		35		55		19:00	0	0	47		40		87	
7:15	0	0	38		47		85		19:15	0	0	50		39		89	
7:30	0	0	47		85		132		19:30	0	0	43		33		76	
7:45	0	0	61	166	91	258	152	424	19:45	0	0	53	193	25	137	78	330
8:00	0	0	34		37		71		20:00	0	0	47		26		73	
8:15	0	0	38		32		70		20:15	0	0	39		22		61	
8:30	0	0	36		34		70		20:30	0	0	43		24		67	
8:45	0	0	27	135	41	144	68	279	20:45	0	0	45	174	24	96	69	270
9:00	0	0	30		34		64		21:00	0	0	42		21		63	
9:15	0	0	31		27		58		21:15	0	0	37		24		61	
9:30	0	0	23		32		55		21:30	0	0	33		16		49	
9:45	0	0	34	118	25	118	59	236	21:45	0	0	25	137	21	82	46	219
10:00	0	0	35		23		58		22:00	0	0	23		11		34	
10:15	0	0	25		31		56		22:15	0	0	26		18		44	
10:30	0	0	27		22		49		22:30	0	0	22		16		38	
10:45	0	0	41	128	29	105	70	233	22:45	0	0	26	97	10	55	36	152
11:00	0	0	44		28		72		23:00	0	0	21		13		34	
11:15	0	0	40		38		78		23:15	0	0	14		8		22	
11:30	0	0	36		33		69		23:30	0	0	12		6		18	
11:45	0	0	37	157	36	135	73	292	23:45	0	0	14	61	10	37	24	98
TOTALS				899		988		1887	TOTALS				2413		1632		4045
SPLIT %				47.6%		52.4%		31.8%	SPLIT %				59.7%		40.3%		68.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,312	2,620	5,932

AM Peak Hour			7:15	7:15	7:15	PM Peak Hour	17:00	16:30	17:00
AM Pk Volume			180	260	440	PM Pk Volume	359	221	568
Pk Hr Factor			0.738	0.714	0.724	Pk Hr Factor	0.935	0.863	0.888
7 - 9 Volume	0	0	301	402	703	4 - 6 Volume	642	406	1048
7 - 9 Peak Hour			7:15	7:15	7:15	4 - 6 Peak Hour	17:00	16:30	17:00
7 - 9 Pk Volume	0	0	180	260	440	4 - 6 Pk Volume	359	221	568
Pk Hr Factor	0.000	0.000	0.738	0.714	0.724	Pk Hr Factor	0.000	0.000	0.935	0.863	0.888

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Steam Mill Rd E/O Dogwood Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,295	3,158	6,453

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	10		8		18		12:00	0	0	48		36		84	
00:15	0	0	12		11		23		12:15	0	0	47		40		87	
00:30	0	0	6		11		17		12:30	0	0	40		41		81	
00:45	0	0	6	34	7	37	13	71	12:45	0	0	49	184	44	161	93	345
01:00	0	0	6		4		10		13:00	0	0	48		40		88	
01:15	0	0	8		8		16		13:15	0	0	43		54		97	
01:30	0	0	7		6		13		13:30	0	0	59		56		115	
01:45	0	0	3	24	4	22	7	46	13:45	0	0	60	210	50	200	110	410
02:00	0	0	4		3		7		14:00	0	0	47		46		93	
02:15	0	0	4		7		11		14:15	0	0	65		53		118	
02:30	0	0	4		2		6		14:30	0	0	60		45		105	
02:45	0	0	4	16	2	14	6	30	14:45	0	0	70	242	55	199	125	441
03:00	0	0	3		2		5		15:00	0	0	50		50		100	
03:15	0	0	4		4		8		15:15	0	0	57		50		107	
03:30	0	0	2		4		6		15:30	0	0	43		46		89	
03:45	0	0	3	12	4	14	7	26	15:45	0	0	44	194	40	186	84	380
04:00	0	0	2		3		5		16:00	0	0	63		48		111	
04:15	0	0	1		6		7		16:15	0	0	71		50		121	
04:30	0	0	3		4		7		16:30	0	0	73		68		141	
04:45	0	0	2	8	4	17	6	25	16:45	0	0	96	303	64	230	160	533
05:00	0	0	3		6		9		17:00	0	0	75		68		143	
05:15	0	0	5		11		16		17:15	0	0	116		59		175	
05:30	0	0	6		14		20		17:30	0	0	79		62		141	
05:45	0	0	3	17	17	48	20	65	17:45	0	0	86	356	62	251	148	607
06:00	0	0	7		15		22		18:00	0	0	69		66		135	
06:15	0	0	10		25		35		18:15	0	0	65		48		113	
06:30	0	0	14		28		42		18:30	0	0	64		49		113	
06:45	0	0	16	47	31	99	47	146	18:45	0	0	65	263	47	210	112	473
07:00	0	0	20		64		84		19:00	0	0	57		59		116	
07:15	0	0	33		54		87		19:15	0	0	57		37		94	
07:30	0	0	33		73		106		19:30	0	0	47		42		89	
07:45	0	0	42	128	83	274	125	402	19:45	0	0	41	202	37	175	78	377
08:00	0	0	43		54		97		20:00	0	0	57		29		86	
08:15	0	0	30		50		80		20:15	0	0	44		40		84	
08:30	0	0	37		51		88		20:30	0	0	46		38		84	
08:45	0	0	31	141	37	192	68	333	20:45	0	0	36	183	34	141	70	324
09:00	0	0	33		42		75		21:00	0	0	37		28		65	
09:15	0	0	41		39		80		21:15	0	0	37		35		72	
09:30	0	0	37		45		82		21:30	0	0	25		20		45	
09:45	0	0	37	148	43	169	80	317	21:45	0	0	33	132	25	108	58	240
10:00	0	0	36		38		74		22:00	0	0	32		18		50	
10:15	0	0	42		39		81		22:15	0	0	26		21		47	
10:30	0	0	34		39		73		22:30	0	0	20		16		36	
10:45	0	0	34	146	34	150	68	296	22:45	0	0	12	90	23	78	35	168
11:00	0	0	32		25		57		23:00	0	0	18		18		36	
11:15	0	0	44		33		77		23:15	0	0	16		11		27	
11:30	0	0	29		33		62		23:30	0	0	16		12		28	
11:45	0	0	44	149	40	131	84	280	23:45	0	0	16	66	11	52	27	118
TOTALS				870		1167		2037	TOTALS				2425		1991		4416
SPLIT %				42.7%		57.3%		31.6%	SPLIT %				54.9%		45.1%		68.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,295	3,158	6,453

AM Peak Hour			11:45	07:00	07:15	PM Peak Hour			16:45	16:30	16:30
AM Pk Volume			179	274	415	PM Pk Volume			366	259	619
Pk Hr Factor			0.932	0.825	0.830	Pk Hr Factor			0.789	0.952	0.884
7 - 9 Volume	0	0	269	466	735	4 - 6 Volume	0	0	659	481	1140
7 - 9 Peak Hour			07:45	07:00	07:15	4 - 6 Peak Hour			16:45	16:30	16:30
7 - 9 Pk Volume	0	0	152	274	415	4 - 6 Pk Volume	0	0	366	259	619
Pk Hr Factor	0.000	0.000	0.884	0.825	0.830	Pk Hr Factor	0.000	0.000	0.789	0.952	0.884

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Steam Mill Rd E/O Dogwood Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,027	2,877	5,904

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	9		7		16		12:00	0	0	46		35		81	
00:15	0	0	5		9		14		12:15	0	0	52		46		98	
00:30	0	0	4		10		14		12:30	0	0	37		31		68	
00:45	0	0	9	27	8	34	17	61	12:45	0	0	44	179	53	165	97	344
01:00	0	0	9		2		11		13:00	0	0	32		49		81	
01:15	0	0	9		3		12		13:15	0	0	44		31		75	
01:30	0	0	9		5		14		13:30	0	0	45		42		87	
01:45	0	0	5	32	4	14	9	46	13:45	0	0	51	172	57	179	108	351
02:00	0	0	6		6		12		14:00	0	0	56		63		119	
02:15	0	0	8		2		10		14:15	0	0	55		46		101	
02:30	0	0	4		6		10		14:30	0	0	65		56		121	
02:45	0	0	3	21	1	15	4	36	14:45	0	0	72	248	44	209	116	457
03:00	0	0	4		6		10		15:00	0	0	49		44		93	
03:15	0	0	3		6		9		15:15	0	0	49		45		94	
03:30	0	0	1		8		9		15:30	0	0	43		47		90	
03:45	0	0	1	9	2	22	3	31	15:45	0	0	69	210	42	178	111	388
04:00	0	0	3		4		7		16:00	0	0	67		52		119	
04:15	0	0	3		5		8		16:15	0	0	59		56		115	
04:30	0	0	4		7		11		16:30	0	0	68		67		135	
04:45	0	0	5	15	5	21	10	36	16:45	0	0	77	271	44	219	121	490
05:00	0	0	5		8		13		17:00	0	0	63		50		113	
05:15	0	0	6		15		21		17:15	0	0	79		61		140	
05:30	0	0	3		20		23		17:30	0	0	74		42		116	
05:45	0	0	7	21	15	58	22	79	17:45	0	0	74	290	52	205	126	495
06:00	0	0	6		18		24		18:00	0	0	79		41		120	
06:15	0	0	9		24		33		18:15	0	0	64		43		107	
06:30	0	0	17		36		53		18:30	0	0	47		42		89	
06:45	0	0	16	48	31	109	47	157	18:45	0	0	44	234	50	176	94	410
07:00	0	0	17		37		54		19:00	0	0	45		41		86	
07:15	0	0	38		61		99		19:15	0	0	50		40		90	
07:30	0	0	41		62		103		19:30	0	0	31		31		62	
07:45	0	0	30	126	76	236	106	362	19:45	0	0	47	173	35	147	82	320
08:00	0	0	43		41		84		20:00	0	0	35		31		66	
08:15	0	0	29		38		67		20:15	0	0	36		30		66	
08:30	0	0	35		44		79		20:30	0	0	50		31		81	
08:45	0	0	33	140	41	164	74	304	20:45	0	0	39	160	28	120	67	280
09:00	0	0	28		35		63		21:00	0	0	34		25		59	
09:15	0	0	29		36		65		21:15	0	0	37		17		54	
09:30	0	0	24		37		61		21:30	0	0	23		25		48	
09:45	0	0	34	115	31	139	65	254	21:45	0	0	27	121	29	96	56	217
10:00	0	0	35		29		64		22:00	0	0	26		18		44	
10:15	0	0	25		34		59		22:15	0	0	31		23		54	
10:30	0	0	30		31		61		22:30	0	0	19		17		36	
10:45	0	0	31	121	27	121	58	242	22:45	0	0	19	95	20	78	39	173
11:00	0	0	34		29		63		23:00	0	0	22		13		35	
11:15	0	0	43		32		75		23:15	0	0	8		11		19	
11:30	0	0	29		36		65		23:30	0	0	10		7		17	
11:45	0	0	36	142	35	132	71	274	23:45	0	0	17	57	9	40	26	97
TOTALS				817		1065		1882	TOTALS				2210		1812		4022
SPLIT %				43.4%		56.6%		31.9%	SPLIT %				54.9%		45.1%		68.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,027	2,877	5,904

AM Peak Hour			11:45	07:15	07:15	PM Peak Hour			17:15	13:45	16:30
AM Pk Volume			171	240	392	PM Pk Volume			306	222	509
Pk Hr Factor			0.822	0.789	0.925	Pk Hr Factor			0.968	0.881	0.909
7 - 9 Volume	0	0	266	400	666	4 - 6 Volume	0	0	561	424	985
7 - 9 Peak Hour			07:15	07:15	07:15	4 - 6 Peak Hour			16:45	16:30	16:30
7 - 9 Pk Volume	0	0	152	240	392	4 - 6 Pk Volume	0	0	293	222	509
Pk Hr Factor	0.000	0.000	0.884	0.789	0.925	Pk Hr Factor	0.000	0.000	0.927	0.828	0.909

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Steam Mill Rd E/O Georgia Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,463	2,177	4,640

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00	0	0	5		6		11		12:00	0	0	30		33		63	
0:15	0	0	4		7		11		12:15	0	0	28		23		51	
0:30	0	0	3		4		7		12:30	0	0	29		26		55	
0:45	0	0	4	16	6	23	10	39	12:45	0	0	34	121	29	111	63	232
1:00	0	0	3		1		4		13:00	0	0	43		26		69	
1:15	0	0	6		5		11		13:15	0	0	31		31		62	
1:30	0	0	4		3		7		13:30	0	0	49		39		88	
1:45	0	0	2	15	2	11	4	26	13:45	0	0	42	165	36	132	78	297
2:00	0	0	2		1		3		14:00	0	0	49		33		82	
2:15	0	0	3		1		4		14:15	0	0	39		45		84	
2:30	0	0	2		3		5		14:30	0	0	51		38		89	
2:45	0	0	1	8	1	6	2	14	14:45	0	0	46	185	39	155	85	340
3:00	0	0	1		3		4		15:00	0	0	42		35		77	
3:15	0	0	3		2		5		15:15	0	0	47		40		87	
3:30	0	0	1		2		3		15:30	0	0	37		33		70	
3:45	0	0	1	6	2	9	3	15	15:45	0	0	29	155	28	136	57	291
4:00	0	0	2		0		2		16:00	0	0	48		45		93	
4:15	0	0	3		5		8		16:15	0	0	52		52		104	
4:30	0	0	1		2		3		16:30	0	0	38		47		85	
4:45	0	0	2	8	3	10	5	18	16:45	0	0	57	195	57	201	114	396
5:00	0	0	5		5		10		17:00	0	0	68		47		115	
5:15	0	0	1		6		7		17:15	0	0	79		41		120	
5:30	0	0	4		10		14		17:30	0	0	74		44		118	
5:45	0	0	4	14	9	30	13	44	17:45	0	0	59	280	44	176	103	456
6:00	0	0	7		13		20		18:00	0	0	64		40		104	
6:15	0	0	6		18		24		18:15	0	0	51		36		87	
6:30	0	0	18		11		29		18:30	0	0	33		29		62	
6:45	0	0	20	51	15	57	35	108	18:45	0	0	55	203	41	146	96	349
7:00	0	0	17		24		41		19:00	0	0	37		49		86	
7:15	0	0	29		43		72		19:15	0	0	39		25		64	
7:30	0	0	33		64		97		19:30	0	0	32		19		51	
7:45	0	0	50	129	68	199	118	328	19:45	0	0	30	138	20	113	50	251
8:00	0	0	34		45		79		20:00	0	0	34		30		64	
8:15	0	0	23		33		56		20:15	0	0	44		23		67	
8:30	0	0	19		29		48		20:30	0	0	37		23		60	
8:45	0	0	27	103	25	132	52	235	20:45	0	0	31	146	21	97	52	243
9:00	0	0	17		24		41		21:00	0	0	28		15		43	
9:15	0	0	26		24		50		21:15	0	0	24		17		41	
9:30	0	0	23		26		49		21:30	0	0	20		18		38	
9:45	0	0	30	96	32	106	62	202	21:45	0	0	17	89	13	63	30	152
10:00	0	0	22		21		43		22:00	0	0	21		13		34	
10:15	0	0	32		17		49		22:15	0	0	19		14		33	
10:30	0	0	21		32		53		22:30	0	0	16		11		27	
10:45	0	0	28	103	19	89	47	192	22:45	0	0	12	68	15	53	27	121
11:00	0	0	27		20		47		23:00	0	0	16		17		33	
11:15	0	0	30		19		49		23:15	0	0	12		8		20	
11:30	0	0	21		18		39		23:30	0	0	10		8		18	
11:45	0	0	38	116	25	82	63	198	23:45	0	0	15	53	7	40	22	93
TOTALS				665		754		1419	TOTALS				1798		1423		3221
SPLIT %				46.9%		53.1%		30.6%	SPLIT %				55.8%		44.2%		69.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,463	2,177	4,640

AM Peak Hour			7:15	7:15	7:15	PM Peak Hour	17:00	16:15	16:45
AM Pk Volume			146	220	366	PM Pk Volume	280	203	467
Pk Hr Factor			0.730	0.809	0.775	Pk Hr Factor	0.886	0.890	0.973
7 - 9 Volume	0	0	232	331	563	4 - 6 Volume	0 0	475	377	852
7 - 9 Peak Hour			7:15	7:15	7:15	4 - 6 Peak Hour		17:00	16:15	16:45
7 - 9 Pk Volume	0	0	146	220	366	4 - 6 Pk Volume	0 0	280	203	467
Pk Hr Factor	0.000	0.000	0.730	0.809	0.775	Pk Hr Factor	0.000 0.000	0.886	0.890	0.973

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Steam Mill Rd E/O Georgia Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,225	1,967	4,192

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00	0	0	2		3		5		12:00	0	0	23		32		55	
0:15	0	0	6		6		12		12:15	0	0	33		14		47	
0:30	0	0	4		4		8		12:30	0	0	24		27		51	
0:45	0	0	4	16	6	19	10	35	12:45	0	0	23	103	31	104	54	207
1:00	0	0	8		3		11		13:00	0	0	24		20		44	
1:15	0	0	7		2		9		13:15	0	0	27		25		52	
1:30	0	0	3		4		7		13:30	0	0	38		33		71	
1:45	0	0	5	23	2	11	7	34	13:45	0	0	34	123	30	108	64	231
2:00	0	0	4		2		6		14:00	0	0	37		37		74	
2:15	0	0	3		1		4		14:15	0	0	35		28		63	
2:30	0	0	2		3		5		14:30	0	0	38		43		81	
2:45	0	0	1	10	3	9	4	19	14:45	0	0	52	162	42	150	94	312
3:00	0	0	0		1		1		15:00	0	0	40		25		65	
3:15	0	0	2		1		3		15:15	0	0	47		26		73	
3:30	0	0	0		3		3		15:30	0	0	34		34		68	
3:45	0	0	2	4	0	5	2	9	15:45	0	0	41	162	38	123	79	285
4:00	0	0	3		2		5		16:00	0	0	51		44		95	
4:15	0	0	1		3		4		16:15	0	0	62		50		112	
4:30	0	0	0		4		4		16:30	0	0	40		30		70	
4:45	0	0	3	7	7	16	10	23	16:45	0	0	57	210	48	172	105	382
5:00	0	0	5		2		7		17:00	0	0	55		39		94	
5:15	0	0	1		8		9		17:15	0	0	60		35		95	
5:30	0	0	5		11		16		17:30	0	0	56		31		87	
5:45	0	0	5	16	6	27	11	43	17:45	0	0	56	227	43	148	99	375
6:00	0	0	5		7		12		18:00	0	0	41		39		80	
6:15	0	0	5		14		19		18:15	0	0	52		34		86	
6:30	0	0	14		22		36		18:30	0	0	40		26		66	
6:45	0	0	22	46	15	58	37	104	18:45	0	0	38	171	40	139	78	310
7:00	0	0	17		26		43		19:00	0	0	29		28		57	
7:15	0	0	33		39		72		19:15	0	0	33		27		60	
7:30	0	0	42		43		85		19:30	0	0	28		27		55	
7:45	0	0	34	126	52	160	86	286	19:45	0	0	31	121	21	103	52	224
8:00	0	0	34		48		82		20:00	0	0	25		19		44	
8:15	0	0	28		25		53		20:15	0	0	27		20		47	
8:30	0	0	27		31		58		20:30	0	0	37		19		56	
8:45	0	0	20	109	26	130	46	239	20:45	0	0	27	116	14	72	41	188
9:00	0	0	15		21		36		21:00	0	0	30		18		48	
9:15	0	0	18		17		35		21:15	0	0	27		13		40	
9:30	0	0	22		23		45		21:30	0	0	23		14		37	
9:45	0	0	22	77	20	81	42	158	21:45	0	0	19	99	19	64	38	163
10:00	0	0	21		23		44		22:00	0	0	13		11		24	
10:15	0	0	20		26		46		22:15	0	0	16		13		29	
10:30	0	0	20		19		39		22:30	0	0	14		8		22	
10:45	0	0	30	91	24	92	54	183	22:45	0	0	15	58	11	43	26	101
11:00	0	0	27		29		56		23:00	0	0	11		10		21	
11:15	0	0	32		25		57		23:15	0	0	9		16		25	
11:30	0	0	30		19		49		23:30	0	0	6		8		14	
11:45	0	0	30	119	21	94	51	213	23:45	0	0	3	29	5	39	8	68
TOTALS				644		702		1346	TOTALS				1581		1265		2846
SPLIT %				47.8%		52.2%		32.1%	SPLIT %				55.6%		44.4%		67.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,225	1,967	4,192

AM Peak Hour			7:15	7:15	7:15	PM Peak Hour			16:45	16:00	16:00
AM Pk Volume			143	182	325	PM Pk Volume			228	172	382
Pk Hr Factor			0.851	0.875	0.945	Pk Hr Factor			0.950	0.860	0.853
7 - 9 Volume	0	0	235	290	525	4 - 6 Volume	0	0	437	320	757
7 - 9 Peak Hour			7:15	7:15	7:15	4 - 6 Peak Hour			16:45	16:00	16:00
7 - 9 Pk Volume	0	0	143	182	325	4 - 6 Pk Volume	0	0	228	172	382
Pk Hr Factor	0.000	0.000	0.851	0.875	0.945	Pk Hr Factor	0.000	0.000	0.950	0.860	0.853

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Steam Mill Rd E/O Minnie Lee Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,055	1,755	3,810

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00	0	0	5		6		11		12:00	0	0	18		11		29	
0:15	0	0	2		6		8		12:15	0	0	23		17		40	
0:30	0	0	3		3		6		12:30	0	0	13		11		24	
0:45	0	0	4	14	4	19	8	33	12:45	0	0	23	77	10	49	33	126
1:00	0	0	4		6		10		13:00	0	0	18		22		40	
1:15	0	0	4		1		5		13:15	0	0	16		15		31	
1:30	0	0	6		2		8		13:30	0	0	21		26		47	
1:45	0	0	1	15	1	10	2	25	13:45	0	0	18	73	26	89	44	162
2:00	0	0	3		1		4		14:00	0	0	25		26		51	
2:15	0	0	0		4		4		14:15	0	0	43		31		74	
2:30	0	0	3		1		4		14:30	0	0	27		31		58	
2:45	0	0	0	6	5	11	5	17	14:45	0	0	46	141	31	119	77	260
3:00	0	0	1		3		4		15:00	0	0	36		31		67	
3:15	0	0	1		0		1		15:15	0	0	35		28		63	
3:30	0	0	1		2		3		15:30	0	0	35		35		70	
3:45	0	0	3	6	2	7	5	13	15:45	0	0	27	133	42	136	69	269
4:00	0	0	1		0		1		16:00	0	0	45		40		85	
4:15	0	0	2		5		7		16:15	0	0	30		51		81	
4:30	0	0	2		1		3		16:30	0	0	52		53		105	
4:45	0	0	2	7	0	6	2	13	16:45	0	0	65	192	46	190	111	382
5:00	0	0	7		3		10		17:00	0	0	75		49		124	
5:15	0	0	7		1		8		17:15	0	0	79		46		125	
5:30	0	0	14		5		19		17:30	0	0	57		38		95	
5:45	0	0	9	37	2	11	11	48	17:45	0	0	40	251	40	173	80	424
6:00	0	0	13		8		21		18:00	0	0	40		27		67	
6:15	0	0	10		11		21		18:15	0	0	36		39		75	
6:30	0	0	22		10		32		18:30	0	0	40		29		69	
6:45	0	0	24	69	13	42	37	111	18:45	0	0	30	146	32	127	62	273
7:00	0	0	21		14		35		19:00	0	0	24		29		53	
7:15	0	0	46		29		75		19:15	0	0	24		23		47	
7:30	0	0	52		57		109		19:30	0	0	18		20		38	
7:45	0	0	72	191	48	148	120	339	19:45	0	0	27	93	18	90	45	183
8:00	0	0	43		37		80		20:00	0	0	20		18		38	
8:15	0	0	33		33		66		20:15	0	0	15		12		27	
8:30	0	0	28		19		47		20:30	0	0	21		25		46	
8:45	0	0	23	127	14	103	37	230	20:45	0	0	15	71	11	66	26	137
9:00	0	0	23		22		45		21:00	0	0	22		15		37	
9:15	0	0	18		21		39		21:15	0	0	15		18		33	
9:30	0	0	17		13		30		21:30	0	0	19		22		41	
9:45	0	0	29	87	22	78	51	165	21:45	0	0	17	73	14	69	31	142
10:00	0	0	12		16		28		22:00	0	0	21		10		31	
10:15	0	0	22		14		36		22:15	0	0	16		15		31	
10:30	0	0	21		24		45		22:30	0	0	13		12		25	
10:45	0	0	15	70	10	64	25	134	22:45	0	0	10	60	13	50	23	110
11:00	0	0	15		20		35		23:00	0	0	10		12		22	
11:15	0	0	17		12		29		23:15	0	0	9		8		17	
11:30	0	0	25		12		37		23:30	0	0	6		9		15	
11:45	0	0	19	76	19	63	38	139	23:45	0	0	15	40	6	35	21	75
TOTALS				705		562		**1267**	**TOTALS**				1350		1193		**2543**
SPLIT %				55.6%		44.4%		**33.3%**	**SPLIT %**				53.1%		46.9%		**66.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,055	1,755	3,810

AM Peak Hour				7:15		7:30		**7:15**	**PM Peak Hour**				16:45		16:15		**16:30**
AM Pk Volume				213		175		**384**	**PM Pk Volume**				276		199		**465**
Pk Hr Factor				0.740		0.768		**0.800**	**Pk Hr Factor**				0.873		0.939		**0.930**
7 - 9 Volume	0	0		318		251		**569**	**4 - 6 Volume**	0	0		443		363		**806**
7 - 9 Peak Hour				7:15		7:30		**7:15**	**4 - 6 Peak Hour**				16:45		16:15		**16:30**
7 - 9 Pk Volume	0	0		213		175		**384**	**4 - 6 Pk Volume**	0	0		276		199		**465**
Pk Hr Factor	0.000	0.000		0.740		0.768		**0.800**	**Pk Hr Factor**	0.000	0.000		0.873		0.939		**0.930**

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Steam Mill Rd E/O Minnie Lee Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,877	1,587	3,464

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00	0	0	3		5		8		12:00	0	0	21		20		41	
0:15	0	0	9		7		16		12:15	0	0	17		12		29	
0:30	0	0	7		5		12		12:30	0	0	15		13		28	
0:45	0	0	2	21	7	24	9	45	12:45	0	0	18	71	20	65	38	136
1:00	0	0	2		1		3		13:00	0	0	21		12		33	
1:15	0	0	3		2		5		13:15	0	0	22		14		36	
1:30	0	0	1		2		3		13:30	0	0	25		14		39	
1:45	0	0	2	8	2	7	4	15	13:45	0	0	20	88	21	61	41	149
2:00	0	0	4		1		5		14:00	0	0	25		26		51	
2:15	0	0	2		1		3		14:15	0	0	30		20		50	
2:30	0	0	1		0		1		14:30	0	0	24		25		49	
2:45	0	0	5	12	4	6	9	18	14:45	0	0	34	113	27	98	61	211
3:00	0	0	2		3		5		15:00	0	0	37		29		66	
3:15	0	0	2		1		3		15:15	0	0	36		28		64	
3:30	0	0	3		0		3		15:30	0	0	35		33		68	
3:45	0	0	1	8	0	4	1	12	15:45	0	0	38	146	31	121	69	267
4:00	0	0	1		3		4		16:00	0	0	41		42		83	
4:15	0	0	0		2		2		16:15	0	0	43		41		84	
4:30	0	0	1		3		4		16:30	0	0	42		28		70	
4:45	0	0	5	7	4	12	9	19	16:45	0	0	41	167	40	151	81	318
5:00	0	0	4		2		6		17:00	0	0	48		32		80	
5:15	0	0	9		3		12		17:15	0	0	57		47		104	
5:30	0	0	7		4		11		17:30	0	0	42		48		90	
5:45	0	0	10	30	0	9	10	39	17:45	0	0	43	190	41	168	84	358
6:00	0	0	9		5		14		18:00	0	0	31		42		73	
6:15	0	0	17		7		24		18:15	0	0	38		26		64	
6:30	0	0	17		18		35		18:30	0	0	18		24		42	
6:45	0	0	30	73	15	45	45	118	18:45	0	0	20	107	25	117	45	224
7:00	0	0	18		12		30		19:00	0	0	24		20		44	
7:15	0	0	53		38		91		19:15	0	0	25		29		54	
7:30	0	0	65		49		114		19:30	0	0	15		17		32	
7:45	0	0	61	197	45	144	106	341	19:45	0	0	17	81	20	86	37	167
8:00	0	0	47		34		81		20:00	0	0	15		14		29	
8:15	0	0	45		25		70		20:15	0	0	15		20		35	
8:30	0	0	26		27		53		20:30	0	0	19		18		37	
8:45	0	0	17	135	20	106	37	241	20:45	0	0	18	67	17	69	35	136
9:00	0	0	15		17		32		21:00	0	0	14		21		35	
9:15	0	0	21		10		31		21:15	0	0	15		9		24	
9:30	0	0	10		11		21		21:30	0	0	23		7		30	
9:45	0	0	20	66	10	48	30	114	21:45	0	0	17	69	9	46	26	115
10:00	0	0	18		15		33		22:00	0	0	15		7		22	
10:15	0	0	15		18		33		22:15	0	0	15		14		29	
10:30	0	0	11		11		22		22:30	0	0	15		7		22	
10:45	0	0	13	57	12	56	25	113	22:45	0	0	21	66	9	37	30	103
11:00	0	0	13		12		25		23:00	0	0	10		13		23	
11:15	0	0	16		18		34		23:15	0	0	8		11		19	
11:30	0	0	21		18		39		23:30	0	0	6		6		12	
11:45	0	0	20	70	19	67	39	137	23:45	0	0	4	28	10	40	14	68
TOTALS				684		528		1212	TOTALS				1193		1059		2252
SPLIT %				56.4%		43.6%		35.0%	SPLIT %				53.0%		47.0%		65.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,877	1,587	3,464

AM Peak Hour			7:15	7:15	7:15	PM Peak Hour			17:00	17:15	17:00
AM Pk Volume			226	166	392	PM Pk Volume			190	178	358
Pk Hr Factor			0.869	0.847	0.860	Pk Hr Factor			0.833	0.927	0.861
7 - 9 Volume	0	0	332	250	582	4 - 6 Volume	0	0	357	319	676
7 - 9 Peak Hour			7:15	7:15	7:15	4 - 6 Peak Hour			17:00	17:00	17:00
7 - 9 Pk Volume	0	0	226	166	392	4 - 6 Pk Volume	0	0	190	168	358
Pk Hr Factor	0.000	0.000	0.869	0.847	0.860	Pk Hr Factor	0.000	0.000	0.833	0.875	0.861

Appendix B SPEED COUNTS

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Honolulu Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_001e

East Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	1	9	14	7	4	0	0	0	0	0	35
1:00	0	0	0	2	8	7	3	3	0	1	0	0	0	24
2:00	0	0	0	3	2	5	4	2	2	0	0	0	0	18
3:00	0	0	0	1	6	5	2	0	1	0	0	0	0	15
4:00	0	0	0	3	2	5	0	0	0	0	0	0	0	10
5:00	0	1	1	0	3	11	5	4	0	0	0	0	0	25
6:00	1	0	1	5	19	14	10	2	0	0	0	0	0	52
7:00	0	2	16	46	63	42	6	1	0	0	0	0	0	176
8:00	0	1	0	9	42	58	27	2	1	0	0	0	0	140
9:00	0	2	3	7	39	82	21	7	0	0	0	0	0	161
10:00	0	0	1	11	36	66	26	5	0	0	0	0	0	145
11:00	0	1	1	7	34	77	32	8	1	0	0	0	0	161
12:00 PM	0	2	3	10	39	79	52	5	1	0	0	0	0	191
13:00	1	3	0	4	38	100	58	17	3	0	0	0	0	224
14:00	0	4	9	36	54	81	29	6	0	0	0	0	0	219
15:00	1	0	2	18	53	80	55	17	0	0	0	0	0	226
16:00	1	0	6	22	77	136	63	8	0	0	0	0	0	313
17:00	0	0	4	16	98	199	85	12	0	1	0	0	0	415
18:00	0	0	0	12	64	139	47	12	4	0	0	0	0	278
19:00	0	0	1	9	60	74	38	10	1	0	0	0	0	193
20:00	0	0	0	12	57	95	27	5	1	0	0	0	0	197
21:00	0	0	2	11	32	63	26	6	0	1	0	0	0	141
22:00	0	0	1	1	22	42	22	4	0	1	0	0	0	93
23:00	2	1	0	8	18	25	10	7	1	0	0	0	0	72
Totals	6	17	51	254	875	1499	655	147	16	4				3524
% of Totals	0%	0%	1%	7%	25%	43%	19%	4%	0%	0%				100%

AM Volumes	1	7	23	95	263	386	143	38	5	1	0	0	0	962
% AM	0%	0%	1%	3%	7%	11%	4%	1%	0%	0%				27%
AM Peak Hour	6:00	7:00	7:00	7:00	7:00	9:00	11:00	11:00	2:00	1:00				7:00
Volume	1	2	16	46	63	82	32	8	2	1				176
PM Volumes	5	10	28	159	612	1113	512	109	11	3	0	0	0	2562
% PM	0%	0%	1%	5%	17%	32%	15%	3%	0%	0%				73%
PM Peak Hour	23:00	14:00	14:00	14:00	17:00	17:00	17:00	13:00	18:00	17:00				17:00
Volume	2	4	9	36	98	199	85	17	4	1				415

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Speeds	Volume	%	Volume	%	Volume	%	Volume	%
	316 ⟷	9%	415 ⟷	12%	728 ⟷	21%	2065 ⟷	59%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	31	37	37	42	45	3524
Steam Mill Rd	West Bound	31	36	36	42	45	2809

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Honolulu Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_001w

West Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	4	8	6	3	0	1	0	0	0	0	22
1:00	0	0	0	0	2	8	3	0	1	0	0	0	0	14
2:00	0	0	0	0	5	2	1	2	1	0	0	0	0	11
3:00	0	0	0	0	3	4	6	2	1	0	0	0	0	16
4:00	0	0	0	1	5	8	3	0	0	0	0	0	0	17
5:00	0	0	0	3	9	15	8	1	1	0	0	0	0	37
6:00	0	0	0	3	23	28	20	8	4	0	0	0	0	86
7:00	0	0	8	81	127	43	6	2	0	0	0	0	0	267
8:00	1	0	2	10	74	70	27	7	4	0	0	0	0	195
9:00	3	0	3	20	43	56	25	6	0	0	0	0	0	156
10:00	0	2	0	9	36	59	26	3	1	0	0	0	0	136
11:00	0	2	2	5	30	50	21	2	1	0	0	0	0	113
12:00 PM	0	0	0	5	31	60	38	4	0	0	0	0	0	138
13:00	0	1	0	7	47	72	47	9	2	0	0	0	0	185
14:00	1	1	4	22	58	62	27	3	1	0	0	0	0	179
15:00	1	2	2	16	53	54	35	4	0	0	0	0	0	167
16:00	0	2	2	7	63	104	41	5	0	0	0	0	0	224
17:00	0	2	3	17	65	97	36	9	0	0	0	0	0	229
18:00	0	0	0	9	32	97	29	6	3	0	0	0	0	176
19:00	0	0	0	8	49	56	27	5	0	0	0	0	0	145
20:00	0	0	0	4	28	48	24	5	0	0	0	0	0	109
21:00	0	0	0	7	16	32	21	3	2	0	0	0	0	81
22:00	0	0	0	0	12	17	20	5	1	0	0	0	0	55
23:00	0	0	0	4	8	26	9	2	2	0	0	0	0	51
Totals	6	12	26	242	827	1074	503	93	26					2809
% of Totals	0%	0%	1%	9%	29%	38%	18%	3%	1%					100%

AM Volumes	4	4	15	136	365	349	149	33	15	0	0	0	0	1070
% AM	0%	0%	1%	5%	13%	12%	5%	1%	1%					38%
AM Peak Hour	9:00	10:00	7:00	7:00	7:00	8:00	8:00	6:00	6:00					7:00
Volume	3	2	8	81	127	70	27	8	4					267
PM Volumes	2	8	11	106	462	725	354	60	11	0	0	0	0	1739
% PM	0%	0%	0%	4%	16%	26%	13%	2%	0%					62%
PM Peak Hour	14:00	15:00	14:00	14:00	17:00	16:00	13:00	13:00	18:00					17:00
Volume	1	2	4	22	65	104	47	9	3					229

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Speeds	Volume	%	Volume	%	Volume	%	Volume	%
	462 ⟷	16%	323 ⟷	11%	453 ⟷	16%	1571 ⟷	56%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	31	37	37	42	45	3524
Steam Mill Rd	West Bound	31	36	36	42	45	2809

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Honolulu Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_001e

East Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	1	9	10	2	1	0	0	0	0	0	23
1:00	0	0	0	0	7	19	6	0	1	0	0	0	0	33
2:00	0	0	1	2	2	12	6	0	0	0	0	0	0	23
3:00	0	0	0	0	5	4	0	3	0	0	0	0	0	12
4:00	0	0	1	0	7	8	3	1	2	0	0	0	0	22
5:00	0	0	0	1	7	9	5	5	0	0	0	0	0	27
6:00	0	0	2	10	16	17	9	1	0	0	0	0	0	55
7:00	0	4	30	44	52	27	8	1	0	0	0	0	0	166
8:00	0	0	6	12	50	49	14	4	0	0	0	0	0	135
9:00	1	0	1	11	27	51	20	7	0	0	0	0	0	118
10:00	0	0	0	6	40	47	30	4	1	0	0	0	0	128
11:00	0	0	1	7	37	71	32	9	0	0	0	0	0	157
12:00 PM	0	0	1	11	42	77	40	11	3	0	0	0	0	185
13:00	0	0	1	7	53	80	46	10	2	0	0	0	0	199
14:00	0	1	2	30	83	88	30	5	0	0	0	0	0	239
15:00	0	0	3	25	69	92	38	10	0	1	0	0	0	238
16:00	3	1	4	14	79	131	44	6	1	0	0	0	0	283
17:00	0	0	1	17	126	155	50	9	0	1	0	0	0	359
18:00	0	0	2	14	75	109	38	10	0	0	0	0	0	248
19:00	0	2	3	23	63	75	22	5	0	0	0	0	0	193
20:00	0	0	1	7	45	83	31	6	1	0	0	0	0	174
21:00	0	0	1	5	41	65	17	6	1	1	0	0	0	137
22:00	0	0	1	2	20	44	19	8	2	1	0	0	0	97
23:00	0	1	2	2	13	27	9	6	1	0	0	0	0	61
Totals	4	9	64	251	968	1350	519	128	15	4				3312
% of Totals	0%	0%	2%	8%	29%	41%	16%	4%	0%	0%				100%

AM Volumes	1	4	42	94	259	324	135	36	4	0	0	0	0	899
% AM	0%	0%	1%	3%	8%	10%	4%	1%	0%					27%
AM Peak Hour	9:00	7:00	7:00	7:00	7:00	11:00	11:00	11:00	4:00					7:00
Volume	1	4	30	44	52	71	32	9	2					166
PM Volumes	3	5	22	157	709	1026	384	92	11	4	0	0	0	2413
% PM	0%	0%	1%	5%	21%	31%	12%	3%	0%	0%				73%
PM Peak Hour	16:00	19:00	16:00	14:00	17:00	17:00	17:00	12:00	12:00	15:00				17:00
Volume	3	2	4	30	126	155	50	11	3	1				359

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Speeds	Volume	%	Volume	%	Volume	%	Volume	%
	301 ⟷	9%	384 ⟷	12%	642 ⟷	19%	1985 ⟷	60%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	31	36	36	42	45	3312
Steam Mill Rd	West Bound	30	36	36	42	45	2620

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Honolulu Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_001w

West Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	0	6	6	3	1	0	0	0	0	0	16
1:00	0	1	0	1	5	4	2	1	0	0	0	0	0	14
2:00	0	0	2	1	4	8	2	1	0	0	0	0	0	18
3:00	0	0	0	1	2	5	4	0	0	0	0	0	0	12
4:00	0	0	0	1	5	9	7	2	1	0	0	0	0	25
5:00	0	0	0	1	12	19	10	4	3	0	0	0	0	49
6:00	0	0	0	10	28	41	11	3	1	0	0	0	0	94
7:00	0	1	13	86	110	38	9	1	0	0	0	0	0	258
8:00	0	0	0	21	46	56	18	3	0	0	0	0	0	144
9:00	0	0	0	11	39	42	21	4	1	0	0	0	0	118
10:00	0	2	3	9	28	39	20	4	0	0	0	0	0	105
11:00	0	0	0	2	38	54	29	11	1	0	0	0	0	135
12:00 PM	1	1	3	9	31	62	34	12	0	0	0	0	0	153
13:00	1	0	1	5	49	55	32	9	1	0	0	0	0	153
14:00	0	0	8	33	57	56	18	2	0	0	0	0	0	174
15:00	0	0	1	24	64	54	35	3	1	0	0	0	0	182
16:00	0	0	0	15	64	79	34	5	0	0	0	0	0	197
17:00	0	0	1	20	75	84	23	4	2	0	0	0	0	209
18:00	0	0	0	10	49	64	31	3	0	0	0	0	0	157
19:00	0	0	2	8	45	48	27	7	0	0	0	0	0	137
20:00	0	0	2	4	23	41	20	4	2	0	0	0	0	96
21:00	0	0	1	5	18	35	18	5	0	0	0	0	0	82
22:00	0	0	0	2	17	18	14	3	1	0	0	0	0	55
23:00	0	0	0	1	4	18	14	0	0	0	0	0	0	37
Totals	2	5	37	280	819	935	436	92	14					2620
% of Totals	0%	0%	1%	11%	31%	36%	17%	4%	1%					100%

AM Volumes	0	4	18	144	323	321	136	35	7	0	0	0	0	988
% AM		0%	1%	5%	12%	12%	5%	1%	0%					38%
AM Peak Hour		10:00	7:00	7:00	7:00	8:00	11:00	11:00	5:00					7:00
Volume		2	13	86	110	56	29	11	3					258
PM Volumes	2	1	19	136	496	614	300	57	7	0	0	0	0	1632
% PM	0%	0%	1%	5%	19%	23%	11%	2%	0%					62%
PM Peak Hour	12:00	12:00	14:00	14:00	17:00	17:00	15:00	12:00	17:00					17:00
Volume	1	1	8	33	75	84	35	12	2					209

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Speeds	Volume	%	Volume	%	Volume	%	Volume	%
	402 ⟷	15%	306 ⟷	12%	406 ⟷	15%	1506 ⟷	57%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	31	36	36	42	45	3312
Steam Mill Rd	West Bound	30	36	36	42	45	2620

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Dogwood Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_002e

East Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	1	10	15	5	2	0	1	0	0	0	34
1:00	0	0	0	1	7	6	8	1	0	1	0	0	0	24
2:00	0	0	0	1	4	8	2	1	0	0	0	0	0	16
3:00	0	0	0	0	1	4	4	2	0	1	0	0	0	12
4:00	0	0	0	1	5	2	0	0	0	0	0	0	0	8
5:00	0	0	0	1	4	5	4	3	0	0	0	0	0	17
6:00	0	0	0	8	14	14	9	1	1	0	0	0	0	47
7:00	5	30	57	28	6	2	0	0	0	0	0	0	0	128
8:00	3	4	23	33	41	32	4	1	0	0	0	0	0	141
9:00	0	0	3	10	58	58	14	5	0	0	0	0	0	148
10:00	0	0	0	25	60	40	18	2	1	0	0	0	0	146
11:00	0	1	3	8	69	47	17	4	0	0	0	0	0	149
12:00 PM	0	0	6	15	68	75	16	3	1	0	0	0	0	184
13:00	0	0	2	36	70	81	19	2	0	0	0	0	0	210
14:00	2	34	67	45	48	35	7	4	0	0	0	0	0	242
15:00	0	0	22	60	58	41	8	4	1	0	0	0	0	194
16:00	0	5	15	72	128	63	20	0	0	0	0	0	0	303
17:00	0	0	1	51	151	123	26	3	1	0	0	0	0	356
18:00	0	3	4	39	107	82	21	6	0	1	0	0	0	263
19:00	0	0	15	33	79	60	15	0	0	0	0	0	0	202
20:00	0	0	0	37	67	67	11	1	0	0	0	0	0	183
21:00	0	0	2	13	58	44	14	1	0	0	0	0	0	132
22:00	0	0	0	6	32	32	16	4	0	0	0	0	0	90
23:00	0	0	0	8	21	21	11	2	3	0	0	0	0	66
Totals	10	77	220	532	1166	957	269	52	8	4				3295
% of Totals	0%	2%	7%	16%	35%	29%	8%	2%	0%	0%				100%

AM Volumes	8	35	86	117	279	233	85	22	2	3	0	0	0	870
% AM	0%	1%	3%	4%	8%	7%	3%	1%	0%	0%				26%
AM Peak Hour	7:00	7:00	7:00	8:00	11:00	9:00	10:00	9:00	6:00					11:00
Volume	5	30	57	33	69	58	18	5	1	1				149
PM Volumes	2	42	134	415	887	724	184	30	6	1	0	0	0	2425
% PM	0%	1%	4%	13%	27%	22%	6%	1%	0%	0%				74%
PM Peak Hour	14:00	14:00	14:00	16:00	17:00	17:00	17:00	18:00	23:00	18:00				17:00
Volume	2	34	67	72	151	123	26	6	3	1				356

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume	↔	%	Volume	↔	%	Volume	↔	%	Volume	↔	%
	269		8%	394		12%	659		20%	1973		60%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	27	33	33	39	43	3295
Steam Mill Rd	West Bound	26	34	34	40	44	3158

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Dogwood Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_002w

West Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	1	1	4	9	14	6	2	0	0	0	0	37
1:00	0	0	0	2	1	12	5	1	1	0	0	0	0	22
2:00	0	0	0	2	2	4	5	1	0	0	0	0	0	14
3:00	0	0	0	2	1	6	4	1	0	0	0	0	0	14
4:00	0	0	0	1	3	7	4	1	0	1	0	0	0	17
5:00	0	0	1	4	12	18	9	4	0	0	0	0	0	48
6:00	0	0	5	8	17	34	22	9	3	1	0	0	0	99
7:00	5	45	121	50	24	20	8	1	0	0	0	0	0	274
8:00	0	10	35	64	50	26	7	0	0	0	0	0	0	192
9:00	0	0	4	18	62	48	30	6	1	0	0	0	0	169
10:00	0	2	4	9	45	64	23	3	0	0	0	0	0	150
11:00	0	0	3	8	49	43	26	2	0	0	0	0	0	131
12:00 PM	0	1	7	15	58	52	22	6	0	0	0	0	0	161
13:00	0	0	8	16	54	83	32	7	0	0	0	0	0	200
14:00	3	8	44	52	46	34	10	2	0	0	0	0	0	199
15:00	1	3	33	65	45	30	8	1	0	0	0	0	0	186
16:00	0	3	12	48	70	67	27	3	0	0	0	0	0	230
17:00	2	4	10	33	75	89	32	6	0	0	0	0	0	251
18:00	0	0	1	11	65	93	32	7	0	1	0	0	0	210
19:00	0	0	0	9	65	77	20	4	0	0	0	0	0	175
20:00	0	0	2	10	54	60	11	3	0	1	0	0	0	141
21:00	0	0	2	7	28	44	24	3	0	0	0	0	0	108
22:00	0	0	2	6	17	29	18	5	1	0	0	0	0	78
23:00	0	0	1	3	9	24	12	3	0	0	0	0	0	52
Totals	11	76	296	444	856	973	405	85	8	4				3158
% of Totals	0%	2%	9%	14%	27%	31%	13%	3%	0%	0%				100%

AM Volumes	5	57	174	169	270	291	157	35	7	2	0	0	0	1167
% AM	0%	2%	6%	5%	9%	9%	5%	1%	0%	0%				37%
AM Peak Hour	7:00	7:00	7:00	8:00	9:00	10:00	9:00	6:00	6:00	4:00				7:00
Volume	5	45	121	64	62	64	30	9	3	1				274
PM Volumes	6	19	122	275	586	682	248	50	1	2	0	0	0	1991
% PM	0%	1%	4%	9%	19%	22%	8%	2%	0%	0%				63%
PM Peak Hour	14:00	14:00	14:00	15:00	17:00	18:00	13:00	13:00	22:00	18:00				17:00
Volume	3	8	44	65	75	93	32	7	1	1				251

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume		%	Volume		%	Volume		%	Volume		%
	466	⟷	15%	361	⟷	11%	481	⟷	15%	1850	⟷	59%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	27	33	33	39	43	3295
Steam Mill Rd	West Bound	26	34	34	40	44	3158

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Dogwood Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_002e

East Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	1	0	0	4	6	13	2	1	0	0	0	0	0	27
1:00	0	0	0	2	12	12	4	2	0	0	0	0	0	32
2:00	0	0	1	1	10	7	1	1	0	0	0	0	0	21
3:00	0	0	0	0	3	3	1	2	0	0	0	0	0	9
4:00	0	0	1	2	2	5	3	1	0	1	0	0	0	15
5:00	0	1	0	2	2	10	4	2	0	0	0	0	0	21
6:00	0	0	1	7	19	16	5	0	0	0	0	0	0	48
7:00	0	35	43	33	12	3	0	0	0	0	0	0	0	126
8:00	0	4	34	39	35	23	4	1	0	0	0	0	0	140
9:00	0	0	2	16	44	39	10	2	2	0	0	0	0	115
10:00	0	0	0	22	48	41	9	0	0	1	0	0	0	121
11:00	0	0	4	24	37	52	19	5	1	0	0	0	0	142
12:00 PM	1	0	1	15	71	61	25	4	1	0	0	0	0	179
13:00	0	0	1	22	64	68	14	3	0	0	0	0	0	172
14:00	15	35	44	60	53	29	9	2	1	0	0	0	0	248
15:00	1	2	27	63	59	45	13	0	0	0	0	0	0	210
16:00	2	2	19	52	99	76	18	3	0	0	0	0	0	271
17:00	0	1	3	44	118	101	19	4	0	0	0	0	0	290
18:00	0	1	1	29	129	59	12	1	2	0	0	0	0	234
19:00	0	0	4	30	79	44	14	2	0	0	0	0	0	173
20:00	0	0	0	13	74	60	12	1	0	0	0	0	0	160
21:00	0	0	2	17	46	41	15	0	0	0	0	0	0	121
22:00	0	0	1	5	27	36	15	8	1	2	0	0	0	95
23:00	0	0	1	4	21	20	8	2	1	0	0	0	0	57
Totals	20	81	190	506	1070	864	236	47	9	4				3027
% of Totals	1%	3%	6%	17%	35%	29%	8%	2%	0%	0%				100%

AM Volumes	1	40	86	152	230	224	62	17	3	2	0	0	0	817
% AM	0%	1%	3%	5%	8%	7%	2%	1%	0%	0%				27%
AM Peak Hour		7:00	7:00	8:00	10:00	11:00	11:00	11:00	9:00	4:00				11:00
Volume	1	35	43	39	48	52	19	5	2	1				142
PM Volumes	19	41	104	354	840	640	174	30	6	2	0	0	0	2210
% PM	1%	1%	3%	12%	28%	21%	6%	1%	0%	0%				73%
PM Peak Hour	14:00	14:00	14:00	15:00	18:00	17:00	12:00	22:00	18:00	22:00				17:00
Volume	15	35	44	63	129	101	25	8	2	2				290

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume	↔	%	Volume	↔	%	Volume	↔	%	Volume	↔	%
	266		9%	351		12%	561		19%	1849		61%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	27	33	33	39	43	3027
Steam Mill Rd	West Bound	26	35	34	41	45	2877

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Dogwood Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_002w

West Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	2	3	3	10	11	4	1	0	0	0	0	34
1:00	0	0	0	1	5	4	3	1	0	0	0	0	0	14
2:00	0	0	0	1	5	5	1	3	0	0	0	0	0	15
3:00	0	0	0	1	5	8	4	3	1	0	0	0	0	22
4:00	0	0	0	1	7	6	5	1	1	0	0	0	0	21
5:00	0	0	1	3	10	25	14	4	1	0	0	0	0	58
6:00	0	0	2	16	30	28	24	7	2	0	0	0	0	109
7:00	1	38	110	59	11	12	4	1	0	0	0	0	0	236
8:00	0	7	40	65	30	16	5	1	0	0	0	0	0	164
9:00	0	0	1	12	51	55	17	2	1	0	0	0	0	139
10:00	1	1	2	5	35	47	25	4	1	0	0	0	0	121
11:00	0	0	2	11	34	46	33	6	0	0	0	0	0	132
12:00 PM	0	0	3	9	56	70	21	6	0	0	0	0	0	165
13:00	0	2	7	11	43	70	40	6	0	0	0	0	0	179
14:00	1	17	43	41	50	39	14	4	0	0	0	0	0	209
15:00	0	3	30	65	46	28	6	0	0	0	0	0	0	178
16:00	0	0	19	40	81	56	23	0	0	0	0	0	0	219
17:00	0	0	3	16	70	91	23	2	0	0	0	0	0	205
18:00	2	0	2	5	54	70	34	9	0	0	0	0	0	176
19:00	0	1	2	12	29	67	29	7	0	0	0	0	0	147
20:00	1	0	2	12	40	36	18	11	0	0	0	0	0	120
21:00	0	0	3	4	20	45	17	5	2	0	0	0	0	96
22:00	0	0	2	3	15	24	24	6	4	0	0	0	0	78
23:00	0	0	2	1	6	19	9	2	1	0	0	0	0	40
Totals	6	69	278	397	736	877	404	95	15					2877
% of Totals	0%	2%	10%	14%	26%	30%	14%	3%	1%					100%

AM Volumes	2	46	160	178	226	262	146	37	8	0	0	0	0	1065
% AM	0%	2%	6%	6%	8%	9%	5%	1%	0%					37%
AM Peak Hour	7:00	7:00	7:00	8:00	9:00	9:00	11:00	6:00	6:00					7:00
Volume	1	38	110	65	51	55	33	7	2					236
PM Volumes	4	23	118	219	510	615	258	58	7	0	0	0	0	1812
% PM	0%	1%	4%	8%	18%	21%	9%	2%	0%					63%
PM Peak Hour	18:00	14:00	14:00	15:00	16:00	17:00	13:00	20:00	22:00					16:00
Volume	2	17	43	65	81	91	40	11	4					219

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Speeds	Volume	%	Volume	%	Volume	%	Volume	%
	400	14%	344	12%	424	15%	1709	59%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	27	33	33	39	43	3027
Steam Mill Rd	West Bound	26	35	34	41	45	2877

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Georgia Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_003e

East Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	1	0	0	6	4	3	1	1	0	0	0	0	16
1:00	0	0	1	1	4	5	3	1	0	0	0	0	0	15
2:00	0	0	0	0	3	2	3	0	0	0	0	0	0	8
3:00	0	0	1	0	1	3	1	0	0	0	0	0	0	6
4:00	0	0	0	0	2	3	3	0	0	0	0	0	0	8
5:00	0	0	0	1	0	5	3	4	1	0	0	0	0	14
6:00	0	0	0	2	17	10	17	5	0	0	0	0	0	51
7:00	0	0	1	2	23	53	34	12	4	0	0	0	0	129
8:00	0	0	0	4	27	34	27	10	1	0	0	0	0	103
9:00	0	0	2	4	23	45	16	5	1	0	0	0	0	96
10:00	0	0	0	8	18	44	23	10	0	0	0	0	0	103
11:00	0	0	0	6	27	45	29	7	2	0	0	0	0	116
12:00 PM	0	1	3	13	32	46	21	4	1	0	0	0	0	121
13:00	0	0	1	3	37	67	45	9	2	1	0	0	0	165
14:00	0	0	4	9	49	63	46	10	3	1	0	0	0	185
15:00	0	1	1	6	34	68	36	8	1	0	0	0	0	155
16:00	0	0	1	9	46	77	48	13	0	1	0	0	0	195
17:00	0	0	0	6	49	105	98	21	1	0	0	0	0	280
18:00	0	0	0	6	67	75	50	4	1	0	0	0	0	203
19:00	0	0	0	8	37	60	24	6	3	0	0	0	0	138
20:00	0	1	2	14	42	50	32	3	2	0	0	0	0	146
21:00	0	0	0	4	25	37	21	2	0	0	0	0	0	89
22:00	0	0	0	2	16	30	16	4	0	0	0	0	0	68
23:00	0	0	0	2	10	13	21	6	1	0	0	0	0	53
Totals		4	17	110	595	944	620	145	25	3				2463
% of Totals		0%	1%	4%	24%	38%	25%	6%	1%	0%				100%

AM Volumes	0	1	5	28	151	253	162	55	10	0	0	0	0	665
% AM		0%	0%	1%	6%	10%	7%	2%	0%					27%
AM Peak Hour			9:00	10:00	8:00	7:00	7:00	7:00	7:00					7:00
Volume		1	2	8	27	53	34	12	4					129
PM Volumes	0	3	12	82	444	691	458	90	15	3	0	0	0	1798
% PM		0%	0%	3%	18%	28%	19%	4%	1%	0%				73%
PM Peak Hour		12:00	14:00	20:00	18:00	17:00	17:00	17:00	14:00	13:00				17:00
Volume		1	4	14	67	105	98	21	3	1				280

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume	↔	%	Volume	↔	%	Volume	↔	%	Volume	↔	%
	232		9%	286		12%	475		19%	1470		60%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	32	38	38	43	47	2463
Steam Mill Rd	West Bound	36	41	41	46	50	2177

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Georgia Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_003w

West Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	1	4	4	10	3	1	0	0	0	0	23
1:00	0	0	1	0	0	0	8	0	2	0	0	0	0	11
2:00	0	0	0	0	1	0	2	2	1	0	0	0	0	6
3:00	0	0	0	0	1	3	0	3	2	0	0	0	0	9
4:00	0	0	0	0	2	3	2	1	2	0	0	0	0	10
5:00	0	0	0	1	3	13	7	5	1	0	0	0	0	30
6:00	0	0	0	1	5	10	22	10	8	1	0	0	0	57
7:00	0	0	0	2	9	50	90	40	6	2	0	0	0	199
8:00	0	0	1	3	9	42	43	20	13	1	0	0	0	132
9:00	0	0	0	5	4	45	33	13	4	2	0	0	0	106
10:00	0	0	0	2	10	27	26	19	4	1	0	0	0	89
11:00	0	0	0	2	3	27	36	8	5	1	0	0	0	82
12:00 PM	0	1	0	1	16	32	45	14	2	0	0	0	0	111
13:00	0	0	0	2	9	49	42	22	5	3	0	0	0	132
14:00	0	0	1	4	15	53	56	23	3	0	0	0	0	155
15:00	0	0	0	6	18	45	54	13	0	0	0	0	0	136
16:00	0	0	0	2	23	66	74	27	8	1	0	0	0	201
17:00	0	0	0	0	17	52	68	32	5	2	0	0	0	176
18:00	0	0	0	2	9	55	56	21	3	0	0	0	0	146
19:00	0	0	0	1	16	52	30	10	3	1	0	0	0	113
20:00	0	0	1	4	13	34	31	12	2	0	0	0	0	97
21:00	0	0	0	1	6	20	23	13	0	0	0	0	0	63
22:00	0	0	0	0	4	15	29	5	0	0	0	0	0	53
23:00	0	0	0	0	0	13	17	8	1	1	0	0	0	40
Totals		1	4	40	197	710	804	324	81	16				2177
% of Totals		0%	0%	2%	9%	33%	37%	15%	4%	1%				100%

AM Volumes	0	0	2	17	51	224	279	124	49	8	0	0	0	754
% AM			0%	1%	2%	10%	13%	6%	2%	0%				35%
AM Peak Hour			1:00	9:00	10:00	7:00	7:00	7:00	8:00	7:00				7:00
Volume			1	5	10	50	90	40	13	2				199
PM Volumes	0	1	2	23	146	486	525	200	32	8	0	0	0	1423
% PM		0%	0%	1%	7%	22%	24%	9%	1%	0%				65%
PM Peak Hour		12:00	14:00	15:00	16:00	16:00	16:00	17:00	16:00	13:00				16:00
Volume		1	1	6	23	66	74	32	8	3				201

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume	↔	%	Volume	↔	%	Volume	↔	%	Volume	↔	%
	331		15%	243		11%	377		17%	1226		56%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	32	38	38	43	47	2463
Steam Mill Rd	West Bound	36	41	41	46	50	2177

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Georgia Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_003e

East Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	1	4	2	6	2	1	0	0	0	0	0	16
1:00	0	0	0	1	4	9	9	0	0	0	0	0	0	23
2:00	0	0	0	0	4	4	1	1	0	0	0	0	0	10
3:00	0	0	0	0	1	0	2	1	0	0	0	0	0	4
4:00	0	0	0	0	1	1	5	0	0	0	0	0	0	7
5:00	0	0	0	1	4	7	3	1	0	0	0	0	0	16
6:00	0	1	0	5	10	19	11	0	0	0	0	0	0	46
7:00	0	0	0	13	35	53	20	4	1	0	0	0	0	126
8:00	0	0	1	2	30	33	34	8	1	0	0	0	0	109
9:00	0	0	0	3	14	34	19	7	0	0	0	0	0	77
10:00	0	0	1	5	28	33	19	5	0	0	0	0	0	91
11:00	0	0	2	3	32	45	30	7	0	0	0	0	0	119
12:00 PM	0	0	1	7	25	32	28	10	0	0	0	0	0	103
13:00	1	0	4	5	24	49	28	9	3	0	0	0	0	123
14:00	0	0	1	8	37	69	42	4	1	0	0	0	0	162
15:00	0	0	2	9	42	63	39	6	1	0	0	0	0	162
16:00	0	0	2	14	52	92	42	8	0	0	0	0	0	210
17:00	0	0	2	11	56	105	37	15	1	0	0	0	0	227
18:00	0	0	2	11	43	65	39	11	0	0	0	0	0	171
19:00	0	0	0	14	40	48	13	4	2	0	0	0	0	121
20:00	0	0	1	4	26	53	25	7	0	0	0	0	0	116
21:00	0	0	0	4	27	39	24	4	1	0	0	0	0	99
22:00	0	0	0	5	15	18	12	7	1	0	0	0	0	58
23:00	0	0	0	4	4	8	11	2	0	0	0	0	0	29
Totals	1	1	20	133	556	885	495	122	12					2225
% of Totals	0%	0%	1%	6%	25%	40%	22%	5%	1%					100%

AM Volumes	0	1	5	37	165	244	155	35	2	0	0	0	0	644
% AM		0%	0%	2%	7%	11%	7%	2%	0%					29%
AM Peak Hour		6:00	11:00	7:00	7:00	7:00	8:00	8:00	7:00					7:00
Volume		1	2	13	35	53	34	8	1					126
PM Volumes	1	0	15	96	391	641	340	87	10	0	0	0	0	1581
% PM	0%		1%	4%	18%	29%	15%	4%	0%					71%
PM Peak Hour	13:00		13:00	16:00	17:00	17:00	14:00	17:00	13:00					17:00
Volume	1		4	14	56	105	42	15	3					227

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume		%	Volume		%	Volume		%	Volume		%
	235	⟷	11%	226	⟷	10%	437	⟷	20%	1327	⟷	60%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	32	37	37	43	46	2225
Steam Mill Rd	West Bound	35	40	40	46	49	1967

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Georgia Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_003w

West Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	1	1	5	7	4	1	0	0	0	0	19
1:00	0	0	0	0	1	4	6	0	0	0	0	0	0	11
2:00	0	0	0	0	1	3	4	1	0	0	0	0	0	9
3:00	0	0	0	0	0	1	2	1	1	0	0	0	0	5
4:00	0	0	1	1	1	3	5	4	1	0	0	0	0	16
5:00	0	0	1	0	3	9	8	4	2	0	0	0	0	27
6:00	0	0	1	4	5	19	15	8	6	0	0	0	0	58
7:00	0	0	1	0	24	66	48	18	1	2	0	0	0	160
8:00	0	0	0	3	10	44	41	30	1	1	0	0	0	130
9:00	0	0	0	4	15	25	25	12	0	0	0	0	0	81
10:00	0	0	0	1	17	24	29	14	5	2	0	0	0	92
11:00	1	0	1	2	16	30	33	8	3	0	0	0	0	94
12:00 PM	0	2	3	3	16	32	29	12	5	2	0	0	0	104
13:00	0	0	0	3	12	32	41	18	1	1	0	0	0	108
14:00	0	0	0	2	20	47	50	25	6	0	0	0	0	150
15:00	0	0	0	5	13	42	45	16	2	0	0	0	0	123
16:00	0	0	1	7	23	64	51	22	4	0	0	0	0	172
17:00	0	0	1	4	12	39	68	19	4	1	0	0	0	148
18:00	0	0	0	5	14	60	43	17	0	0	0	0	0	139
19:00	0	0	0	0	18	39	38	8	0	0	0	0	0	103
20:00	0	0	0	1	4	24	32	11	0	0	0	0	0	72
21:00	0	0	0	3	10	22	22	4	3	0	0	0	0	64
22:00	0	0	0	0	2	10	21	8	2	0	0	0	0	43
23:00	0	0	0	0	3	12	17	4	3	0	0	0	0	39
Totals	1	2	10	49	241	656	680	268	51	9				1967
% of Totals	0%	0%	1%	2%	12%	33%	35%	14%	3%	0%				100%

AM Volumes	1	0	5	16	94	233	223	104	21	5	0	0	0	702
% AM	0%		0%	1%	5%	12%	11%	5%	1%	0%				36%
AM Peak Hour	11:00		4:00	6:00	7:00	7:00	7:00	8:00	6:00	7:00				7:00
Volume	1		1	4	24	66	48	30	6	2				160
PM Volumes	0	2	5	33	147	423	457	164	30	4	0	0	0	1265
% PM		0%	0%	2%	7%	22%	23%	8%	2%	0%				64%
PM Peak Hour		12:00	12:00	16:00	16:00	16:00	17:00	14:00	14:00	12:00				16:00
Volume		2	3	7	23	64	68	25	6	2				172

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume		%	Volume		%	Volume		%	Volume		%
	290	⟷	15%	212	⟷	11%	320	⟷	16%	1145	⟷	58%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	32	37	37	43	46	2225
Steam Mill Rd	West Bound	35	40	40	46	49	1967

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Minnie Lee Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_004e

East Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	1	4	4	3	2	0	0	0	0	0	14
1:00	0	0	0	0	6	7	2	0	0	0	0	0	0	15
2:00	0	0	0	1	0	1	2	1	0	1	0	0	0	6
3:00	0	0	1	1	1	2	0	0	0	0	1	0	0	6
4:00	0	0	0	0	2	1	4	0	0	0	0	0	0	7
5:00	0	0	1	1	4	11	10	5	5	0	0	0	0	37
6:00	0	0	1	3	8	24	22	11	0	0	0	0	0	69
7:00	1	4	10	14	32	66	52	10	1	1	0	0	0	191
8:00	0	3	2	18	29	39	26	8	2	0	0	0	0	127
9:00	1	5	4	2	27	27	16	3	2	0	0	0	0	87
10:00	0	2	1	2	20	30	11	3	1	0	0	0	0	70
11:00	0	2	4	3	14	29	16	6	2	0	0	0	0	76
12:00 PM	0	1	1	4	17	28	19	7	0	0	0	0	0	77
13:00	0	0	6	4	16	26	13	6	1	0	1	0	0	73
14:00	0	6	8	22	24	50	24	5	2	0	0	0	0	141
15:00	0	3	3	13	40	44	25	5	0	0	0	0	0	133
16:00	0	8	8	16	59	74	24	3	0	0	0	0	0	192
17:00	1	9	11	13	65	101	41	9	1	0	0	0	0	251
18:00	0	5	6	7	47	59	15	4	1	1	1	0	0	146
19:00	0	2	5	7	31	39	6	3	0	0	0	0	0	93
20:00	0	2	3	7	21	27	9	1	1	0	0	0	0	71
21:00	0	2	6	9	18	25	10	2	1	0	0	0	0	73
22:00	1	2	4	5	15	13	19	1	0	0	0	0	0	60
23:00	0	0	2	1	5	15	14	2	1	0	0	0	0	40
Totals	4	56	87	154	505	742	383	97	21	3	3			2055
% of Totals	0%	3%	4%	7%	25%	36%	19%	5%	1%	0%	0%			100%

AM Volumes	2	16	24	46	147	241	164	49	13	2	1	0	0	705
% AM	0%	1%	1%	2%	7%	12%	8%	2%	1%	0%	0%			34%
AM Peak Hour	7:00	9:00	7:00	8:00	7:00	7:00	7:00	6:00	5:00	2:00	3:00			7:00
Volume	1	5	10	18	32	66	52	11	5	1	1			191
PM Volumes	2	40	63	108	358	501	219	48	8	1	2	0	0	1350
% PM	0%	2%	3%	5%	17%	24%	11%	2%	0%	0%	0%			66%
PM Peak Hour	17:00	17:00	17:00	14:00	17:00	17:00	17:00	17:00	14:00	18:00	13:00			17:00
Volume	1	9	11	22	65	101	41	9	2	1	1			251

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume		%	Volume		%	Volume		%	Volume		%
	318	⟷	15%	150	⟷	7%	443	⟷	22%	1144	⟷	56%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	30	36	36	43	46	2055
Steam Mill Rd	West Bound	25	35	33	40	44	1755

SPEED

Steam Mill Rd E/O Minnie Lee Dr

Day: Tuesday
Date: 3/3/2020

City: Columbus
Project #: GA20_9089_004w

West Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	1	2	1	1	3	7	3	1	0	0	0	0	0	19
1:00	0	0	0	2	1	5	2	0	0	0	0	0	0	10
2:00	0	0	0	1	2	6	2	0	0	0	0	0	0	11
3:00	0	1	0	1	0	3	2	0	0	0	0	0	0	7
4:00	0	0	0	0	1	4	1	0	0	0	0	0	0	6
5:00	0	2	0	0	4	4	1	0	0	0	0	0	0	11
6:00	2	7	2	4	6	12	6	1	2	0	0	0	0	42
7:00	4	17	6	9	33	60	18	1	0	0	0	0	0	148
8:00	0	6	4	11	39	35	8	0	0	0	0	0	0	103
9:00	2	10	1	3	21	25	11	4	1	0	0	0	0	78
10:00	0	2	1	8	23	21	8	1	0	0	0	0	0	64
11:00	1	4	4	8	20	20	4	2	0	0	0	0	0	63
12:00 PM	0	8	2	1	8	23	5	2	0	0	0	0	0	49
13:00	4	6	4	6	21	33	13	2	0	0	0	0	0	89
14:00	1	12	7	10	38	32	18	1	0	0	0	0	0	119
15:00	2	14	9	17	43	42	8	1	0	0	0	0	0	136
16:00	2	23	11	20	49	58	21	5	1	0	0	0	0	190
17:00	1	16	5	8	54	64	20	3	2	0	0	0	0	173
18:00	1	11	5	7	40	43	16	4	0	0	0	0	0	127
19:00	0	11	2	9	33	27	7	1	0	0	0	0	0	90
20:00	2	8	0	6	29	16	5	0	0	0	0	0	0	66
21:00	1	3	6	5	17	31	6	0	0	0	0	0	0	69
22:00	2	6	0	1	13	16	12	0	0	0	0	0	0	50
23:00	0	2	0	3	9	16	5	0	0	0	0	0	0	35
Totals	26	171	70	141	507	603	202	29	6					1755
% of Totals	1%	10%	4%	8%	29%	34%	12%	2%	0%					100%

AM Volumes	10	51	19	48	153	202	66	10	3	0	0	0	0	562
% AM	1%	3%	1%	3%	9%	12%	4%	1%	0%					32%
AM Peak Hour	7:00	7:00	7:00	8:00	8:00	7:00	7:00	9:00	6:00					7:00
Volume	4	17	6	11	39	60	18	4	2					148
PM Volumes	16	120	51	93	354	401	136	19	3	0	0	0	0	1193
% PM	1%	7%	3%	5%	20%	23%	8%	1%	0%					68%
PM Peak Hour	13:00	16:00	16:00	16:00	17:00	17:00	16:00	16:00	17:00					16:00
Volume	4	23	11	20	54	64	21	5	2					190

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Speeds	Volume	%	Volume	%	Volume	%	Volume	%
	251 ⟷	14%	138 ⟷	8%	363 ⟷	21%	1003 ⟷	57%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	30	36	36	43	46	2055
Steam Mill Rd	West Bound	25	35	33	40	44	1755

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Minnie Lee Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_004e

East Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	1	2	2	2	8	6	0	0	0	0	0	0	21
1:00	0	0	0	1	2	4	1	0	0	0	0	0	0	8
2:00	0	0	1	1	3	4	2	1	0	0	0	0	0	12
3:00	0	1	1	1	0	2	1	1	0	1	0	0	0	8
4:00	0	0	0	0	2	2	2	1	0	0	0	0	0	7
5:00	0	0	1	1	3	11	7	6	0	1	0	0	0	30
6:00	0	1	2	2	15	25	24	3	1	0	0	0	0	73
7:00	2	2	6	20	59	80	26	2	0	0	0	0	0	197
8:00	2	7	9	12	38	32	28	6	0	1	0	0	0	135
9:00	0	1	1	3	9	32	17	2	1	0	0	0	0	66
10:00	0	1	3	2	15	20	11	5	0	0	0	0	0	57
11:00	0	0	2	3	16	30	14	5	0	0	0	0	0	70
12:00 PM	0	0	1	6	19	23	15	7	0	0	0	0	0	71
13:00	0	0	6	5	19	38	15	4	1	0	0	0	0	88
14:00	1	2	6	12	14	42	27	7	2	0	0	0	0	113
15:00	3	4	6	14	42	45	28	3	0	1	0	0	0	146
16:00	0	5	8	11	50	64	26	3	0	0	0	0	0	167
17:00	1	8	14	15	49	70	29	3	1	0	0	0	0	190
18:00	0	3	7	8	23	48	12	4	2	0	0	0	0	107
19:00	0	0	5	10	23	25	12	6	0	0	0	0	0	81
20:00	2	3	4	7	22	18	7	4	0	0	0	0	0	67
21:00	0	3	3	8	22	21	7	5	0	0	0	0	0	69
22:00	0	0	3	5	9	28	16	4	0	1	0	0	0	66
23:00	0	1	1	2	7	10	6	0	0	1	0	0	0	28
Totals	11	43	92	151	463	682	339	82	8	6				1877
% of Totals	1%	2%	5%	8%	25%	36%	18%	4%	0%	0%				100%

AM Volumes	4	14	28	48	164	250	139	32	2	3	0	0	0	684
% AM	0%	1%	1%	3%	9%	13%	7%	2%	0%	0%				36%
AM Peak Hour	7:00	8:00	8:00	7:00	7:00	7:00	8:00	5:00	6:00	3:00				7:00
Volume	2	7	9	20	59	80	28	6	1	1				197
PM Volumes	7	29	64	103	299	432	200	50	6	3	0	0	0	1193
% PM	0%	2%	3%	5%	16%	23%	11%	3%	0%	0%				64%
PM Peak Hour	15:00	17:00	17:00	17:00	16:00	17:00	17:00	12:00	14:00	15:00				17:00
Volume	3	8	14	15	50	70	29	7	2	1				190

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume	↔	%	Volume	↔	%	Volume	↔	%	Volume	↔	%
	332		18%	159		8%	357		19%	1029		55%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	29	36	36	42	45	1877
Steam Mill Rd	West Bound	26	34	33	40	44	1587

Prepared by National Data & Surveying Services

SPEED

Steam Mill Rd E/O Minnie Lee Dr

Day: Wednesday
Date: 3/4/2020

City: Columbus
Project #: GA20_9089_004w

West Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	1	1	1	6	9	4	2	0	0	0	0	0	24
1:00	0	1	0	1	2	2	1	0	0	0	0	0	0	7
2:00	0	0	0	0	3	3	0	0	0	0	0	0	0	6
3:00	0	1	0	0	0	2	1	0	0	0	0	0	0	4
4:00	0	1	0	2	2	4	3	0	0	0	0	0	0	12
5:00	0	1	0	0	1	6	0	1	0	0	0	0	0	9
6:00	0	5	1	6	13	13	4	2	1	0	0	0	0	45
7:00	2	21	2	24	35	45	12	3	0	0	0	0	0	144
8:00	1	4	7	6	37	32	18	0	1	0	0	0	0	106
9:00	1	3	3	2	18	15	6	0	0	0	0	0	0	48
10:00	0	5	2	5	13	23	8	0	0	0	0	0	0	56
11:00	1	7	0	6	17	21	12	3	0	0	0	0	0	67
12:00 PM	2	8	1	5	14	24	7	3	1	0	0	0	0	65
13:00	1	9	0	3	17	25	4	2	0	0	0	0	0	61
14:00	1	8	7	6	27	37	9	3	0	0	0	0	0	98
15:00	2	12	7	10	30	41	14	2	3	0	0	0	0	121
16:00	0	16	5	18	59	35	16	2	0	0	0	0	0	151
17:00	0	11	4	15	63	62	13	0	0	0	0	0	0	168
18:00	0	9	3	8	51	40	6	0	0	0	0	0	0	117
19:00	2	4	2	15	22	29	12	0	0	0	0	0	0	86
20:00	0	9	3	7	22	21	6	1	0	0	0	0	0	69
21:00	1	3	1	6	15	14	5	1	0	0	0	0	0	46
22:00	0	2	2	3	15	9	4	1	1	0	0	0	0	37
23:00	0	0	2	4	11	19	3	1	0	0	0	0	0	40
Totals	14	141	53	153	493	531	168	27	7					1587
% of Totals	1%	9%	3%	10%	31%	33%	11%	2%	0%					100%

AM Volumes	5	50	16	53	147	175	69	11	2	0	0	0	0	528
% AM	0%	3%	1%	3%	9%	11%	4%	1%	0%					33%
AM Peak Hour	7:00	7:00	8:00	7:00	8:00	7:00	8:00	7:00	6:00					7:00
Volume	2	21	7	24	37	45	18	3	1					144
PM Volumes	9	91	37	100	346	356	99	16	5	0	0	0	0	1059
% PM	1%	6%	2%	6%	22%	22%	6%	1%	0%					67%
PM Peak Hour	12:00	16:00	14:00	16:00	17:00	17:00	16:00	12:00	15:00					17:00
Volume	2	16	7	18	63	62	16	3	3					168

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume		%	Volume		%	Volume		%	Volume		%
	250	⟷	16%	126	⟷	8%	319	⟷	20%	892	⟷	56%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Steam Mill Rd	East Bound	29	36	36	42	45	1877
Steam Mill Rd	West Bound	26	34	33	40	44	1587

Appendix C TURNING MOVEMENT COUNTS

National Data & Surveying Services

Intersection Turning Movement Count

Location: Buena Vista Rd & Steam Mill Rd
City: Columbus
Control: Signalized

Project ID: 20-09088-001
Date: 3/3/2020

Total

NS/EW Streets:	Buena Vista Rd				Buena Vista Rd				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	1	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	87	13	0	2	128	0	0	0	0	0	0	15	0	0	0	245
7:15 AM	0	78	17	0	4	162	0	0	0	0	0	0	43	0	0	0	304
7:30 AM	0	105	23	0	3	196	0	0	0	0	0	0	55	0	1	0	383
7:45 AM	0	119	22	0	1	228	0	0	0	0	0	0	62	0	3	0	435
8:00 AM	0	138	36	0	0	134	0	0	0	0	0	0	41	0	0	0	349
8:15 AM	0	101	18	0	1	157	0	0	0	0	0	0	38	0	1	0	316
8:30 AM	2	100	18	0	2	135	2	0	1	1	0	0	26	2	1	0	290
8:45 AM	1	104	14	0	3	160	0	0	1	0	1	0	30	0	1	0	315
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	832	161	0	16	1300	2	0	2	1	1	0	310	2	7	0	2637
APPROACH %'s :	0.30%	83.53%	16.16%	0.00%	1.21%	98.63%	0.15%	0.00%	50.00%	25.00%	25.00%	0.00%	97.18%	0.63%	2.19%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	463	99	0	5	715	0	0	0	0	0	0	196	0	5	0	1483
PEAK HR FACTOR :	0.000	0.839	0.688	0.000	0.417	0.784	0.000	0.000	0.000	0.000	0.000	0.000	0.790	0.000	0.417	0.000	0.852
		0.807				0.786								0.773			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	1	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	153	37	0	3	184	0	0	0	0	0	0	25	0	3	0	405
4:15 PM	0	136	45	0	5	173	0	0	0	0	1	0	25	0	1	0	386
4:30 PM	1	166	46	0	3	268	0	0	0	0	0	0	41	0	1	0	526
4:45 PM	1	202	60	0	1	278	0	0	0	0	0	0	27	0	2	0	571
5:00 PM	0	199	39	0	1	282	0	0	0	0	1	0	47	0	3	0	572
5:15 PM	1	237	60	0	5	234	0	0	0	0	0	0	34	0	4	0	575
5:30 PM	0	201	68	0	3	230	0	0	0	1	0	0	42	0	0	0	545
5:45 PM	0	161	46	0	2	163	0	0	0	0	1	0	37	0	0	0	410
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	1455	401	0	23	1812	0	0	0	1	3	0	278	0	14	0	3990
APPROACH %'s :	0.16%	78.27%	21.57%	0.00%	1.25%	98.75%	0.00%	0.00%	0.00%	25.00%	75.00%	0.00%	95.21%	0.00%	4.79%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	2	839	227	0	10	1024	0	0	0	1	1	0	150	0	9	0	2263
PEAK HR FACTOR :	0.500	0.885	0.835	0.000	0.500	0.908	0.000	0.000	0.000	0.250	0.250	0.000	0.798	0.000	0.563	0.000	0.984
		0.896				0.913				0.500				0.795			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Honolulu Dr & Steam Mill Rd
City: Columbus
Control: 1-Way Stop (NB)

Project ID: 20-09088-002
Date: 3/3/2020

Total

NS/EW Streets:	Honolulu Dr				Honolulu Dr				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	0	9	0	0	0	0	0	0	18	0	0	3	29	0	0	62
7:15 AM	8	0	6	0	0	0	0	0	0	33	1	0	6	50	0	0	104
7:30 AM	9	0	22	0	0	0	0	0	0	41	3	0	7	83	0	0	165
7:45 AM	7	0	17	0	0	0	0	0	0	33	5	0	12	76	0	0	150
8:00 AM	10	0	7	0	0	0	0	0	0	43	6	0	11	51	0	0	128
8:15 AM	3	0	6	0	0	0	0	0	0	27	2	0	7	44	0	0	89
8:30 AM	6	0	10	0	0	0	0	0	0	24	1	0	5	43	0	0	89
8:45 AM	6	0	6	0	0	0	0	0	0	18	4	0	6	31	0	0	71
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	52	0	83	0	0	0	0	0	0	237	22	0	57	407	0	0	858
APPROACH %'s :	38.52%	0.00%	61.48%	0.00%					0.00%	91.51%	8.49%	0.00%	12.28%	87.72%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	34	0	52	0	0	0	0	0	0	150	15	0	36	260	0	0	547
PEAK HR FACTOR :	0.850	0.000	0.591	0.000	0.000	0.000	0.000	0.000	0.000	0.872	0.625	0.000	0.750	0.783	0.000	0.000	0.829
	0.694								0.842				0.822				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	0	14	0	0	0	0	0	0	64	6	0	8	33	0	0	129
4:15 PM	3	0	5	0	0	0	0	0	0	62	5	0	13	40	0	0	128
4:30 PM	2	0	13	0	0	0	0	0	0	62	12	0	13	50	0	0	152
4:45 PM	3	0	24	0	0	0	0	0	0	71	5	0	13	43	0	0	159
5:00 PM	4	0	17	0	0	0	0	0	0	82	13	0	8	62	0	0	186
5:15 PM	7	0	18	0	0	0	0	0	0	99	5	0	9	45	0	1	184
5:30 PM	7	0	9	0	0	0	0	0	0	95	13	0	9	46	0	0	179
5:45 PM	7	0	11	0	0	0	0	0	0	85	14	0	11	42	0	0	170
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	37	0	111	0	0	0	0	0	0	620	73	0	84	361	0	1	1287
APPROACH %'s :	25.00%	0.00%	75.00%	0.00%					0.00%	89.47%	10.53%	0.00%	18.83%	80.94%	0.00%	0.22%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	25	0	55	0	0	0	0	0	0	361	45	0	37	195	0	1	719
PEAK HR FACTOR :	0.893	0.000	0.764	0.000	0.000	0.000	0.000	0.000	0.000	0.912	0.804	0.000	0.841	0.786	0.000	0.250	0.966
	0.800								0.940				0.832				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chandler Dr & Steam Mill Rd
City: Columbus
Control: 1-Way Stop (NB)

Project ID: 20-09088-003
Date: 3/3/2020

Total

NS/EW Streets:	Chandler Dr				Chandler Dr				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	0	2	0	0	0	0	0	0	25	0	0	1	21	0	0	54
7:15 AM	5	0	2	0	0	0	0	0	0	40	4	0	2	49	0	0	102
7:30 AM	10	0	4	0	0	0	0	0	0	52	9	0	0	65	0	0	140
7:45 AM	16	0	4	0	0	0	0	0	0	51	5	0	2	65	0	0	143
8:00 AM	5	0	2	0	0	0	1	0	0	42	6	0	2	47	0	0	105
8:15 AM	5	0	4	0	0	0	0	0	0	28	3	0	1	44	0	0	85
8:30 AM	5	0	0	0	0	0	0	0	0	28	1	0	1	34	0	0	69
8:45 AM	2	0	4	0	0	0	0	0	0	25	4	0	1	29	0	0	65
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	53	0	22	0	0	0	1	0	0	291	32	0	10	354	0	0	763
APPROACH %'s :	70.67%	0.00%	29.33%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	90.09%	9.91%	0.00%	2.75%	97.25%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	36	0	12	0	0	0	1	0	0	185	24	0	6	226	0	0	490
PEAK HR FACTOR :	0.563	0.000	0.750	0.000	0.000	0.000	0.250	0.000	0.000	0.889	0.667	0.000	0.750	0.869	0.000	0.000	0.857
	0.600				0.250				0.857				0.866				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	0	3	0	0	0	1	0	0	56	7	0	2	43	0	0	116
4:15 PM	3	0	3	0	0	0	0	0	0	57	8	0	3	41	0	0	115
4:30 PM	5	0	3	0	0	0	0	0	0	63	8	0	1	55	0	0	135
4:45 PM	6	0	3	0	0	0	1	0	0	78	8	0	2	48	0	0	146
5:00 PM	8	0	5	0	0	0	0	0	0	75	15	0	3	57	0	0	163
5:15 PM	8	0	8	0	0	0	0	0	1	103	8	0	3	43	0	0	174
5:30 PM	7	0	4	0	0	0	0	0	0	83	10	0	3	47	0	0	154
5:45 PM	5	0	5	0	0	0	0	0	0	82	10	0	4	51	0	0	157
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	46	0	34	0	0	0	2	0	1	597	74	0	21	385	0	0	1160
APPROACH %'s :	57.50%	0.00%	42.50%	0.00%	0.00%	0.00%	100.00%	0.00%	0.15%	88.84%	11.01%	0.00%	5.17%	94.83%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	28	0	22	0	0	0	0	0	1	343	43	0	13	198	0	0	648
PEAK HR FACTOR :	0.875	0.000	0.688	0.000	0.000	0.000	0.000	0.000	0.250	0.833	0.717	0.000	0.813	0.868	0.000	0.000	0.931
	0.781								0.864				0.879				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Dogwood Dr & Steam Mill Rd
City: Columbus
Control: Signalized

Project ID: 20-09088-004
Date: 3/3/2020

Total

NS/EW Streets:	Dogwood Dr				Dogwood Dr				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	6	3	0	2	7	3	0	5	13	9	0	2	19	10	0	81
7:15 AM	18	21	10	0	6	19	8	0	7	21	17	0	10	23	19	0	179
7:30 AM	18	24	14	0	4	21	4	0	11	14	27	0	8	43	21	0	209
7:45 AM	23	40	11	0	9	21	10	0	9	20	23	0	9	36	18	0	229
8:00 AM	10	8	7	0	6	3	8	0	13	30	5	0	2	33	21	0	146
8:15 AM	3	6	0	0	11	5	10	0	10	21	1	0	1	29	22	0	119
8:30 AM	4	5	1	0	11	7	9	0	3	22	2	0	0	23	24	0	111
8:45 AM	0	6	2	0	8	10	7	0	9	24	1	0	0	22	14	0	103
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	78	116	48	0	57	93	59	0	67	165	85	0	32	228	149	0	1177
APPROACH %'s :	32.23%	47.93%	19.83%	0.00%	27.27%	44.50%	28.23%	0.00%	21.14%	52.05%	26.81%	0.00%	7.82%	55.75%	36.43%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	69	93	42	0	25	64	30	0	40	85	72	0	29	135	79	0	763
PEAK HR FACTOR :	0.750	0.581	0.750	0.000	0.694	0.762	0.750	0.000	0.769	0.708	0.667	0.000	0.725	0.785	0.940	0.000	0.833
	0.689				0.744				0.947				0.844				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	9	0	0	13	6	9	0	7	46	2	0	0	31	16	0	142
4:15 PM	3	8	0	0	18	6	11	0	9	52	2	0	2	30	18	0	159
4:30 PM	2	5	4	0	21	10	13	0	11	53	4	0	3	40	21	0	187
4:45 PM	5	14	7	0	17	6	10	0	8	68	2	0	5	37	26	0	205
5:00 PM	2	26	7	0	15	7	16	0	24	55	3	0	2	43	23	0	223
5:15 PM	5	22	6	0	18	10	8	0	16	87	3	0	2	33	23	0	233
5:30 PM	2	7	1	0	14	5	12	0	16	71	5	0	3	37	22	0	195
5:45 PM	4	7	1	0	16	5	9	0	13	68	7	0	0	42	19	0	191
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	26	98	26	0	132	55	88	0	104	500	28	0	17	293	168	0	1535
APPROACH %'s :	17.33%	65.33%	17.33%	0.00%	48.00%	20.00%	32.00%	0.00%	16.46%	79.11%	4.43%	0.00%	3.56%	61.30%	35.15%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	14	69	21	0	64	28	46	0	64	281	13	0	12	150	94	0	856
PEAK HR FACTOR :	0.700	0.663	0.750	0.000	0.889	0.700	0.719	0.000	0.667	0.807	0.650	0.000	0.600	0.872	0.904	0.000	0.918
	0.743				0.908				0.844				0.941				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Southern Pines Dr/Mc Cartha Dr & Steam Mill Rd
City: Columbus
Control: 2-Way Stop (NB/SB)

Project ID: 20-09088-005
Date: 3/3/2020

Total

NS/EW Streets:	Southern Pines Dr/Mc Cartha Dr				Southern Pines Dr/Mc Cartha Dr				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	2	6	0	0	2	0	0	0	12	2	0	5	27	1	0	61
7:15 AM	2	3	10	0	1	7	1	0	0	34	6	0	17	50	2	0	133
7:30 AM	2	4	18	0	0	5	1	0	1	22	5	0	26	67	4	0	155
7:45 AM	4	3	22	0	1	1	0	0	3	37	1	0	43	58	2	0	175
8:00 AM	8	4	19	0	0	7	4	0	4	35	7	0	16	45	1	0	150
8:15 AM	8	8	25	0	0	2	4	0	1	27	5	0	11	38	2	0	131
8:30 AM	8	5	19	0	0	3	1	0	0	24	10	0	15	39	1	0	125
8:45 AM	7	1	8	0	1	4	2	0	0	30	4	0	12	26	0	0	95
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	43	30	127	0	3	31	13	0	9	221	40	0	145	350	13	0	1025
APPROACH %'s :	21.50%	15.00%	63.50%	0.00%	6.38%	65.96%	27.66%	0.00%	3.33%	81.85%	14.81%	0.00%	28.54%	68.90%	2.56%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	16	14	69	0	2	20	6	0	8	128	19	0	102	220	9	0	613
PEAK HR FACTOR :	0.500	0.875	0.784	0.000	0.500	0.714	0.375	0.000	0.500	0.865	0.679	0.000	0.593	0.821	0.563	0.000	0.876
	0.798				0.636				0.842				0.803				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	5	7	18	0	2	3	3	0	3	52	4	0	15	36	2	0	150
4:15 PM	6	3	12	0	2	2	1	0	1	57	11	0	14	44	0	0	153
4:30 PM	11	5	13	0	2	3	2	0	2	50	23	0	14	53	2	0	180
4:45 PM	14	8	29	0	0	6	2	0	3	75	13	0	11	50	0	0	211
5:00 PM	20	10	65	0	2	5	1	0	2	67	11	0	21	47	1	0	252
5:15 PM	14	13	46	0	5	4	1	0	3	95	14	0	17	44	2	0	258
5:30 PM	15	6	23	0	3	3	1	0	2	74	7	0	14	46	2	0	196
5:45 PM	10	10	12	0	2	2	1	0	4	68	15	0	18	49	5	0	196
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	95	62	218	0	18	28	12	0	20	538	98	0	124	369	14	0	1596
APPROACH %'s :	25.33%	16.53%	58.13%	0.00%	31.03%	48.28%	20.69%	0.00%	3.05%	82.01%	14.94%	0.00%	24.46%	72.78%	2.76%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	63	37	163	0	10	18	5	0	10	311	45	0	63	187	5	0	917
PEAK HR FACTOR :	0.788	0.712	0.627	0.000	0.500	0.750	0.625	0.000	0.833	0.818	0.804	0.000	0.750	0.935	0.625	0.000	0.889
	0.692				0.825				0.817				0.924				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Englewood Dr/Henson Dr & Steam Mill Rd
City: Columbus
Control: 2-Way Stop (NB/SB)

Project ID: 20-09088-006
Date: 3/3/2020

Total

NS/EW Streets:	Englewood Dr/Henson Dr				Englewood Dr/Henson Dr				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	4	1	0	6	0	3	0	3	11	0	0	1	25	9	0	65
7:15 AM	8	0	1	0	7	4	5	0	7	24	5	0	1	49	11	0	122
7:30 AM	5	2	2	0	8	2	16	0	10	23	1	0	0	60	14	0	143
7:45 AM	5	3	3	0	10	3	15	0	13	39	4	0	2	74	17	0	188
8:00 AM	1	2	0	0	9	4	10	0	16	29	4	0	2	45	9	0	131
8:15 AM	2	1	0	0	12	3	7	0	15	23	1	0	0	35	14	0	113
8:30 AM	4	3	0	0	5	2	10	0	6	21	0	0	2	35	6	0	94
8:45 AM	1	2	1	0	9	1	4	0	4	26	4	0	0	25	10	0	87
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	28	17	8	0	66	19	70	0	74	196	19	0	8	348	90	0	943
APPROACH %'s :	52.83%	32.08%	15.09%	0.00%	42.58%	12.26%	45.16%	0.00%	25.61%	67.82%	6.57%	0.00%	1.79%	78.03%	20.18%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	19	7	6	0	34	13	46	0	46	115	14	0	5	228	51	0	584
PEAK HR FACTOR :	0.594	0.583	0.500	0.000	0.850	0.813	0.719	0.000	0.719	0.737	0.700	0.000	0.625	0.770	0.750	0.000	0.777
	0.727				0.830				0.781				0.763				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	0	2	0	10	7	5	0	8	51	4	0	3	40	12	0	145
4:15 PM	3	1	2	0	14	5	10	0	12	52	4	0	3	44	5	0	155
4:30 PM	5	3	3	0	11	7	10	0	8	46	4	0	3	42	12	0	154
4:45 PM	0	6	1	0	13	8	13	0	24	67	5	0	2	43	13	0	195
5:00 PM	3	2	0	0	16	4	15	0	32	75	10	0	1	44	18	0	220
5:15 PM	1	3	0	0	18	5	14	0	26	92	9	0	0	40	11	0	219
5:30 PM	3	2	4	0	13	5	3	0	18	72	4	0	2	51	12	0	189
5:45 PM	3	5	0	0	11	7	22	0	12	61	4	0	0	42	10	0	177
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	21	22	12	0	106	48	92	0	140	516	44	0	14	346	93	0	1454
APPROACH %'s :	38.18%	40.00%	21.82%	0.00%	43.09%	19.51%	37.40%	0.00%	20.00%	73.71%	6.29%	0.00%	3.09%	76.38%	20.53%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	7	13	5	0	60	22	45	0	100	306	28	0	5	178	54	0	823
PEAK HR FACTOR :	0.583	0.542	0.313	0.000	0.833	0.688	0.750	0.000	0.781	0.832	0.700	0.000	0.625	0.873	0.750	0.000	0.935
	0.694				0.858				0.854				0.912				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Cardinal Dr/Wickham Dr & Steam Mill Rd
City: Columbus
Control: 2-Way Stop (NB/SB)

Project ID: 20-09088-007
Date: 3/3/2020

Total

NS/EW Streets:	Cardinal Dr/Wickham Dr				Cardinal Dr/Wickham Dr				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	2	1	0	0	0	2	0	0	15	3	0	3	26	1	0	61
7:15 AM	10	0	3	0	2	0	3	0	1	26	5	0	0	47	1	0	98
7:30 AM	17	0	2	0	0	1	6	0	2	29	3	0	3	55	0	0	118
7:45 AM	12	1	5	0	1	1	3	0	0	42	8	0	1	75	1	0	150
8:00 AM	11	2	3	0	0	1	0	0	1	28	10	0	5	45	1	0	107
8:15 AM	11	3	0	0	0	0	1	0	1	24	9	0	2	38	0	0	89
8:30 AM	10	1	1	0	0	0	1	0	0	21	6	0	1	30	0	0	71
8:45 AM	9	0	0	0	0	0	2	0	0	26	10	0	0	25	0	0	72
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	88	9	15	0	3	3	18	0	5	211	54	0	15	341	4	0	766
APPROACH %'s :	78.57%	8.04%	13.39%	0.00%	12.50%	12.50%	75.00%	0.00%	1.85%	78.15%	20.00%	0.00%	4.17%	94.72%	1.11%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	50	3	13	0	3	3	12	0	4	125	26	0	9	222	3	0	473
PEAK HR FACTOR :	0.735	0.375	0.650	0.000	0.375	0.750	0.500	0.000	0.500	0.744	0.650	0.000	0.450	0.740	0.750	0.000	0.788
	0.868				0.643				0.775				0.760				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	1	1	0	0	0	0	0	0	50	13	0	4	41	2	0	127
4:15 PM	5	2	5	0	0	0	1	0	3	51	14	0	4	44	1	0	130
4:30 PM	13	1	3	0	0	0	2	0	2	42	15	0	5	43	0	0	126
4:45 PM	9	1	3	0	0	2	1	0	4	60	16	0	1	50	0	0	147
5:00 PM	13	3	3	0	1	3	0	0	4	77	12	0	1	48	2	0	167
5:15 PM	13	5	3	0	0	2	0	0	6	83	18	0	4	38	0	0	172
5:30 PM	22	3	5	0	2	1	2	0	1	73	17	0	3	41	3	0	173
5:45 PM	13	2	3	0	1	0	2	0	1	58	14	0	3	37	0	0	134
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	103	18	26	0	4	8	8	0	21	494	119	0	25	342	8	0	1176
APPROACH %'s :	70.07%	12.24%	17.69%	0.00%	20.00%	40.00%	40.00%	0.00%	3.31%	77.92%	18.77%	0.00%	6.67%	91.20%	2.13%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	57	12	14	0	3	8	3	0	15	293	63	0	9	177	5	0	659
PEAK HR FACTOR :	0.648	0.600	0.700	0.000	0.375	0.667	0.375	0.000	0.625	0.883	0.875	0.000	0.563	0.885	0.417	0.000	0.952
	0.692				0.700				0.867				0.936				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Georgia Dr & Steam Mill Rd
City: Columbus
Control: 1-Way Stop (SB)

Project ID: 20-09088-008
Date: 3/3/2020

Total

NS/EW Streets:	Georgia Dr				Georgia Dr				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	2	0	4	0	1	15	0	0	0	22	2	0	46
7:15 AM	0	0	0	0	3	0	5	0	3	28	0	0	0	45	1	0	85
7:30 AM	0	0	0	0	5	0	4	0	2	27	0	0	0	56	7	0	101
7:45 AM	0	0	0	0	2	0	12	0	2	48	0	0	0	61	4	0	129
8:00 AM	0	0	0	0	5	0	5	0	1	29	0	0	0	44	6	0	90
8:15 AM	0	0	0	0	2	0	6	0	2	21	0	1	0	29	3	0	64
8:30 AM	0	0	0	0	1	0	0	0	5	18	0	0	0	27	1	0	52
8:45 AM	0	0	0	0	2	0	2	0	0	25	0	0	0	24	2	0	55
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	22	0	38	0	16	211	0	1	0	308	26	0	622
APPROACH %'s :					36.67%	0.00%	63.33%	0.00%	7.02%	92.54%	0.00%	0.44%	0.00%	92.22%	7.78%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	15	0	26	0	8	132	0	0	0	206	18	0	405
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.750	0.000	0.542	0.000	0.667	0.688	0.000	0.000	0.000	0.844	0.643	0.000	0.785
					0.732				0.700				0.862				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	5	0	6	0	6	45	0	0	0	44	2	0	108
4:15 PM	0	0	0	0	5	0	3	0	6	49	0	0	0	45	8	0	116
4:30 PM	0	0	0	0	3	0	6	0	7	35	0	0	0	41	5	0	97
4:45 PM	0	0	0	0	5	0	5	0	6	56	0	0	0	50	6	0	128
5:00 PM	0	0	0	0	3	0	3	0	11	64	0	0	0	45	3	0	129
5:15 PM	0	0	0	0	4	0	5	0	10	80	0	0	0	39	2	0	140
5:30 PM	0	0	0	0	4	0	5	0	8	68	0	0	0	38	6	0	129
5:45 PM	0	0	0	0	6	0	2	0	6	53	0	0	0	39	6	0	112
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	35	0	35	0	60	450	0	0	0	341	38	0	959
APPROACH %'s :					50.00%	0.00%	50.00%	0.00%	11.76%	88.24%	0.00%	0.00%	0.00%	89.97%	10.03%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	16	0	18	0	35	268	0	0	0	172	17	0	526
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.800	0.000	0.900	0.000	0.795	0.838	0.000	0.000	0.000	0.860	0.708	0.000	0.939
					0.850				0.842				0.844				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mt Pleasant Dr & Steam Mill Rd
City: Columbus
Control: 1-Way Stop (NB)

Project ID: 20-09088-009
Date: 3/3/2020

Total

NS/EW Streets:	Mt Pleasant Dr				Mt Pleasant Dr				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	0	1	0	0	0	0	0	0	18	0	0	0	21	0	0	43
7:15 AM	11	0	2	0	0	0	0	0	0	26	3	0	1	35	0	0	78
7:30 AM	12	0	2	0	0	0	0	0	0	35	3	0	2	56	0	0	110
7:45 AM	7	0	1	0	0	0	0	0	0	44	4	0	1	55	0	0	112
8:00 AM	7	0	0	0	0	0	0	0	0	30	3	0	1	43	0	0	84
8:15 AM	4	0	0	0	0	0	0	0	0	21	0	0	0	26	0	0	51
8:30 AM	7	0	1	0	0	0	0	0	0	20	2	0	1	26	0	0	57
8:45 AM	4	0	1	0	0	0	0	0	0	21	4	0	0	18	0	0	48
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	55	0	8	0	0	0	0	0	0	215	19	0	6	280	0	0	583
APPROACH %'s :	87.30%	0.00%	12.70%	0.00%					0.00%	91.88%	8.12%	0.00%	2.10%	97.90%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	37	0	5	0	0	0	0	0	0	135	13	0	5	189	0	0	384
PEAK HR FACTOR :	0.771	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.767	0.813	0.000	0.625	0.844	0.000	0.000	0.857
	0.750								0.771				0.836				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	0	2	0	0	0	0	0	0	38	10	0	2	39	0	0	100
4:15 PM	7	0	3	0	0	0	0	0	0	46	9	0	2	43	0	0	110
4:30 PM	6	0	1	0	0	0	0	0	0	35	2	0	4	41	0	0	89
4:45 PM	10	0	3	0	0	0	0	0	0	54	5	0	1	49	0	0	122
5:00 PM	5	0	1	0	0	0	0	0	0	67	4	0	0	41	0	0	118
5:15 PM	7	0	1	0	0	0	0	0	0	70	12	0	0	35	0	0	125
5:30 PM	8	0	0	0	0	0	0	0	0	61	13	0	1	36	0	0	119
5:45 PM	9	0	1	0	0	0	0	0	0	50	9	0	1	36	0	0	106
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	61	0	12	0	0	0	0	0	0	421	64	0	11	320	0	0	889
APPROACH %'s :	83.56%	0.00%	16.44%	0.00%					0.00%	86.80%	13.20%	0.00%	3.32%	96.68%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	30	0	5	0	0	0	0	0	0	252	34	0	2	161	0	0	484
PEAK HR FACTOR :	0.750	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.000	0.900	0.654	0.000	0.500	0.821	0.000	0.000	0.968
	0.673								0.872				0.815				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Northstar Dr/Shirley Winston Park Dwy & Steam Mill Rd
City: Columbus
Control: Signalized

Project ID: 20-09088-010
Date: 3/3/2020

Total

NS/EW Streets:	Northstar Dr/Shirley Winston Park Dwy				Northstar Dr/Shirley Winston Park Dwy				Steam Mill Rd				Steam Mill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	7	0	13	0	0	0	0	0	1	7	9	0	5	13	0	0	55
7:15 AM	15	0	34	0	0	0	0	0	1	17	9	0	21	19	0	0	116
7:30 AM	22	1	24	0	0	0	0	0	1	22	11	0	27	33	1	0	142
7:45 AM	18	1	41	0	0	0	2	0	0	33	14	0	20	42	1	0	172
8:00 AM	14	0	25	0	0	0	1	0	0	20	9	0	19	26	0	0	114
8:15 AM	7	0	20	0	0	1	3	0	0	15	10	0	23	19	0	0	98
8:30 AM	10	0	19	0	1	0	0	0	0	9	10	0	10	14	1	0	74
8:45 AM	12	0	15	0	0	0	0	0	1	8	12	1	8	9	0	0	66
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	105	2	191	0	1	1	6	0	4	131	84	1	133	175	3	0	837
APPROACH %'s :	35.23%	0.67%	64.09%	0.00%	12.50%	12.50%	75.00%	0.00%	1.82%	59.55%	38.18%	0.45%	42.77%	56.27%	0.96%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	69	2	124	0	0	0	3	0	2	92	43	0	87	120	2	0	544
PEAK HR FACTOR :	0.784	0.500	0.756	0.000	0.000	0.000	0.375	0.000	0.500	0.697	0.768	0.000	0.806	0.714	0.500	0.000	0.791
	0.813				0.375				0.729				0.829				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	13	1	24	0	1	1	0	0	1	22	15	0	17	27	0	0	122
4:15 PM	15	0	15	0	0	0	5	0	1	24	25	0	33	26	1	0	145
4:30 PM	17	0	30	0	0	1	2	0	3	19	14	0	31	25	2	0	144
4:45 PM	21	1	43	0	0	0	5	0	2	32	17	0	26	24	1	0	172
5:00 PM	16	2	35	0	0	1	1	0	2	50	22	0	27	25	0	0	181
5:15 PM	8	0	51	0	1	0	1	0	4	35	32	0	27	23	1	0	183
5:30 PM	11	7	28	0	2	0	5	0	4	33	23	0	21	22	4	0	160
5:45 PM	15	0	21	0	0	0	2	0	1	21	31	0	25	22	1	0	139
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	116	11	247	0	4	3	21	0	18	236	179	0	207	194	10	0	1246
APPROACH %'s :	31.02%	2.94%	66.04%	0.00%	14.29%	10.71%	75.00%	0.00%	4.16%	54.50%	41.34%	0.00%	50.36%	47.20%	2.43%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	56	10	157	0	3	1	12	0	12	150	94	0	101	94	6	0	696
PEAK HR FACTOR :	0.667	0.357	0.770	0.000	0.375	0.250	0.600	0.000	0.750	0.750	0.734	0.000	0.935	0.940	0.375	0.000	0.951
	0.858				0.571				0.865				0.966				

Appendix D TRAFFIC VOLUME PROJECTIONS

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:30 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 4:45 PM

Intersection 1: Steam Mill Rd @ Buena Vista Rd

2020 Existing Peak Hr TMC (RAW DATA)

	Buena Vista Rd				Buena Vista Rd				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:30 AM	0	463	99	0	5	715	0	0	0	0	0	0	196	0	5	0
Percentage	0.0%	82.4%	17.6%	0.0%	0.7%	99.3%	0.0%	0.0%	N/A	N/A	N/A	N/A	97.5%	0.0%	2.5%	0.0%
4:45 PM	2	839	227	0	10	1024	0	0	0	1	1	0	150	0	9	0
Percentage	0.2%	78.6%	21.3%	0.0%	1.0%	99.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	94.3%	0.0%	5.7%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	562			911	720			468	0			0	201			104
PM:	1068			1175	1034			848	2			2	159			238
6-HOUR TOTAL	6	2287	562	0	39	3112	2	0	2	2	4	0	588	2	21	0
Percentage	0.2%	80.1%	19.7%	0.0%	1.2%	98.7%	0.1%	0.0%	25.0%	25.0%	50.0%	0.0%	96.2%	0.3%	3.4%	0.0%

2020 Existing Peak Hr TMC (Rounded)

	Buena Vista Rd				Buena Vista Rd				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	0	465	100	0	5	715	0	0	0	0	0	0	195	0	5	0
PM:	5	840	225	0	10	1025	0	0	0	5	5	0	150	0	10	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	565	1475		910	720	1190		470	0	0		0	200	305		105
PM:	1070	2250		1180	1035	1885		850	10	15		5	160	400		240

2040 No Build/Build DHV

	Buena Vista Rd				Buena Vista Rd				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	0	625	135	0	5	965	0	0	0	0	0	0	265	0	5	0
PM:	5	1130	305	0	15	1380	0	0	0	5	5	0	200	0	15	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	760			1230	970			630	0			0	270			140
PM:	1440			1585	1395			1145	10			5	215			325

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:15 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 5:00 PM

Intersection 2: Steam Mill Rd @ Honolulu Dr

2020 Existing Peak Hr TMC (RAW DATA)

	Honolulu Dr								Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:15 AM	34	0	52	0	0	0	0	0	0	150	15	0	36	260	0	0
Percentage	39.5%	0.0%	60.5%	0.0%	N/A	N/A	N/A	N/A	0.0%	90.9%	9.1%	0.0%	12.2%	87.8%	0.0%	0.0%
5:00 PM	25	0	55	0	0	0	0	0	0	361	45	0	38	195	0	0
Percentage	31.3%	0.0%	68.8%	0.0%	N/A	N/A	N/A	N/A	0.0%	88.9%	11.1%	0.0%	16.3%	83.7%	0.0%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	86			51	0			0	165			294	296			202
PM:	80			83	0			0	406			220	233			416
6-HOUR TOTAL	89	0	194	0	0	0	0	0	0	857	95	0	141	768	0	1
Percentage	31.4%	0.0%	68.6%	0.0%	N/A	N/A	N/A	N/A	0.0%	90.0%	10.0%	0.0%	15.5%	84.4%	0.0%	0.1%

2020 Existing Peak Hr TMC (Calculated & Rounded)

	Honolulu Dr				0				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	35	0	50	0	0	0	0	0	0	150	15	0	35	260	0	0
PM:	25	0	55	0	0	0	0	0	0	360	45	0	40	195	0	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	85	135		50	0	0		0	165	460		295	295	495		200
PM:	80	165		85	0	0		0	405	625		220	235	650		415

2040 No Build/Build DHV

	Honolulu Dr				0				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	45	0	65	0	0	0	0	0	0	200	20	0	45	350	0	0
PM:	35	0	75	0	0	0	0	0	0	485	60	0	55	265	0	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	110			65	0			0	220			395	395			265
PM:	110			115	0			0	545			300	320			560

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:15 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 5:00 PM

Intersection 3: Steam Mill Rd @ Chandler Dr

2020 Existing Peak Hr TMC (RAW DATA)

	Chandler Dr								Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:15 AM	36	0	12	0	0	0	1	0	0	185	24	0	6	226	0	0
Percentage	75.0%	0.0%	25.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	88.5%	11.5%	0.0%	2.6%	97.4%	0.0%	0.0%
5:00 PM	28	0	22	0	0	0	0	0	1	343	43	0	13	198	0	0
Percentage	56.0%	0.0%	44.0%	0.0%	N/A	N/A	N/A	N/A	0.3%	88.6%	11.1%	0.0%	6.2%	93.8%	0.0%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	48			30	1			0	209			263	232			197
PM:	50			56	0			1	387			226	211			365
6-HOUR TOTAL	99	0	56	0	0	0	3	0	1	888	106	0	31	739	0	0
Percentage	63.9%	0.0%	36.1%	0.0%	0.0%	0.0%	100.0%	0.0%	0.1%	89.2%	10.7%	0.0%	4.0%	96.0%	0.0%	0.0%

2020 Existing Peak Hr TMC (Calculated & Rounded)

	Chandler Dr				0				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	35	0	10	0	0	0	0	0	0	185	25	0	5	225	0	0
PM:	30	0	20	0	0	0	0	0	0	345	45	0	15	200	0	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	45	75		30	0	0		0	210	470		260	230	425		195
PM:	50	110		60	0	0		0	390	620		230	215	580		365

2040 No Build/Build DHV

	Chandler Dr				0				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	45	0	15	0	0	0	0	0	0	250	35	0	5	305	0	0
PM:	40	0	25	0	0	0	0	0	0	465	60	0	20	270	0	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	60			40	0			0	285			350	310			265
PM:	65			80	0			0	525			310	290			490

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:15 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 4:45 PM

Intersection 4: Steam Mill Rd @ Dogwood Dr

2020 Existing Peak Hr TMC (RAW DATA)

	Dogwood Dr				Dogwood Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:15 AM	69	93	42	0	25	64	30	0	40	85	72	0	29	135	79	0
Percentage	33.8%	45.6%	20.6%	0.0%	21.0%	53.8%	25.2%	0.0%	20.3%	43.1%	36.5%	0.0%	11.9%	55.6%	32.5%	0.0%
4:45 PM	14	69	21	0	64	28	46	0	64	281	13	0	12	150	94	0
Percentage	13.5%	66.3%	20.2%	0.0%	46.4%	20.3%	33.3%	0.0%	17.9%	78.5%	3.6%	0.0%	4.7%	58.6%	36.7%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	204			165	119			212	197			234	243			152
PM:	104			53	138			227	358			210	256			366
6-HOUR TOTAL	104	214	74	0	189	148	147	0	171	665	113	0	49	521	317	0
Percentage	26.5%	54.6%	18.9%	0.0%	39.0%	30.6%	30.4%	0.0%	18.0%	70.1%	11.9%	0.0%	5.5%	58.7%	35.7%	0.0%

2020 Existing Peak Hr TMC (Calculated & Rounded)

	Dogwood Dr				Dogwood Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	70	95	40	0	25	65	30	0	40	85	70	0	30	135	80	0
PM:	15	70	20	0	65	30	45	0	65	280	15	0	10	150	95	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	205	370		165	120	335		215	195	430		235	245	395		150
PM:	105	160		55	140	370		230	360	570		210	255	620		365

2040 No Build/Build DHV

	Dogwood Dr				Dogwood Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	95	130	55	0	35	90	40	0	55	115	95	0	40	180	110	0
PM:	20	95	25	0	90	40	60	0	90	375	20	0	15	200	130	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	280			225	165			295	265			315	330			205
PM:	140			75	190			315	485			280	345			490

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:15 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 4:45 PM

Intersection 5: Steam Mill Rd @ Southern Pines Dr/McCartha Dr

2020 Existing Peak Hr TMC (RAW DATA)

	McCartha Dr				Southern Pines				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:15 AM	16	14	69	0	2	20	6	0	8	128	19	0	102	220	9	0
Percentage	16.2%	14.1%	69.7%	0.0%	7.1%	71.4%	21.4%	0.0%	5.2%	82.6%	12.3%	0.0%	30.8%	66.5%	2.7%	0.0%
4:45 PM	63	37	163	0	10	18	5	0	10	311	45	0	63	187	5	0
Percentage	24.0%	14.1%	62.0%	0.0%	30.3%	54.5%	15.2%	0.0%	2.7%	85.0%	12.3%	0.0%	24.7%	73.3%	2.0%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	99			141	28			31	155			242	331			199
PM:	263			126	33			52	366			255	255			484
6-HOUR TOTAL	138	92	345	0	21	59	25	0	29	759	138	0	269	719	27	0
Percentage	24.0%	16.0%	60.0%	0.0%	20.0%	56.2%	23.8%	0.0%	3.1%	82.0%	14.9%	0.0%	26.5%	70.8%	2.7%	0.0%

2020 Existing Peak Hr TMC (Calculated & Rounded)

	McCartha Dr				Southern Pines				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	15	15	70	0	5	20	5	0	10	130	20	0	100	220	10	0
PM:	65	35	165	0	10	20	5	0	10	310	45	0	65	185	5	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	100	240		140	30	65		35	160	400		240	330	535		205
PM:	265	395		130	35	85		50	365	620		255	255	740		485

2040 No Build/Build DHV

	McCartha Dr				Southern Pines				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	20	20	95	0	5	25	5	0	15	175	25	0	135	295	15	0
PM:	90	45	220	0	15	25	5	0	15	420	60	0	90	250	5	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	135			185	35			50	215			320	445			275
PM:	355			175	45			65	495			345	345			655

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:15 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 4:45 PM

Intersection 6: Steam Mill Rd @ Englewood Dr/Henson Dr

2020 Existing Peak Hr TMC (RAW DATA)

	Henson Dr				Englewood Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:15 AM	19	7	6	0	34	13	46	0	46	115	14	0	5	228	51	0
Percentage	59.4%	21.9%	18.8%	0.0%	36.6%	14.0%	49.5%	0.0%	26.3%	65.7%	8.0%	0.0%	1.8%	80.3%	18.0%	0.0%
4:45 PM	7	13	5	0	60	22	45	0	100	306	28	0	5	178	54	0
Percentage	28.0%	52.0%	20.0%	0.0%	47.2%	17.3%	35.4%	0.0%	23.0%	70.5%	6.5%	0.0%	2.1%	75.1%	22.8%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	32			32	93			104	175			293	284			155
PM:	25			55	127			167	434			230	237			371
6-HOUR TOTAL	49	39	20	0	172	67	162	0	214	712	63	0	22	694	183	0
Percentage	45.4%	36.1%	18.5%	0.0%	42.9%	16.7%	40.4%	0.0%	21.6%	72.0%	6.4%	0.0%	2.4%	77.2%	20.4%	0.0%

2020 Existing Peak Hr TMC (Calculated & Rounded)

	Henson Dr				Englewood Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	20	5	5	0	35	15	45	0	45	115	15	0	5	230	50	0
PM:	5	15	5	0	60	20	45	0	100	305	30	0	5	180	55	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	30	65		35	95	195		100	175	470		295	285	440		155
PM:	25	80		55	125	295		170	435	665		230	240	610		370

2040 No Build/Build DHV

	Henson Dr				Englewood Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	25	5	5	0	45	20	60	0	60	155	20	0	5	310	65	0
PM:	5	20	5	0	80	25	60	0	135	410	40	0	5	240	75	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	35			45	125			130	235			395	380			205
PM:	30			70	165			230	585			305	320			495

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:15 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 4:45 PM

Intersection 7: Steam Mill Rd @ Cardinal Dr/Wickham Dr

2020 Existing Peak Hr TMC (RAW DATA)

	Cardinal Dr				Wickham Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:15 AM	50	3	13	0	3	3	12	0	4	125	26	0	9	222	3	0
Percentage	75.8%	4.5%	19.7%	0.0%	16.7%	16.7%	66.7%	0.0%	2.6%	80.6%	16.8%	0.0%	3.8%	94.9%	1.3%	0.0%
4:45 PM	57	12	14	0	3	8	3	0	15	293	63	0	9	177	5	0
Percentage	68.7%	14.5%	16.9%	0.0%	21.4%	57.1%	21.4%	0.0%	4.0%	79.0%	17.0%	0.0%	4.7%	92.7%	2.6%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	66			38	18			10	155			284	234			141
PM:	83			80	14			32	371			237	191			310
6-HOUR TOTAL	191	27	41	0	7	11	26	0	26	705	173	0	40	683	12	0
Percentage	73.7%	10.4%	15.8%	0.0%	15.9%	25.0%	59.1%	0.0%	2.9%	78.0%	19.1%	0.0%	5.4%	92.9%	1.6%	0.0%

2020 Existing Peak Hr TMC (Calculated & Rounded)

	Cardinal Dr				Wickham Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	50	5	15	0	5	5	10	0	5	125	25	0	10	220	5	0
PM:	55	10	15	0	5	10	5	0	15	295	65	0	10	175	5	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	70	110		40	20	35		15	155	435		280	235	380		145
PM:	80	165		85	20	50		30	375	610		235	190	505		315

2040 No Build/Build DHV

	Cardinal Dr				Wickham Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	65	5	20	0	5	5	15	0	5	170	35	0	15	295	5	0
PM:	75	15	20	0	5	15	5	0	20	395	90	0	15	235	5	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	90			55	25			15	210			375	315			195
PM:	110			120	25			40	505			315	255			420

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:15 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 4:45 PM

Intersection 8: Steam Mill Rd @ Georgia Dr

2020 Existing Peak Hr TMC (RAW DATA)

					Georgia Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:15 AM	0	0	0	0	15	0	26	0	8	132	0	0	0	206	18	0
Percentage	N/A	N/A	N/A	N/A	36.6%	0.0%	63.4%	0.0%	5.7%	94.3%	0.0%	0.0%	0.0%	92.0%	8.0%	0.0%
4:45 PM	0	0	0	0	16	0	18	0	35	268	0	0	0	172	17	0
Percentage	N/A	N/A	N/A	N/A	47.1%	0.0%	52.9%	0.0%	11.6%	88.4%	0.0%	0.0%	0.0%	91.0%	9.0%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	0			0	41			26	140			232	224			147
PM:	0			0	34			52	303			190	189			284
6-HOUR TOTAL	0	0	0	0	57	0	73	0	76	661	0	1	0	649	64	0
Percentage	N/A	N/A	N/A	N/A	43.8%	0.0%	56.2%	0.0%	10.3%	89.6%	0.0%	0.1%	0.0%	91.0%	9.0%	0.0%

2020 Existing Peak Hr TMC (Calculated & Rounded)

	0				Georgia Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	0	0	0	0	15	0	25	0	10	130	0	0	0	205	20	0
PM:	0	0	0	0	15	0	20	0	35	270	0	0	0	170	15	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	0	0		0	40	70		30	140	370		230	225	370		145
PM:	0	0		0	35	85		50	305	495		190	185	470		285

2040 No Build/Build DHV

	0				Georgia Dr				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	0	0	0	0	20	0	35	0	15	175	0	0	0	275	25	0
PM:	0	0	0	0	20	0	25	0	45	365	0	0	0	230	20	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	0			0	55			40	190			310	300			195
PM:	0			0	45			65	410			255	250			385

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:15 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 4:45 PM

Intersection 9: Steam Mill Rd @ Mt Pleasant Dr

2020 Existing Peak Hr TMC (RAW DATA)

		Mt Pleasant Dr							Steam Mill Rd					Steam Mill Rd		
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:15 AM	37	0	5	0	0	0	0	0	0	135	13	0	5	189	0	0
Percentage	88.1%	0.0%	11.9%	0.0%	N/A	N/A	N/A	N/A	0.0%	91.2%	8.8%	0.0%	2.6%	97.4%	0.0%	0.0%
4:45 PM	30	0	5	0	0	0	0	0	0	252	34	0	2	161	0	0
Percentage	85.7%	0.0%	14.3%	0.0%	N/A	N/A	N/A	N/A	0.0%	88.1%	11.9%	0.0%	1.2%	98.8%	0.0%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	42			18	0			0	148			226	194			140
PM:	35			36	0			0	286			191	163			257
6-HOUR TOTAL	116	0	20	0	0	0	0	0	0	636	83	0	17	600	0	0
Percentage	85.3%	0.0%	14.7%	0.0%	N/A	N/A	N/A	N/A	0.0%	88.5%	11.5%	0.0%	2.8%	97.2%	0.0%	0.0%

2020 Existing Peak Hr TMC (Calculated & Rounded)

	Mt Pleasant Dr				0				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	35	0	5	0	0	0	0	0	0	135	15	0	5	190	0	0
PM:	30	0	5	0	0	0	0	0	0	250	35	0	5	160	0	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	40	60		20	0	0		0	150	375		225	195	335		140
PM:	35	75		40	0	0		0	285	475		190	165	420		255

2040 No Build/Build DHV

	Mt Pleasant Dr				0				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	45	0	5	0	0	0	0	0	0	180	20	0	5	255	0	0
PM:	40	0	5	0	0	0	0	0	0	335	45	0	5	215	0	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	50			25	0			0	200			300	260			185
PM:	45			50	0			0	380			255	220			340

ADT AND DHV TRAFFIC VOLUMES

Project: Steam Mill Road Improvements
Client: Columbus, GA
Date: 4/1/2020
Growth Rate: 1.5%
AM Peak Hour: 7:15 AM

Project Number: 171007024
Computed by: B. Keffer
Checked by:
PM Peak Hour: 4:45 PM

Intersection 10: Steam Mill Rd @ Northstar Dr/Shirley Winston Park Drwy

2020 Existing Peak Hr TMC (RAW DATA)

	Northstar Dr				Shirley Winston Park Drwy				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
7:15 AM	69	2	124	0	0	0	3	0	2	92	43	0	87	120	2	0
Percentage	35.4%	1.0%	63.6%	0.0%	0.0%	0.0%	100.0%	0.0%	1.5%	67.2%	31.4%	0.0%	41.6%	57.4%	1.0%	0.0%
4:45 PM	56	10	157	0	3	1	12	0	12	150	94	0	101	94	6	0
Percentage	25.1%	4.5%	70.4%	0.0%	18.8%	6.3%	75.0%	0.0%	4.7%	58.6%	36.7%	0.0%	50.2%	46.8%	3.0%	0.0%
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	195			130	3			6	137			192	209			216
PM:	223			196	16			28	256			162	201			310
6-HOUR TOTAL	221	13	438	0	5	4	27	0	22	367	263	1	340	369	13	0
Percentage	32.9%	1.9%	65.2%	0.0%	13.9%	11.1%	75.0%	0.0%	3.4%	56.2%	40.3%	0.2%	47.1%	51.1%	1.8%	0.0%

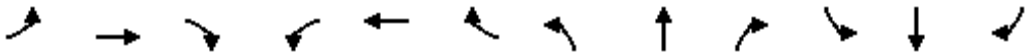
2020 Existing Peak Hr TMC (Calculated & Rounded)

	Northstar Dr				Shirley Winston Park Drwy				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	70	5	125	0	0	0	5	0	5	90	45	0	85	120	5	0
PM:	55	10	155	0	5	0	10	0	10	150	95	0	100	95	5	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	200	330		130	5	20		15	140	335		195	210	425		215
PM:	220	415		195	15	40		25	255	415		160	200	510		310

2040 No Build/Build DHV

	Northstar Dr				Shirley Winston Park Drwy				Steam Mill Rd				Steam Mill Rd			
BY MOVEMENT	NB LT	NB THRU	NB RT	NB U-TURN	SB LT	SB THRU	SB RT	SB U-TURN	EB LT	EB THRU	EB RT	EB U-TURN	WB LT	WB THRU	WB RT	WB U-TURN
AM:	95	5	170	0	0	0	5	0	5	120	60	0	115	160	5	0
PM:	75	15	210	0	5	0	15	0	15	200	130	0	135	130	5	0
BY APPROACH	IN			OUT	IN			OUT	IN			OUT	IN			OUT
AM:	270			175	5			15	185			260	280			290
PM:	300			265	20			35	345			220	270			415

Appendix E SYNCHRO REPORTS

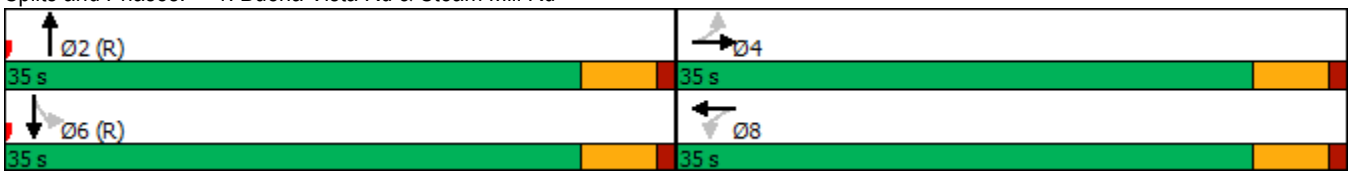


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	195	0	5	0	465	100	5	715	0
Future Volume (vph)	0	0	0	195	0	5	0	465	100	5	715	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	150		0
Storage Lanes	0		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt					0.994			0.969				
Flt Protected					0.954					0.950		
Satd. Flow (prot)	0	1900	0	0	1768	0	0	3332	0	1805	3471	0
Flt Permitted					0.736					0.360		
Satd. Flow (perm)	0	1900	0	0	1364	0	0	3332	0	684	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					31			59				
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		370			125			420			391	
Travel Time (s)		7.2			2.4			8.2			7.6	
Peak Hour Factor	0.92	0.92	0.92	0.79	0.92	0.42	0.92	0.84	0.69	0.42	0.78	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	5%	5%	0%	4%	0%
Adj. Flow (vph)	0	0	0	247	0	12	0	554	145	12	917	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	259	0	0	699	0	12	917	0
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0			15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0			23.0		23.0	23.0	
Total Split (s)	35.0	35.0		35.0	35.0			35.0		35.0	35.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%			50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0			30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0			1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Recall Mode	None	None		None	None			C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)					19.8			40.2		40.2	40.2	
Actuated g/C Ratio					0.28			0.57		0.57	0.57	
v/c Ratio					0.63			0.36		0.03	0.46	
Control Delay					25.8			8.8		9.2	10.5	
Queue Delay					0.0			0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay					25.8			8.8		9.2	10.5	
LOS					C			A		A	B	
Approach Delay					25.8			8.8			10.5	
Approach LOS					C			A			B	
Queue Length 50th (ft)					86			66		2	105	
Queue Length 95th (ft)					134			118		5	158	
Internal Link Dist (ft)		290			45			340			311	
Turn Bay Length (ft)										150		
Base Capacity (vph)					602			1937		392	1992	
Starvation Cap Reductn					0			0		0	0	
Spillback Cap Reductn					0			0		0	0	
Storage Cap Reductn					0			0		0	0	
Reduced v/c Ratio					0.43			0.36		0.03	0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 40.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Buena Vista Rd & Steam Mill Rd



Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	150	15	35	260	35	50
Future Vol, veh/h	150	15	35	260	35	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	63	75	78	85	59
Heavy Vehicles, %	1	5	3	2	3	2
Mvmt Flow	172	24	47	333	41	85

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	196	0	611	184
Stage 1	-	-	-	-	184	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	-	-	4.13	-	6.43	6.22
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.318
Pot Cap-1 Maneuver	-	-	1371	-	455	858
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	656	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1371	-	436	858
Mov Cap-2 Maneuver	-	-	-	-	436	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	628	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	652	-	-	1371	-
HCM Lane V/C Ratio	0.193	-	-	0.034	-
HCM Control Delay (s)	11.8	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	185	25	5	225	35	10
Future Vol, veh/h	185	25	5	225	35	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	67	75	87	56	75
Heavy Vehicles, %	1	0	5	2	3	0
Mvmt Flow	208	37	7	259	63	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	245	0	500	227
Stage 1	-	-	-	-	227	-
Stage 2	-	-	-	-	273	-
Critical Hdwy	-	-	4.15	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1304	-	529	817
Stage 1	-	-	-	-	808	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1304	-	526	817
Mov Cap-2 Maneuver	-	-	-	-	526	-
Stage 1	-	-	-	-	808	-
Stage 2	-	-	-	-	766	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	561	-	-	1304	-
HCM Lane V/C Ratio	0.135	-	-	0.005	-
HCM Control Delay (s)	12.4	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	85	70	30	135	80	70	95	40	25	65	30
Future Volume (vph)	40	85	70	30	135	80	70	95	40	25	65	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.949			0.962			0.977			0.967	
Flt Protected		0.991			0.993			0.985			0.989	
Satd. Flow (prot)	0	1756	0	0	1782	0	0	1808	0	0	1757	0
Flt Permitted		0.779			0.875			0.985			0.989	
Satd. Flow (perm)	0	1380	0	0	1570	0	0	1808	0	0	1757	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			19			10			16	
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		719			915			270			269	
Travel Time (s)		19.6			25.0			9.2			9.2	
Peak Hour Factor	0.77	0.71	0.67	0.73	0.78	0.94	0.75	0.58	0.75	0.69	0.76	0.75
Heavy Vehicles (%)	3%	1%	2%	3%	2%	1%	1%	0%	5%	5%	2%	5%
Adj. Flow (vph)	52	120	104	41	173	85	93	164	53	36	86	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	276	0	0	299	0	0	310	0	0	162	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Recall Mode	None	None		None	None		C-Min	C-Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		25.2			25.2			47.7			17.1	
Actuated g/C Ratio		0.24			0.24			0.45			0.16	
v/c Ratio		0.78			0.76			0.38			0.54	
Control Delay		48.2			47.2			22.1			42.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		48.2			47.2			22.1			42.8	
LOS		D			D			C			D	
Approach Delay		48.2			47.2			22.1			42.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			C			D	
Queue Length 50th (ft)		157			177			125			92	
Queue Length 95th (ft)		164			203			140			123	
Internal Link Dist (ft)		639			835			190			189	
Turn Bay Length (ft)												
Base Capacity (vph)		423			472			825			513	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.65			0.63			0.38			0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 39.4		Intersection LOS: D	
Intersection Capacity Utilization 44.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Dogwood Dr & Steam Mill Rd

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	130	20	100	220	10	15	15	70	5	20	5
Future Vol, veh/h	10	130	20	100	220	10	15	15	70	5	20	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	86	68	59	82	56	50	88	78	50	71	38
Heavy Vehicles, %	0	5	5	0	2	0	0	5	3	5	5	0
Mvmt Flow	20	151	29	169	268	18	30	17	90	10	28	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	286	0	0	180	0	0	842	830	166	874	835	277
Stage 1	-	-	-	-	-	-	206	206	-	615	615	-
Stage 2	-	-	-	-	-	-	636	624	-	259	220	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.23	7.15	6.55	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.327	3.545	4.045	3.3
Pot Cap-1 Maneuver	1288	-	-	1408	-	-	286	302	876	267	300	767
Stage 1	-	-	-	-	-	-	801	726	-	473	478	-
Stage 2	-	-	-	-	-	-	469	473	-	739	716	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1288	-	-	1408	-	-	227	254	876	200	253	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	227	254	-	200	253	-
Stage 1	-	-	-	-	-	-	787	714	-	465	410	-
Stage 2	-	-	-	-	-	-	368	405	-	636	704	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	2.9	16.3	20.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	453	1288	-	-	1408	-	-	288
HCM Lane V/C Ratio	0.302	0.016	-	-	0.12	-	-	0.178
HCM Control Delay (s)	16.3	7.8	0	-	7.9	0	-	20.2
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.3	0	-	-	0.4	-	-	0.6

RAB SCENARIO B: 2020 AM

This condition includes redirected volumes from Dogwood Drive

HCM 2010 TWSC

5: McCartha Dr/Southern Pines Dr & Steam Mill Rd 06/02/2020

Intersection	
Int Delay, s/veh	45.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	50	130	20	100	220	90	15	65	70	10	55	85
Future Vol, veh/h	50	130	20	100	220	90	15	65	70	10	55	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	86	68	59	82	56	50	88	78	50	71	38
Heavy Vehicles, %	0	5	5	0	2	0	0	5	3	5	5	0
Mvmt Flow	100	151	29	169	268	161	30	74	90	20	77	224

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	429	0	0	180	0	0	1203	1133	166	1135	1067	349
Stage 1	-	-	-	-	-	-	366	366	-	687	687	-
Stage 2	-	-	-	-	-	-	837	767	-	448	380	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.23	7.15	6.55	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.327	3.545	4.045	3.3
Pot Cap-1 Maneuver	1141	-	-	1408	-	-	163	200	876	177	219	699
Stage 1	-	-	-	-	-	-	657	617	-	432	443	-
Stage 2	-	-	-	-	-	-	364	407	-	584	609	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1141	-	-	1408	-	-	58	151	876	81	166	699
Mov Cap-2 Maneuver	-	-	-	-	-	-	58	151	-	81	166	-
Stage 1	-	-	-	-	-	-	593	557	-	390	372	-
Stage 2	-	-	-	-	-	-	164	341	-	410	549	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	2.2	153.5	97.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	175	1141	-	-	1408	-	-	311
HCM Lane V/C Ratio	1.106	0.088	-	-	0.12	-	-	1.033
HCM Control Delay (s)	153.5	8.5	0	-	7.9	0	-	97.6
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	9.8	0.3	-	-	0.4	-	-	11.6

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	45	115	15	5	230	50	20	5	5	35	15	45
Future Vol, veh/h	45	115	15	5	230	50	20	5	5	35	15	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	74	70	63	77	75	59	58	50	85	81	72
Heavy Vehicles, %	0	5	0	0	1	5	0	0	0	5	0	4
Mvmt Flow	63	155	21	8	299	67	34	9	10	41	19	63

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	366	0	0	176	0	0	682	674	166	650	651	333
Stage 1	-	-	-	-	-	-	292	292	-	349	349	-
Stage 2	-	-	-	-	-	-	390	382	-	301	302	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.15	6.5	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.545	4	3.336
Pot Cap-1 Maneuver	1204	-	-	1412	-	-	367	379	884	378	390	704
Stage 1	-	-	-	-	-	-	720	675	-	661	637	-
Stage 2	-	-	-	-	-	-	638	616	-	702	668	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1204	-	-	1412	-	-	306	354	884	349	365	704
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	354	-	349	365	-
Stage 1	-	-	-	-	-	-	678	636	-	623	633	-
Stage 2	-	-	-	-	-	-	560	612	-	645	629	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.2	16.7	15.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	359	1204	-	-	1412	-	-	475
HCM Lane V/C Ratio	0.146	0.052	-	-	0.006	-	-	0.257
HCM Control Delay (s)	16.7	8.2	0	-	7.6	0	-	15.2
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0	-	-	1

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	125	25	10	220	5	50	5	15	5	5	10
Future Vol, veh/h	5	125	25	10	220	5	50	5	15	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	74	65	45	74	75	74	38	65	38	75	50
Heavy Vehicles, %	5	5	4	0	3	0	2	0	5	0	0	0
Mvmt Flow	10	169	38	22	297	7	68	13	23	13	7	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	207	0	0	566	556	188	571	572	301
Stage 1	-	-	-	-	-	-	208	208	-	345	345	-
Stage 2	-	-	-	-	-	-	358	348	-	226	227	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.12	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.518	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1240	-	-	1376	-	-	435	442	846	435	433	743
Stage 1	-	-	-	-	-	-	794	734	-	675	640	-
Stage 2	-	-	-	-	-	-	660	638	-	781	720	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1240	-	-	1376	-	-	409	430	846	405	421	743
Mov Cap-2 Maneuver	-	-	-	-	-	-	409	430	-	405	421	-
Stage 1	-	-	-	-	-	-	787	727	-	669	628	-
Stage 2	-	-	-	-	-	-	623	626	-	739	714	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.5	15	12.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	465	1240	-	-	1376	-	-	529
HCM Lane V/C Ratio	0.223	0.008	-	-	0.016	-	-	0.075
HCM Control Delay (s)	15	7.9	0	-	7.7	0	-	12.4
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	130	205	20	15	25
Future Vol, veh/h	10	130	205	20	15	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	69	84	64	75	54
Heavy Vehicles, %	5	5	3	5	5	0
Mvmt Flow	15	188	244	31	20	46

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	275	0	-	0	478	260
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	4.15	-	-	-	6.45	6.2
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.3
Pot Cap-1 Maneuver	1271	-	-	-	541	784
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	811	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1271	-	-	-	534	784
Mov Cap-2 Maneuver	-	-	-	-	534	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	811	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1271	-	-	-	687
HCM Lane V/C Ratio	0.012	-	-	-	0.097
HCM Control Delay (s)	7.9	0	-	-	10.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	135	15	5	190	35	5
Future Vol, veh/h	135	15	5	190	35	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	81	63	84	77	63
Heavy Vehicles, %	5	0	5	3	3	5
Mvmt Flow	175	19	8	226	45	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	194	0	427	185
Stage 1	-	-	-	-	185	-
Stage 2	-	-	-	-	242	-
Critical Hdwy	-	-	4.15	-	6.43	6.25
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.345
Pot Cap-1 Maneuver	-	-	1361	-	583	850
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	796	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1361	-	579	850
Mov Cap-2 Maneuver	-	-	-	-	579	-
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	790	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.5
HCM LOS			B

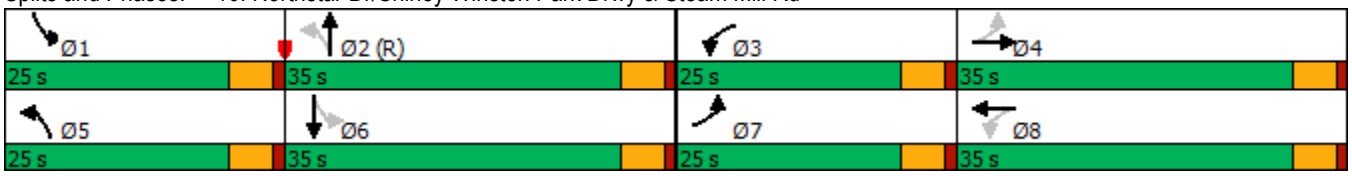
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	608	-	-	1361	-
HCM Lane V/C Ratio	0.088	-	-	0.006	-
HCM Control Delay (s)	11.5	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	90	45	85	120	5	70	5	125	0	0	5
Future Volume (vph)	5	90	45	85	120	5	70	5	125	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	120		0	80		0	170		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.953			0.992			0.859			0.850	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1736	0	1719	1850	0	1719	1617	0	1900	1615	0
Flt Permitted	0.644			0.387			0.685					
Satd. Flow (perm)	1224	1736	0	700	1850	0	1240	1617	0	1900	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			2			164			731	
Link Speed (mph)		35			35			35			15	
Link Distance (ft)		527			2071			478			480	
Travel Time (s)		10.3			40.3			9.3			21.8	
Peak Hour Factor	0.50	0.70	0.77	0.81	0.71	0.50	0.78	0.50	0.76	0.92	0.92	0.38
Heavy Vehicles (%)	0%	4%	5%	5%	2%	0%	5%	0%	1%	0%	0%	0%
Adj. Flow (vph)	10	129	58	105	169	10	90	10	164	0	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	187	0	105	179	0	90	174	0	0	13	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	15.0		10.0	15.0		10.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	24.0		23.0	24.0		23.0	24.0		23.0	24.0	
Total Split (s)	25.0	35.0		25.0	35.0		25.0	35.0		25.0	35.0	
Total Split (%)	20.8%	29.2%		20.8%	29.2%		20.8%	29.2%		20.8%	29.2%	
Maximum Green (s)	20.0	30.0		20.0	30.0		20.0	30.0		20.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Recall Mode	None	None		None	None		None	C-Min		None	Min	
Walk Time (s)	0.0	7.0		0.0	7.0		0.0	7.0		0.0	7.0	
Flash Dont Walk (s)	0.0	8.0		0.0	8.0		0.0	8.0		0.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	29.4	19.4		36.8	33.8		73.2	73.2			57.8	
Actuated g/C Ratio	0.24	0.16		0.31	0.28		0.61	0.61			0.48	
v/c Ratio	0.03	0.63		0.33	0.34		0.11	0.17			0.01	
Control Delay	26.0	51.6		32.0	35.9		11.5	2.7			0.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	

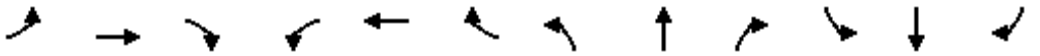
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	26.0	51.6		32.0	35.9		11.5	2.7			0.0	
LOS	C	D		C	D		B	A			A	
Approach Delay		50.3			34.5			5.7				
Approach LOS		D			C			A				
Queue Length 50th (ft)	6	124		61	106		26	3			0	
Queue Length 95th (ft)	9	139		84	137		52	0			0	
Internal Link Dist (ft)		447			1991			398			400	
Turn Bay Length (ft)	100			120			80					
Base Capacity (vph)	470	447		384	522		836	1050			1156	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.02	0.42		0.27	0.34		0.11	0.17			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 28.0		Intersection LOS: C	
Intersection Capacity Utilization 45.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: Northstar Dr/Shirley Winston Park Drwy & Steam Mill Rd



2020 PM Synchro Reports

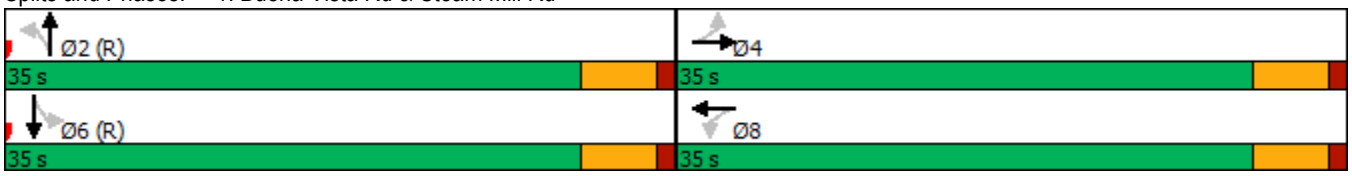


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	5	150	0	10	5	840	225	10	1025	0
Future Volume (vph)	0	5	5	150	0	10	5	840	225	10	1025	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	150		0
Storage Lanes	0		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00
Frt		0.932			0.988			0.967				
Flt Protected					0.956					0.950		
Satd. Flow (prot)	0	1771	0	0	1778	0	0	3464	0	1805	3505	0
Flt Permitted					0.738			0.951		0.174		
Satd. Flow (perm)	0	1771	0	0	1373	0	0	3294	0	331	3505	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			31			66				
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		391			125			420			391	
Travel Time (s)		7.6			2.4			8.2			7.6	
Peak Hour Factor	0.92	0.92	0.92	0.80	0.92	0.56	0.92	0.89	0.83	0.50	0.91	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	3%	0%
Adj. Flow (vph)	0	5	5	188	0	18	5	944	271	20	1126	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	0	0	206	0	0	1220	0	20	1126	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		17.6			17.6			42.4		42.4	42.4	
Actuated g/C Ratio		0.25			0.25			0.61		0.61	0.61	
v/c Ratio		0.02			0.56			0.60		0.10	0.53	
Control Delay		13.8			24.9			10.3		8.8	9.8	
Queue Delay		0.0			0.0			0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		13.8			24.9			10.3		8.8	9.8	
LOS		B			C			B		A	A	
Approach Delay		13.8			24.9			10.3			9.7	
Approach LOS		B			C			B			A	
Queue Length 50th (ft)		2			67			132		3	122	
Queue Length 95th (ft)		11			114			242		8	222	
Internal Link Dist (ft)		311			45			340			311	
Turn Bay Length (ft)										150		
Base Capacity (vph)		761			606			2020		200	2122	
Starvation Cap Reductn		0			0			0		0	0	
Spillback Cap Reductn		0			0			0		0	0	
Storage Cap Reductn		0			0			0		0	0	
Reduced v/c Ratio		0.01			0.34			0.60		0.10	0.53	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Buena Vista Rd & Steam Mill Rd



Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	360	45	40	195	25	55
Future Vol, veh/h	360	45	40	195	25	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	80	84	79	89	76
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	396	56	48	247	28	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	452	0	767	424
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	343	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1119	-	373	634
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1119	-	354	634
Mov Cap-2 Maneuver	-	-	-	-	354	-
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	687	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	519	-	-	1119	-
HCM Lane V/C Ratio	0.194	-	-	0.043	-
HCM Control Delay (s)	13.6	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	345	45	15	200	30	20
Future Vol, veh/h	345	45	15	200	30	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	72	81	87	88	69
Heavy Vehicles, %	0	2	0	1	5	0
Mvmt Flow	416	63	19	230	34	29

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	479	0	716	448
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	268	-
Critical Hdwy	-	-	4.1	-	6.45	6.2
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.2	-	3.545	3.3
Pot Cap-1 Maneuver	-	-	1094	-	392	615
Stage 1	-	-	-	-	637	-
Stage 2	-	-	-	-	770	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1094	-	384	615
Mov Cap-2 Maneuver	-	-	-	-	384	-
Stage 1	-	-	-	-	637	-
Stage 2	-	-	-	-	755	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	464	-	-	1094	-
HCM Lane V/C Ratio	0.136	-	-	0.017	-
HCM Control Delay (s)	14	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	280	15	10	150	95	15	70	20	65	30	45
Future Volume (vph)	65	280	15	10	150	95	15	70	20	65	30	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.951			0.976			0.952	
Flt Protected		0.990			0.997			0.993			0.980	
Satd. Flow (prot)	0	1868	0	0	1782	0	0	1841	0	0	1746	0
Flt Permitted		0.865			0.966			0.993			0.980	
Satd. Flow (perm)	0	1632	0	0	1727	0	0	1841	0	0	1746	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			27			10			26	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		719			915			270			269	
Travel Time (s)		14.0			17.8			6.1			6.1	
Peak Hour Factor	0.67	0.81	0.65	0.60	0.87	0.90	0.70	0.66	0.75	0.89	0.70	0.72
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	0%	0%	0%	2%	0%	2%
Adj. Flow (vph)	97	346	23	17	172	106	21	106	27	73	43	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	466	0	0	295	0	0	154	0	0	179	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Recall Mode	None	None		None	None		C-Min	C-Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		51.3			51.3			21.1			17.6	
Actuated g/C Ratio		0.49			0.49			0.20			0.17	
v/c Ratio		0.58			0.34			0.41			0.57	
Control Delay		23.9			17.2			37.3			41.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		23.9			17.2			37.3			41.3	
LOS		C			B			D			D	
Approach Delay		23.9			17.2			37.3			41.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			B			D			D	
Queue Length 50th (ft)		231			114			79			96	
Queue Length 95th (ft)		295			174			103			114	
Internal Link Dist (ft)		639			835			190			189	
Turn Bay Length (ft)												
Base Capacity (vph)		799			858			533			517	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.58			0.34			0.29			0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 26.8		Intersection LOS: C	
Intersection Capacity Utilization 60.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Dogwood Dr & Steam MIll Rd

Intersection	
Int Delay, s/veh	20.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	310	45	65	185	5	65	35	165	10	20	5
Future Vol, veh/h	10	310	45	65	185	5	65	35	165	10	20	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	82	80	75	94	63	79	71	63	50	75	63
Heavy Vehicles, %	0	1	0	2	1	0	3	3	2	0	0	0
Mvmt Flow	12	378	56	87	197	8	82	49	262	20	27	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	205	0	0	434	0	0	823	809	406	961	833	201
Stage 1	-	-	-	-	-	-	430	430	-	375	375	-
Stage 2	-	-	-	-	-	-	393	379	-	586	458	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.13	6.53	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.527	4.027	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1378	-	-	1126	-	-	291	313	645	238	307	845
Stage 1	-	-	-	-	-	-	601	582	-	650	621	-
Stage 2	-	-	-	-	-	-	630	613	-	500	570	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1378	-	-	1126	-	-	247	282	645	114	277	845
Mov Cap-2 Maneuver	-	-	-	-	-	-	247	282	-	114	277	-
Stage 1	-	-	-	-	-	-	594	575	-	642	567	-
Stage 2	-	-	-	-	-	-	543	560	-	268	563	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	2.5	55.5	30.7
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	431	1378	-	-	1126	-	-	194
HCM Lane V/C Ratio	0.913	0.009	-	-	0.077	-	-	0.281
HCM Control Delay (s)	55.5	7.6	0	-	8.5	0	-	30.7
HCM Lane LOS	F	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	10	0	-	-	0.2	-	-	1.1

RAB SCENARIO B: 2020 PM

This condition includes redirected volumes from Dogwood Drive

HCM 2010 TWSC

5: McCartha Dr/Southern Pines Dr & Steam Mill Rd 04/23/2020

Intersection	
Int Delay, s/veh	220.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	75	310	45	65	185	100	65	70	165	25	75	75
Future Vol, veh/h	75	310	45	65	185	100	65	70	165	25	75	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	82	80	75	94	63	79	71	63	50	75	63
Heavy Vehicles, %	0	1	0	2	1	0	3	3	2	0	0	0
Mvmt Flow	90	378	56	87	197	159	82	99	262	50	100	119

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	356	0	0	434	0	0	1146	1116	406	1218	1065	277
Stage 1	-	-	-	-	-	-	586	586	-	451	451	-
Stage 2	-	-	-	-	-	-	560	530	-	767	614	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.13	6.53	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.527	4.027	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1214	-	-	1126	-	-	176	207	645	159	224	767
Stage 1	-	-	-	-	-	-	495	495	-	592	574	-
Stage 2	-	-	-	-	-	-	511	525	-	398	486	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1214	-	-	1126	-	-	~ 73	168	645	~ 44	182	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 73	168	-	~ 44	182	-
Stage 1	-	-	-	-	-	-	446	446	-	533	518	-
Stage 2	-	-	-	-	-	-	314	474	-	166	438	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	1.7	$ 556.3	$ 456.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	209	1214	-	-	1126	-	-	146
HCM Lane V/C Ratio	2.119	0.074	-	-	0.077	-	-	1.843
HCM Control Delay (s)	$ 556.3	8.2	0	-	8.5	0	-	$ 456.8
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	34.1	0.2	-	-	0.2	-	-	20.3

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

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	100	305	30	5	180	55	5	15	5	60	20	45
Future Vol, veh/h	100	305	30	5	180	55	5	15	5	60	20	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	83	70	63	87	75	58	54	31	83	69	75
Heavy Vehicles, %	2	1	0	0	1	2	0	0	5	2	0	0
Mvmt Flow	128	367	43	8	207	73	9	28	16	72	29	60

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	280	0	0	410	0	0	949	941	389	927	926	244
Stage 1	-	-	-	-	-	-	645	645	-	260	260	-
Stage 2	-	-	-	-	-	-	304	296	-	667	666	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.5	6.25	7.12	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4	3.345	3.518	4	3.3
Pot Cap-1 Maneuver	1283	-	-	1160	-	-	242	265	653	249	271	800
Stage 1	-	-	-	-	-	-	464	471	-	745	697	-
Stage 2	-	-	-	-	-	-	710	672	-	448	460	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1283	-	-	1160	-	-	182	229	653	198	234	800
Mov Cap-2 Maneuver	-	-	-	-	-	-	182	229	-	198	234	-
Stage 1	-	-	-	-	-	-	404	410	-	648	691	-
Stage 2	-	-	-	-	-	-	624	667	-	354	400	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0.2	21.4	32.7
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	272	1283	-	-	1160	-	-	286
HCM Lane V/C Ratio	0.193	0.1	-	-	0.007	-	-	0.564
HCM Control Delay (s)	21.4	8.1	0	-	8.1	0	-	32.7
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.7	0.3	-	-	0	-	-	3.2

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	15	295	65	10	175	5	55	10	15	5	10	5
Future Vol, veh/h	15	295	65	10	175	5	55	10	15	5	10	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	88	88	56	89	42	65	60	70	38	67	38
Heavy Vehicles, %	0	2	0	5	1	0	2	0	0	0	0	0
Mvmt Flow	24	335	74	18	197	12	85	17	21	13	15	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	209	0	0	409	0	0	673	665	372	678	696	203
Stage 1	-	-	-	-	-	-	420	420	-	239	239	-
Stage 2	-	-	-	-	-	-	253	245	-	439	457	-
Critical Hdwy	4.1	-	-	4.15	-	-	7.12	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.518	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1374	-	-	1134	-	-	369	383	678	369	368	843
Stage 1	-	-	-	-	-	-	611	593	-	769	711	-
Stage 2	-	-	-	-	-	-	751	707	-	601	571	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1374	-	-	1134	-	-	341	367	678	334	353	843
Mov Cap-2 Maneuver	-	-	-	-	-	-	341	367	-	334	353	-
Stage 1	-	-	-	-	-	-	597	579	-	751	698	-
Stage 2	-	-	-	-	-	-	710	694	-	552	558	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.6	19.1	14.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	377	1374	-	-	1134	-	-	424
HCM Lane V/C Ratio	0.325	0.017	-	-	0.016	-	-	0.097
HCM Control Delay (s)	19.1	7.7	0	-	8.2	0	-	14.4
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	270	170	15	15	20
Future Vol, veh/h	35	270	170	15	15	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	84	86	71	80	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	44	321	198	21	19	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	219	0	-	0	618	209
Stage 1	-	-	-	-	209	-
Stage 2	-	-	-	-	409	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1362	-	-	-	456	836
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	675	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1362	-	-	-	438	836
Mov Cap-2 Maneuver	-	-	-	-	438	-
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	675	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1362	-	-	-	590
HCM Lane V/C Ratio	0.032	-	-	-	0.069
HCM Control Delay (s)	7.7	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

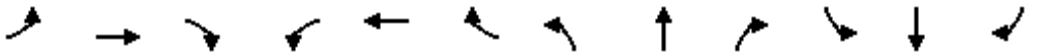
Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	250	35	5	160	30	5
Future Vol, veh/h	250	35	5	160	30	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	65	50	82	75	42
Heavy Vehicles, %	2	0	5	1	0	0
Mvmt Flow	278	54	10	195	40	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	332	0	520	305
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	215	-
Critical Hdwy	-	-	4.15	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.245	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1211	-	520	740
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	826	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1211	-	515	740
Mov Cap-2 Maneuver	-	-	-	-	515	-
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	819	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	554	-	-	1211	-
HCM Lane V/C Ratio	0.094	-	-	0.008	-
HCM Control Delay (s)	12.2	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

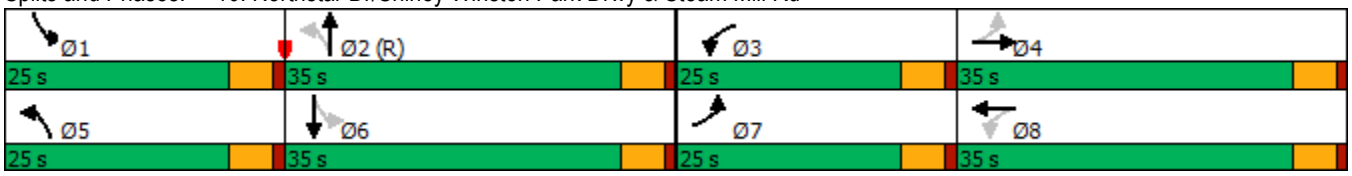


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	150	95	100	95	5	55	10	155	5	0	10
Future Volume (vph)	10	150	95	100	95	5	55	10	155	5	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	120		0	80		0	170		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.941			0.983			0.868			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1749	0	1805	1851	0	1770	1635	0	1805	1615	0
Flt Permitted	0.684			0.225			0.690			0.614		
Satd. Flow (perm)	1300	1749	0	428	1851	0	1285	1635	0	1167	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			5			201			821	
Link Speed (mph)		35			35			35			15	
Link Distance (ft)		527			2071			478			480	
Travel Time (s)		10.3			40.3			9.3			21.8	
Peak Hour Factor	0.75	0.75	0.73	0.94	0.94	0.38	0.67	0.36	0.77	0.38	0.25	0.60
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	2%	0%	1%	0%	0%	0%
Adj. Flow (vph)	13	200	130	106	101	13	82	28	201	13	0	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	330	0	106	114	0	82	229	0	13	17	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	15.0		10.0	15.0		10.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	24.0		23.0	24.0		23.0	24.0		23.0	24.0	
Total Split (s)	25.0	35.0		25.0	35.0		25.0	35.0		25.0	35.0	
Total Split (%)	20.8%	29.2%		20.8%	29.2%		20.8%	29.2%		20.8%	29.2%	
Maximum Green (s)	20.0	30.0		20.0	30.0		20.0	30.0		20.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Min		None	Min	
Walk Time (s)	0.0	7.0		0.0	7.0		0.0	7.0		0.0	7.0	
Flash Dont Walk (s)	0.0	8.0		0.0	8.0		0.0	8.0		0.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	36.1	26.1		41.0	36.1		66.1	61.9		63.7	55.7	
Actuated g/C Ratio	0.30	0.22		0.34	0.30		0.55	0.52		0.53	0.46	
v/c Ratio	0.03	0.82		0.39	0.20		0.11	0.24		0.02	0.01	
Control Delay	22.3	57.5		29.3	30.9		14.3	5.5		14.6	0.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

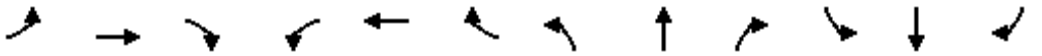
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	22.3	57.5		29.3	30.9		14.3	5.5		14.6	0.0	
LOS	C	E		C	C		B	A		B	A	
Approach Delay		56.2			30.1			7.8			6.3	
Approach LOS		E			C			A			A	
Queue Length 50th (ft)	7	227		57	58		27	9		4	0	
Queue Length 95th (ft)	15	241		85	109		46	0		7	0	
Internal Link Dist (ft)		447			1991			398			400	
Turn Bay Length (ft)	100			120			80			170		
Base Capacity (vph)	540	468		379	560		807	940		766	1189	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.71		0.28	0.20		0.10	0.24		0.02	0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 31.6		Intersection LOS: C	
Intersection Capacity Utilization 47.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: Northstar Dr/Shirley Winston Park Drwy & Steam Mill Rd



2040 AM Synchro Reports

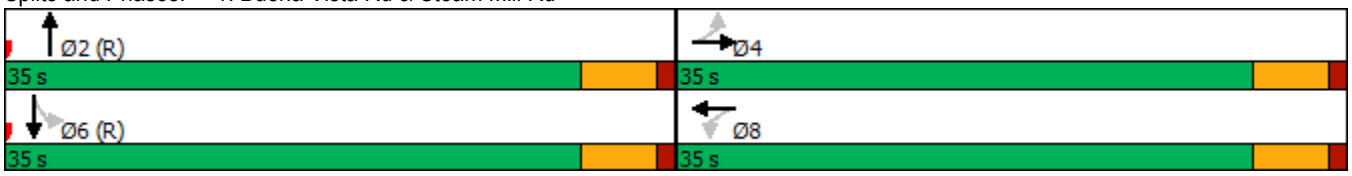


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	265	0	5	0	625	135	5	965	0
Future Volume (vph)	0	0	0	265	0	5	0	625	135	5	965	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	150		0
Storage Lanes	0		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt					0.995			0.969				
Flt Protected					0.954					0.950		
Satd. Flow (prot)	0	1900	0	0	1769	0	0	3332	0	1805	3471	0
Flt Permitted					0.733					0.242		
Satd. Flow (perm)	0	1900	0	0	1359	0	0	3332	0	460	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					31			59				
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		370			125			420			391	
Travel Time (s)		7.2			2.4			8.2			7.6	
Peak Hour Factor	0.92	0.92	0.92	0.79	0.92	0.42	0.92	0.84	0.69	0.42	0.78	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	5%	5%	0%	4%	0%
Adj. Flow (vph)	0	0	0	335	0	12	0	744	196	12	1237	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	347	0	0	940	0	12	1237	0
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0			15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0			23.0		23.0	23.0	
Total Split (s)	35.0	35.0		35.0	35.0			35.0		35.0	35.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%			50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0			30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0			1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Recall Mode	None	None		None	None			C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)					23.2			36.8		36.8	36.8	
Actuated g/C Ratio					0.33			0.53		0.53	0.53	
v/c Ratio					0.74			0.53		0.05	0.68	
Control Delay					27.8			12.7		11.8	16.3	
Queue Delay					0.0			0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay					27.8			12.7		11.8	16.3	
LOS					C			B		B	B	
Approach Delay					27.8			12.7			16.3	
Approach LOS					C			B			B	
Queue Length 50th (ft)					117			122		2	194	
Queue Length 95th (ft)					179			189		6	255	
Internal Link Dist (ft)		290			45			340			311	
Turn Bay Length (ft)										150		
Base Capacity (vph)					600			1778		241	1823	
Starvation Cap Reductn					0			0		0	0	
Spillback Cap Reductn					0			0		0	0	
Storage Cap Reductn					0			0		0	0	
Reduced v/c Ratio					0.58			0.53		0.05	0.68	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 50.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Buena Vista Rd & Steam Mill Rd



Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	200	20	45	350	45	65
Future Vol, veh/h	200	20	45	350	45	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	63	75	78	85	59
Heavy Vehicles, %	1	5	3	2	3	2
Mvmt Flow	230	32	60	449	53	110

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	262	0	815	246
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	569	-
Critical Hdwy	-	-	4.13	-	6.43	6.22
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.318
Pot Cap-1 Maneuver	-	-	1296	-	346	793
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	564	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1296	-	325	793
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	529	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	540	-	-	1296	-
HCM Lane V/C Ratio	0.302	-	-	0.046	-
HCM Control Delay (s)	14.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

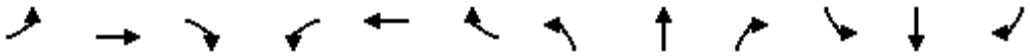
Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	250	35	5	305	45	15
Future Vol, veh/h	250	35	5	305	45	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	67	75	87	56	75
Heavy Vehicles, %	1	0	5	2	3	0
Mvmt Flow	281	52	7	351	80	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	333	0	672	307
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	-	-	4.15	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1210	-	420	738
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	700	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1210	-	417	738
Mov Cap-2 Maneuver	-	-	-	-	417	-
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	695	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	15.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	457	-	-	1210	-
HCM Lane V/C Ratio	0.22	-	-	0.006	-
HCM Control Delay (s)	15.1	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	115	95	40	180	110	95	130	55	35	90	40
Future Volume (vph)	55	115	95	40	180	110	95	130	55	35	90	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.949			0.961			0.977			0.968	
Flt Protected		0.991			0.993			0.985			0.989	
Satd. Flow (prot)	0	1756	0	0	1780	0	0	1807	0	0	1759	0
Flt Permitted		0.787			0.878			0.985			0.989	
Satd. Flow (perm)	0	1395	0	0	1574	0	0	1807	0	0	1759	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			20			10			15	
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		719			915			270			269	
Travel Time (s)		19.6			25.0			9.2			9.2	
Peak Hour Factor	0.77	0.71	0.67	0.73	0.78	0.94	0.75	0.58	0.75	0.69	0.76	0.75
Heavy Vehicles (%)	3%	1%	2%	3%	2%	1%	1%	0%	5%	5%	2%	5%
Adj. Flow (vph)	71	162	142	55	231	117	127	224	73	51	118	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	375	0	0	403	0	0	424	0	0	222	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Recall Mode	None	None		None	None		C-Min	C-Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		36.3			36.3			33.7			20.0	
Actuated g/C Ratio		0.35			0.35			0.32			0.19	
v/c Ratio		0.75			0.72			0.72			0.64	
Control Delay		38.9			37.4			40.6			44.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		38.9			37.4			40.6			44.4	
LOS		D			D			D			D	
Approach Delay		38.9			37.4			40.6			44.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			D			D	
Queue Length 50th (ft)		191			208			259			130	
Queue Length 95th (ft)		235			287			210			156	
Internal Link Dist (ft)		639			835			190			189	
Turn Bay Length (ft)												
Base Capacity (vph)		501			557			586			513	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.75			0.72			0.72			0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 39.8		Intersection LOS: D	
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Dogwood Dr & Steam Mill Rd

Intersection	
Int Delay, s/veh	9.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	175	25	135	295	15	20	20	95	5	25	5
Future Vol, veh/h	15	175	25	135	295	15	20	20	95	5	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	86	68	59	82	56	50	88	78	50	71	38
Heavy Vehicles, %	0	5	5	0	2	0	0	5	3	5	5	0
Mvmt Flow	30	203	37	229	360	27	40	23	122	10	35	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	240	0	0	1138	1127	222	1186	1132	374
Stage 1	-	-	-	-	-	-	282	282	-	832	832	-
Stage 2	-	-	-	-	-	-	856	845	-	354	300	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.23	7.15	6.55	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.327	3.545	4.045	3.3
Pot Cap-1 Maneuver	1183	-	-	1339	-	-	180	202	815	163	201	677
Stage 1	-	-	-	-	-	-	729	672	-	359	380	-
Stage 2	-	-	-	-	-	-	355	375	-	657	660	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1183	-	-	1339	-	-	119	153	815	100	152	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	119	153	-	100	152	-
Stage 1	-	-	-	-	-	-	708	653	-	349	297	-
Stage 2	-	-	-	-	-	-	240	293	-	524	641	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	3.1	36.6	38
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	291	1183	-	-	1339	-	-	166
HCM Lane V/C Ratio	0.634	0.025	-	-	0.171	-	-	0.352
HCM Control Delay (s)	36.6	8.1	0	-	8.2	0	-	38
HCM Lane LOS	E	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	4	0.1	-	-	0.6	-	-	1.5

McCartha Dr/Southern Pines Dr & Steam Mill Rd
RAB Scenario B: 2040 AM
This condition includes redirected volumes from Dogwood Drive

5 McCartha Dr/Southern Pines Dr & Steam Mill Rd

NODE SETTINGS	
Node #	5
Zone:	2
X East (ft):	5969
Y North (ft):	-1780
Z Elevation (ft):	0
Description	
Control Type	Unsig
Max v/c Ratio:	Error
Intersection Delay (s):	Err
Intersection LOS:	F
ICU:	0.63
ICU LOS:	B

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	70	175	25	135	295	125	20	85	95	15	75	115
Future Volume (vph)	70	175	25	135	295	125	20	85	95	15	75	115
Sign Control	—	Free	—	—	Free	—	—	Stop	—	—	Stop	—
Median Width (ft)	—	0	—	—	0	—	—	0	—	—	12	—
TWLTL Median	—	☐	—	—	☐	—	—	☐	—	—	☐	—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	4.1	—	—	4.1	—	—	7.1	6.5	6.2	7.1	6.5	6.2
Follow Up Time, tF (s)	2.2	—	—	2.2	—	—	3.5	4.0	3.3	3.5	4.0	3.3
Volume to Capacity Ratio	0.14	0.14	0.14	0.17	0.17	0.17	Error	Error	Error	Error	Error	Error
Control Delay (s)	1.5	4.3	4.3	2.1	3.9	3.9	Error	Error	Error	Error	Error	Error
Level of Service	A	A	A	A	A	A	F	F	F	F	F	F
Queue Length 95th (ft)	12	12	12	15	15	15	Error	Error	Error	Error	Error	Error
Approach Delay (s)	—	4.3	—	—	3.9	—	—	Error	—	—	Error	—

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	60	155	20	5	310	65	25	5	5	45	20	60
Future Vol, veh/h	60	155	20	5	310	65	25	5	5	45	20	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	74	70	63	77	75	59	58	50	85	81	72
Heavy Vehicles, %	0	5	0	0	1	5	0	0	0	5	0	4
Mvmt Flow	83	209	29	8	403	87	42	9	10	53	25	83

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	490	0	0	238	0	0	907	896	224	862	867	447
Stage 1	-	-	-	-	-	-	390	390	-	463	463	-
Stage 2	-	-	-	-	-	-	517	506	-	399	404	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.15	6.5	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.545	4	3.336
Pot Cap-1 Maneuver	1084	-	-	1341	-	-	259	282	820	272	293	607
Stage 1	-	-	-	-	-	-	638	611	-	573	568	-
Stage 2	-	-	-	-	-	-	545	543	-	621	603	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1084	-	-	1341	-	-	192	255	820	243	265	607
Mov Cap-2 Maneuver	-	-	-	-	-	-	192	255	-	243	265	-
Stage 1	-	-	-	-	-	-	581	557	-	522	563	-
Stage 2	-	-	-	-	-	-	446	539	-	550	549	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0.1	26.3	22.9
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	229	1084	-	-	1341	-	-	359
HCM Lane V/C Ratio	0.266	0.077	-	-	0.006	-	-	0.448
HCM Control Delay (s)	26.3	8.6	0	-	7.7	0	-	22.9
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	2.2

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	170	35	15	295	5	65	5	20	5	5	15
Future Vol, veh/h	5	170	35	15	295	5	65	5	20	5	5	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	74	65	45	74	75	74	38	65	38	75	50
Heavy Vehicles, %	5	5	4	0	3	0	2	0	5	0	0	0
Mvmt Flow	10	230	54	33	399	7	88	13	31	13	7	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	406	0	0	284	0	0	764	749	257	768	773	403
Stage 1	-	-	-	-	-	-	277	277	-	469	469	-
Stage 2	-	-	-	-	-	-	487	472	-	299	304	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.12	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.518	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1137	-	-	1290	-	-	321	343	774	321	332	652
Stage 1	-	-	-	-	-	-	729	685	-	579	564	-
Stage 2	-	-	-	-	-	-	562	562	-	714	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1137	-	-	1290	-	-	291	328	774	289	317	652
Mov Cap-2 Maneuver	-	-	-	-	-	-	291	328	-	289	317	-
Stage 1	-	-	-	-	-	-	721	677	-	573	545	-
Stage 2	-	-	-	-	-	-	512	543	-	665	660	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.6	21.7	14.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	345	1137	-	-	1290	-	-	443
HCM Lane V/C Ratio	0.382	0.009	-	-	0.026	-	-	0.112
HCM Control Delay (s)	21.7	8.2	0	-	7.9	0	-	14.2
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.7	0	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	175	275	25	20	35
Future Vol, veh/h	15	175	275	25	20	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	69	84	64	75	54
Heavy Vehicles, %	5	5	3	5	5	0
Mvmt Flow	22	254	327	39	27	65

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	366	0	-	0	645	347
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	298	-
Critical Hdwy	4.15	-	-	-	6.45	6.2
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.3
Pot Cap-1 Maneuver	1176	-	-	-	432	701
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	746	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1176	-	-	-	422	701
Mov Cap-2 Maneuver	-	-	-	-	422	-
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	746	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1176	-	-	-	588
HCM Lane V/C Ratio	0.019	-	-	-	0.156
HCM Control Delay (s)	8.1	0	-	-	12.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

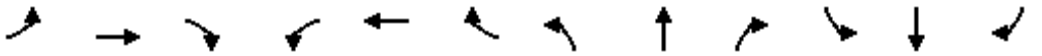
Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	180	20	5	255	45	5
Future Vol, veh/h	180	20	5	255	45	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	81	63	84	77	63
Heavy Vehicles, %	5	0	5	3	3	5
Mvmt Flow	234	25	8	304	58	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	259	0	567	247
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	320	-
Critical Hdwy	-	-	4.15	-	6.43	6.25
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.345
Pot Cap-1 Maneuver	-	-	1288	-	483	784
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	734	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1288	-	480	784
Mov Cap-2 Maneuver	-	-	-	-	480	-
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	729	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	503	-	-	1288	-
HCM Lane V/C Ratio	0.132	-	-	0.006	-
HCM Control Delay (s)	13.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

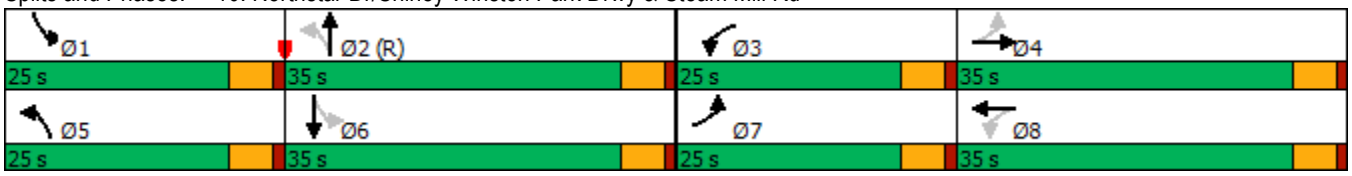


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	120	60	115	160	5	95	5	170	0	0	5
Future Volume (vph)	5	120	60	115	160	5	95	5	170	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	120		0	80		0	170		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.953			0.994			0.856			0.850	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1736	0	1719	1853	0	1719	1611	0	1900	1615	0
Flt Permitted	0.612			0.305			0.682					
Satd. Flow (perm)	1163	1736	0	552	1853	0	1234	1611	0	1900	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			2			224			656	
Link Speed (mph)		35			35			35			15	
Link Distance (ft)		527			2071			478			480	
Travel Time (s)		10.3			40.3			9.3			21.8	
Peak Hour Factor	0.50	0.70	0.77	0.81	0.71	0.50	0.78	0.50	0.76	0.92	0.92	0.38
Heavy Vehicles (%)	0%	4%	5%	5%	2%	0%	5%	0%	1%	0%	0%	0%
Adj. Flow (vph)	10	171	78	142	225	10	122	10	224	0	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	249	0	142	235	0	122	234	0	0	13	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	15.0		10.0	15.0		10.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	24.0		23.0	24.0		23.0	24.0		23.0	24.0	
Total Split (s)	25.0	35.0		25.0	35.0		25.0	35.0		25.0	35.0	
Total Split (%)	20.8%	29.2%		20.8%	29.2%		20.8%	29.2%		20.8%	29.2%	
Maximum Green (s)	20.0	30.0		20.0	30.0		20.0	30.0		20.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Min		None	Min	
Walk Time (s)	0.0	7.0		0.0	7.0		0.0	7.0		0.0	7.0	
Flash Dont Walk (s)	0.0	8.0		0.0	8.0		0.0	8.0		0.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.6	21.6		39.7	36.7		70.3	70.3			54.4	
Actuated g/C Ratio	0.26	0.18		0.33	0.31		0.59	0.59			0.45	
v/c Ratio	0.03	0.76		0.46	0.41		0.16	0.23			0.01	
Control Delay	23.4	58.0		32.5	34.9		13.4	2.8			0.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	

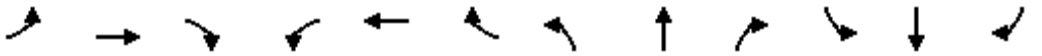
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	23.4	58.0		32.5	34.9		13.4	2.8			0.0	
LOS	C	E		C	C		B	A			A	
Approach Delay		56.7			34.0			6.5				
Approach LOS		E			C			A				
Queue Length 50th (ft)	5	173		80	138		40	3			0	
Queue Length 95th (ft)	9	179		101	167		73	0			0	
Internal Link Dist (ft)		447			1991			398			400	
Turn Bay Length (ft)	100			120			80					
Base Capacity (vph)	488	447		377	568		803	1035			1090	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.02	0.56		0.38	0.41		0.15	0.23			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 29.6		Intersection LOS: C	
Intersection Capacity Utilization 45.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: Northstar Dr/Shirley Winston Park Drwy & Steam Mill Rd



2040 PM Synchro Reports

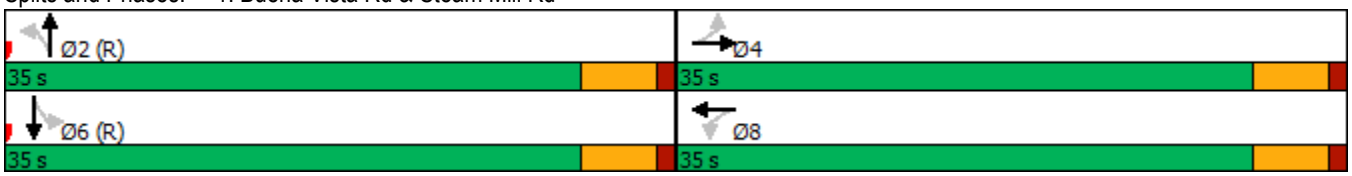


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	5	200	0	15	5	1130	305	15	1380	0
Future Volume (vph)	0	5	5	200	0	15	5	1130	305	15	1380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	150		0
Storage Lanes	0		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00
Frt		0.932			0.987			0.966				
Flt Protected					0.957					0.950		
Satd. Flow (prot)	0	1771	0	0	1779	0	0	3460	0	1805	3505	0
Flt Permitted					0.740			0.950		0.101		
Satd. Flow (perm)	0	1771	0	0	1375	0	0	3287	0	192	3505	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			31			66				
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		391			125			420			391	
Travel Time (s)		7.6			2.4			8.2			7.6	
Peak Hour Factor	0.92	0.92	0.92	0.80	0.92	0.56	0.92	0.89	0.83	0.50	0.91	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	3%	0%
Adj. Flow (vph)	0	5	5	250	0	27	5	1270	367	30	1516	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	0	0	277	0	0	1642	0	30	1516	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		20.5			20.5			39.5		39.5	39.5	
Actuated g/C Ratio		0.29			0.29			0.56		0.56	0.56	
v/c Ratio		0.02			0.65			0.87		0.28	0.77	
Control Delay		11.3			25.9			21.4		19.3	17.0	
Queue Delay		0.0			0.0			0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		11.3			25.9			21.4		19.3	17.0	
LOS		B			C			C		B	B	
Approach Delay		11.3			25.9			21.4			17.1	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		2			93			272		6	233	
Queue Length 95th (ft)		10			142			#534		14	#470	
Internal Link Dist (ft)		311			45			340			311	
Turn Bay Length (ft)										150		
Base Capacity (vph)		761			607			1884		108	1978	
Starvation Cap Reductn		0			0			0		0	0	
Spillback Cap Reductn		0			0			0		0	0	
Storage Cap Reductn		0			0			0		0	0	
Reduced v/c Ratio		0.01			0.46			0.87		0.28	0.77	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 19.8		Intersection LOS: B	
Intersection Capacity Utilization 71.6%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Buena Vista Rd & Steam Mill Rd



Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	485	60	55	265	35	75
Future Vol, veh/h	485	60	55	265	35	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	80	84	79	89	76
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	533	75	65	335	39	99

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	608	0	1036	571
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	465	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	980	-	259	524
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	636	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	980	-	238	524
Mov Cap-2 Maneuver	-	-	-	-	238	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	584	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	19.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	390	-	-	980	-
HCM Lane V/C Ratio	0.354	-	-	0.067	-
HCM Control Delay (s)	19.2	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.6	-	-	0.2	-

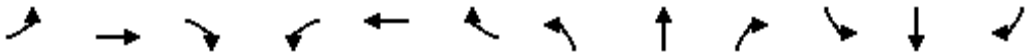
Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	465	60	20	270	40	25
Future Vol, veh/h	465	60	20	270	40	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	72	81	87	88	69
Heavy Vehicles, %	0	2	0	1	5	0
Mvmt Flow	560	83	25	310	45	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	643	0	962	602
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	360	-
Critical Hdwy	-	-	4.1	-	6.45	6.2
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.2	-	3.545	3.3
Pot Cap-1 Maneuver	-	-	951	-	280	503
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	951	-	271	503
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	677	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	18.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	341	-	-	951	-
HCM Lane V/C Ratio	0.24	-	-	0.026	-
HCM Control Delay (s)	18.9	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	375	20	15	200	130	20	95	25	90	40	60
Future Volume (vph)	90	375	20	15	200	130	20	95	25	90	40	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.951			0.978			0.954	
Flt Protected		0.989			0.997			0.993			0.979	
Satd. Flow (prot)	0	1866	0	0	1782	0	0	1845	0	0	1748	0
Flt Permitted		0.779			0.945			0.993			0.979	
Satd. Flow (perm)	0	1470	0	0	1689	0	0	1845	0	0	1748	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			27			9			25	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		719			915			270			269	
Travel Time (s)		14.0			17.8			6.1			6.1	
Peak Hour Factor	0.67	0.81	0.65	0.60	0.87	0.90	0.70	0.66	0.75	0.89	0.70	0.72
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	0%	0%	0%	2%	0%	2%
Adj. Flow (vph)	134	463	31	25	230	144	29	144	33	101	57	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	628	0	0	399	0	0	206	0	0	241	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		23.0	23.0	
Total Split (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Recall Mode	None	None		None	None		C-Min	C-Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		50.5			50.5			18.9			20.7	
Actuated g/C Ratio		0.48			0.48			0.18			0.20	
v/c Ratio		0.89			0.48			0.61			0.66	
Control Delay		43.5			21.7			45.3			43.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		43.5			21.7			45.3			43.2	
LOS		D			C			D			D	
Approach Delay		43.5			21.7			45.3			43.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			D			D	
Queue Length 50th (ft)		362			160			124			136	
Queue Length 95th (ft)		#618			295			129			145	
Internal Link Dist (ft)		639			835			190			189	
Turn Bay Length (ft)												
Base Capacity (vph)		707			825			533			517	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.89			0.48			0.39			0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 37.8		Intersection LOS: D	
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			

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

Splits and Phases: 4: Dogwood Dr & Steam MIll Rd

Intersection	
Int Delay, s/veh	153.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	15	420	60	90	250	5	90	45	220	15	25	5
Future Vol, veh/h	15	420	60	90	250	5	90	45	220	15	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	82	80	75	94	63	79	71	63	50	75	63
Heavy Vehicles, %	0	1	0	2	1	0	3	3	2	0	0	0
Mvmt Flow	18	512	75	120	266	8	114	63	349	30	33	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	274	0	0	587	0	0	1117	1100	550	1302	1133	270
Stage 1	-	-	-	-	-	-	586	586	-	510	510	-
Stage 2	-	-	-	-	-	-	531	514	-	792	623	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.13	6.53	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.527	4.027	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1301	-	-	988	-	-	184	211	535	139	205	774
Stage 1	-	-	-	-	-	-	495	495	-	550	541	-
Stage 2	-	-	-	-	-	-	530	534	-	385	481	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1301	-	-	988	-	-	136	177	535	31	172	774
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	177	-	31	172	-
Stage 1	-	-	-	-	-	-	485	485	-	538	464	-
Stage 2	-	-	-	-	-	-	417	458	-	114	471	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	2.8	$ 424.8	282.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	285	1301	-	-	988	-	-	61
HCM Lane V/C Ratio	1.847	0.014	-	-	0.121	-	-	1.168
HCM Control Delay (s)	$ 424.8	7.8	0	-	9.1	0	-	282.1
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	35.7	0	-	-	0.4	-	-	5.9

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

McCartha Dr/Southern Pines Dr & Steam Mill Rd
RAB Scenario B: 2040 PM
This condition includes redirected volumes from Dogwood Drive

5 McCartha Dr/Southern Pines Dr & Steam Mill Rd

NODE SETTINGS	
Node #	5
Zone:	2
X East (ft):	5969
Y North (ft):	-1780
Z Elevation (ft):	0
Description	
Control Type	Unsig
Max v/c Ratio:	Error
Intersection Delay (s):	Err
Intersection LOS:	F
ICU:	0.83
ICU LOS:	E

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	105	420	60	90	250	135	90	95	220	40	105	95
Future Volume (vph)	105	420	60	90	250	135	90	95	220	40	105	95
Sign Control	—	Free	—	—	Free	—	—	Stop	—	—	Stop	—
Median Width (ft)	—	0	—	—	0	—	—	0	—	—	12	—
TWLTL Median	—	☐	—	—	☐	—	—	☐	—	—	☐	—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	4.1	—	—	4.1	—	—	7.1	6.5	6.2	7.1	6.5	6.2
Follow Up Time, tF (s)	2.2	—	—	2.2	—	—	3.5	4.0	3.3	3.5	4.0	3.3
Volume to Capacity Ratio	0.12	0.12	0.12	0.13	0.13	0.13	Error	Error	Error	Error	Error	Error
Control Delay (s)	1.5	2.8	2.8	1.6	3.2	3.2	Error	Error	Error	Error	Error	Error
Level of Service	A	A	A	A	A	A	F	F	F	F	F	F
Queue Length 95th (ft)	10	10	10	11	11	11	Error	Error	Error	Error	Error	Error
Approach Delay (s)	—	2.8	—	—	3.2	—	—	Error	—	—	Error	—

Intersection	
Int Delay, s/veh	41.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	135	410	40	5	240	75	5	20	5	80	25	60
Future Vol, veh/h	135	410	40	5	240	75	5	20	5	80	25	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	83	70	63	87	75	58	54	31	83	69	75
Heavy Vehicles, %	2	1	0	0	1	2	0	0	5	2	0	0
Mvmt Flow	173	494	57	8	276	100	9	37	16	96	36	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	376	0	0	551	0	0	1269	1261	523	1237	1239	326
Stage 1	-	-	-	-	-	-	869	869	-	342	342	-
Stage 2	-	-	-	-	-	-	400	392	-	895	897	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.5	6.25	7.12	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4	3.345	3.518	4	3.3
Pot Cap-1 Maneuver	1182	-	-	1029	-	-	147	172	548	153	177	720
Stage 1	-	-	-	-	-	-	349	372	-	673	642	-
Stage 2	-	-	-	-	-	-	630	610	-	335	361	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1182	-	-	1029	-	-	87	134	548	98	138	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	134	-	98	138	-
Stage 1	-	-	-	-	-	-	275	293	-	530	636	-
Stage 2	-	-	-	-	-	-	523	604	-	224	284	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.2	43.6	250.2
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	153	1182	-	-	1029	-	-	157
HCM Lane V/C Ratio	0.404	0.146	-	-	0.008	-	-	1.354
HCM Control Delay (s)	43.6	8.6	0	-	8.5	0	-	250.2
HCM Lane LOS	E	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	1.8	0.5	-	-	0	-	-	13.1

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	20	395	90	15	235	5	75	15	20	5	15	5
Future Vol, veh/h	20	395	90	15	235	5	75	15	20	5	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	88	88	56	89	42	65	60	70	38	67	38
Heavy Vehicles, %	0	2	0	5	1	0	2	0	0	0	0	0
Mvmt Flow	32	449	102	27	264	12	115	25	29	13	22	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	276	0	0	551	0	0	906	894	500	915	939	270
Stage 1	-	-	-	-	-	-	564	564	-	324	324	-
Stage 2	-	-	-	-	-	-	342	330	-	591	615	-
Critical Hdwy	4.1	-	-	4.15	-	-	7.12	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.518	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1299	-	-	1004	-	-	257	283	575	256	266	774
Stage 1	-	-	-	-	-	-	510	512	-	692	653	-
Stage 2	-	-	-	-	-	-	673	649	-	497	485	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1299	-	-	1004	-	-	223	264	575	214	248	774
Mov Cap-2 Maneuver	-	-	-	-	-	-	223	264	-	214	248	-
Stage 1	-	-	-	-	-	-	492	494	-	667	632	-
Stage 2	-	-	-	-	-	-	618	628	-	432	468	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.8	43.1	20
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	255	1299	-	-	1004	-	-	289
HCM Lane V/C Ratio	0.663	0.024	-	-	0.027	-	-	0.169
HCM Control Delay (s)	43.1	7.8	0	-	8.7	0	-	20
HCM Lane LOS	E	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	4.2	0.1	-	-	0.1	-	-	0.6

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	365	230	20	20	25
Future Vol, veh/h	45	365	230	20	20	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	84	86	71	80	90
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	56	435	267	28	25	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	295	0	-	0	828	281
Stage 1	-	-	-	-	281	-
Stage 2	-	-	-	-	547	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1278	-	-	-	344	763
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	584	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1278	-	-	-	324	763
Mov Cap-2 Maneuver	-	-	-	-	324	-
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	584	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1278	-	-	-	465
HCM Lane V/C Ratio	0.044	-	-	-	0.114
HCM Control Delay (s)	7.9	0	-	-	13.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

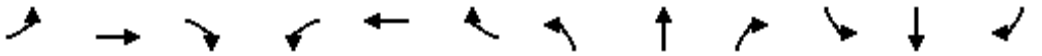
Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	335	45	5	215	40	5
Future Vol, veh/h	335	45	5	215	40	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	65	50	82	75	42
Heavy Vehicles, %	2	0	5	1	0	0
Mvmt Flow	372	69	10	262	53	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	441	0	689	407
Stage 1	-	-	-	-	407	-
Stage 2	-	-	-	-	282	-
Critical Hdwy	-	-	4.15	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.245	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1103	-	415	648
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	770	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1103	-	410	648
Mov Cap-2 Maneuver	-	-	-	-	410	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	762	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	439	-	-	1103	-
HCM Lane V/C Ratio	0.149	-	-	0.009	-
HCM Control Delay (s)	14.6	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

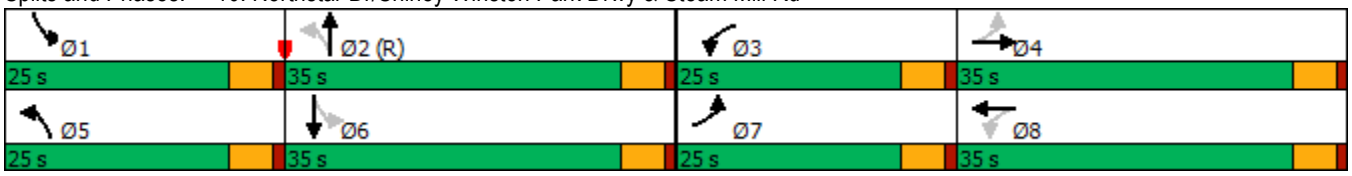


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	200	130	135	130	5	75	15	210	5	0	15
Future Volume (vph)	15	200	130	135	130	5	75	15	210	5	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	120		0	80		0	170		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.940			0.987			0.870			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1748	0	1805	1858	0	1770	1639	0	1805	1615	0
Flt Permitted	0.661			0.228			0.648			0.507		
Satd. Flow (perm)	1256	1748	0	433	1858	0	1207	1639	0	963	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			4			260			745	
Link Speed (mph)		35			35			35			15	
Link Distance (ft)		527			2071			478			480	
Travel Time (s)		10.3			40.3			9.3			21.8	
Peak Hour Factor	0.75	0.75	0.73	0.94	0.94	0.38	0.67	0.36	0.77	0.38	0.25	0.60
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	2%	0%	1%	0%	0%	0%
Adj. Flow (vph)	20	267	178	144	138	13	112	42	273	13	0	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	445	0	144	151	0	112	315	0	13	25	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	15.0		10.0	15.0		10.0	15.0		10.0	15.0	
Minimum Split (s)	23.0	24.0		23.0	24.0		23.0	24.0		23.0	24.0	
Total Split (s)	25.0	35.0		25.0	35.0		25.0	35.0		25.0	35.0	
Total Split (%)	20.8%	29.2%		20.8%	29.2%		20.8%	29.2%		20.8%	29.2%	
Maximum Green (s)	20.0	30.0		20.0	30.0		20.0	30.0		20.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Recall Mode	None	None		None	None		None	C-Min		None	Min	
Walk Time (s)	0.0	7.0		0.0	7.0		0.0	7.0		0.0	7.0	
Flash Dont Walk (s)	0.0	8.0		0.0	8.0		0.0	8.0		0.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	48.8	38.8		55.0	49.6		53.8	48.4		47.7	37.7	
Actuated g/C Ratio	0.41	0.32		0.46	0.41		0.45	0.40		0.40	0.31	
v/c Ratio	0.04	0.76		0.43	0.20		0.19	0.39		0.03	0.02	
Control Delay	15.9	43.2		21.9	23.1		21.7	8.4		21.2	0.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	15.9	43.2		21.9	23.1		21.7	8.4		21.2	0.1	
LOS	B	D		C	C		C	A		C	A	
Approach Delay		42.0			22.5			11.9			7.3	
Approach LOS		D			C			B			A	
Queue Length 50th (ft)	8	289		63	64		50	24		6	0	
Queue Length 95th (ft)	16	302		92	122		70	0		8	0	
Internal Link Dist (ft)		447			1991			398			400	
Turn Bay Length (ft)	100			120			80			170		
Base Capacity (vph)	673	583		429	770		640	815		576	1022	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.76		0.34	0.20		0.17	0.39		0.02	0.02	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 25.7		Intersection LOS: C	
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: Northstar Dr/Shirley Winston Park Drwy & Steam Mill Rd



Appendix F GDOT ROUNDABOUT TOOL RESULTS

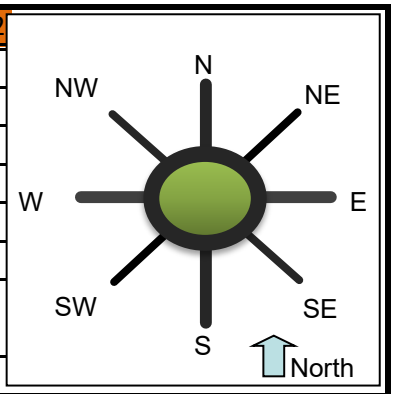
Steam Mill Rd @ Dogwood Drive

3-Legged Roundabout Analysis

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	171007024
Year, Peak Hour:	2020, 7:15 AM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Dogwood Dr



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	0	0	0	0	0	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	0	0	0	0	**90**	0	**85**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	0	0	**30**	0	0	0	**70**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	0	0	**135**	0	**70**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	0	0	165	0	160	0	155	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	99.0%	100.0%	97.0%	100.0%	97.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	**3.0%**	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	**6**	0	**3**	0
PHF	*0.95*	*0.95*	*0.66*	*0.95*	*0.72*	*0.95*	*0.68*	*0.95*
F_{HV}	1.000	1.000	0.990	1.000	0.971	1.000	0.971	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	0	0	0	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	129	0	129	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	46	0	0	0	106	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	207	0	100	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	0	0	253	0	229	0	235	0
Conflicting flow, pcu/h	0	0	100	0	129	0	46	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	1380	1380	1234	1380	1174	1380	1278	1380
Entry Flow Rates, vph	0	0	250	0	222	0	228	0
V/C ratio			**0.20**		**0.19**		**0.18**	
Control Delay, sec/pcu	**2.6**	**2.6**	**4.7**	**2.6**	**4.7**	**2.6**	**4.3**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)			8		7		7	
95th % Queue (ft)			**19**		**18**		**17**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**4.6**	**Int LOS**	**A**	**Max Approach V/C**	**0.20**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

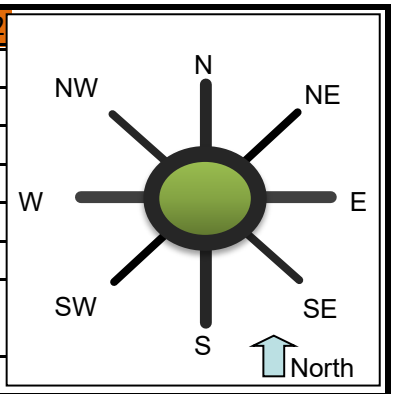
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	171007024
Year, Peak Hour:	2020, 4:45 PM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Dogwood Dr



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	0	0	0	0	0	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	0	0	0	0	**55**	0	**280**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	0	0	**10**	0	0	0	**15**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	0	0	**150**	0	**15**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	0	0	160	0	70	0	295	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	99.0%	100.0%	97.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	**7**	0	0	0
PHF	*0.95*	*0.95*	*0.77*	*0.95*	*0.71*	*0.95*	*0.82*	*0.95*
F_{HV}	1.000	1.000	0.990	1.000	0.971	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	0	0	0	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	80	0	341	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	13	0	0	0	18	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	197	0	22	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	0	0	210	0	102	0	360	0
Conflicting flow, pcu/h	0	0	22	0	341	0	13	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	1380	1380	1336	1380	945	1380	1362	1380
Entry Flow Rates, vph	0	0	208	0	99	0	360	0
V/C ratio			**0.16**		**0.10**		**0.26**	
Control Delay, sec/pcu	**2.6**	**2.6**	**4.0**	**2.6**	**4.8**	**2.6**	**4.9**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)			6		3		12	
95th % Queue (ft)			**14**		**9**		**27**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**4.6**	**Int LOS**	**A**	**Max Approach V/C**	**0.26**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

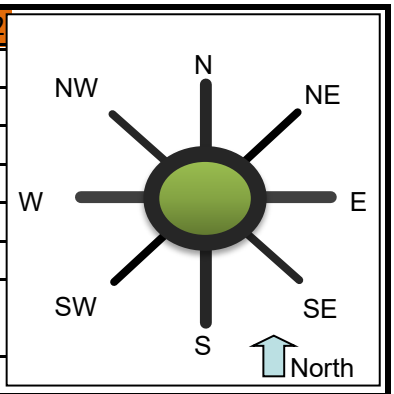
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	171007024
Year, Peak Hour:	2040, 7:15 AM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Dogwood Dr



Volumes		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	0	0	0	0	0	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	0	0	0	0	**120**	0	**115**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	0	0	**40**	0	0	0	**95**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	0	0	**180**	0	**95**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	0	0	220	0	215	0	210	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	99.0%	100.0%	97.0%	100.0%	97.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	**3.0%**	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	**6**	0	**3**	0
PHF	*0.95*	*0.95*	*0.66*	*0.95*	*0.72*	*0.95*	*0.68*	*0.95*
F_{HV}	1.000	1.000	0.990	1.000	0.971	1.000	0.971	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	0	0	0	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	172	0	174	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	61	0	0	0	144	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	275	0	136	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	0	0	337	0	308	0	318	0
Conflicting flow, pcu/h	0	0	136	0	174	0	61	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	1380	1380	1189	1380	1121	1380	1258	1380
Entry Flow Rates, vph	0	0	333	0	299	0	309	0
V/C ratio			**0.28**		**0.27**		**0.25**	
Control Delay, sec/pcu	**2.6**	**2.6**	**5.6**	**2.6**	**5.7**	**2.6**	**5.0**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)			13		12		11	
95th % Queue (ft)			**29**		**28**		**25**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	5.4	Int LOS	A	Max Approach V/C	0.28

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

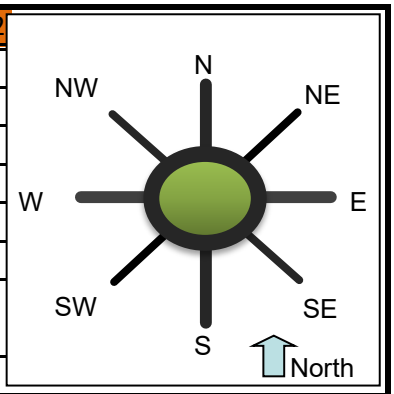
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	171007024
Year, Peak Hour:	2040, 4:45 PM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Dogwood Dr



Volumes

Exit Legs (TO)	Entry Legs (FROM)	N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	0	0	0	0	0	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	0	0	0	0	**75**	0	**375**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	0	0	**15**	0	0	0	**20**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	0	0	**200**	0	**20**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	0	0	215	0	95	0	395	0

Volume Characteristics

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	99.0%	100.0%	97.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	**7**	0	0	0
PHF	*0.95*	*0.95*	*0.77*	*0.95*	*0.71*	*0.95*	*0.82*	*0.95*
F_{HV}	1.000	1.000	0.990	1.000	0.971	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	0	0	0	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	109	0	457	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	20	0	0	0	24	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	262	0	29	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	0	0	282	0	138	0	482	0
Conflicting flow, pcu/h	0	0	29	0	457	0	20	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	1380	1380	1326	1380	840	1380	1353	1380
Entry Flow Rates, vph	0	0	279	0	134	0	482	0
V/C ratio			**0.21**		**0.16**		**0.36**	
Control Delay, sec/pcu	**2.6**	**2.6**	**4.5**	**2.6**	**5.9**	**2.6**	**5.9**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)			9		5		20	
95th % Queue (ft)			**20**		**15**		**41**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**5.5**	**Int LOS**	**A**	**Max Approach V/C**	**0.36**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

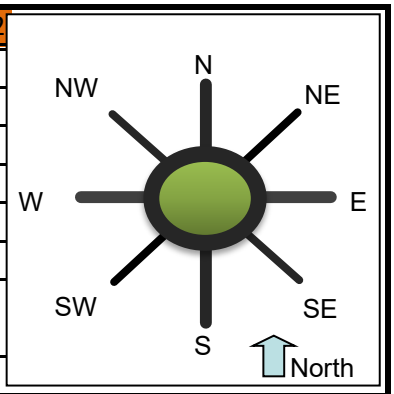
Steam Mill Rd @ Southern Pines Dr/McCartha Drive

Roundabout Analysis

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	
Year, Peak Hour:	2020, 7:15 AM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Southern Pines Dr/McCartha Dr



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**10**	0	**15**	0	**10**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**5**	0	0	0	**70**	0	**130**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	**20**	0	**100**	0	0	0	**20**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**5**	0	**220**	0	**15**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	30	0	330	0	100	0	160	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	95.0%	100.0%	99.0%	100.0%	97.0%	100.0%	97.0%	100.0%
% Heavy Vehicles	**5.0%**	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	**3.0%**	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	**3**	0	0	0	**6**	0	**3**	0
PHF	*0.53*	*0.95*	*0.66*	*0.95*	*0.72*	*0.95*	*0.68*	*0.95*
F_{HV}	0.952	1.000	0.990	1.000	0.971	1.000	0.971	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	15	0	21	0	15	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	10	0	0	0	100	0	197	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	40	0	153	0	0	0	30	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	10	0	337	0	21	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	59	0	505	0	143	0	242	0
Conflicting flow, pcu/h	511	0	58	0	222	0	203	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	780	1380	1288	1380	1067	1380	1089	1380
Entry Flow Rates, vph	57	0	500	0	139	0	235	0
V/C ratio	**0.07**		**0.39**		**0.13**		**0.22**	
Control Delay, sec/pcu	**5.3**	**2.6**	**6.5**	**2.6**	**4.5**	**2.6**	**5.3**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)	2		23		4		9	
95th % Queue (ft)	**6**		**47**		**12**		**21**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**5.8**	**Int LOS**	**A**	**Max Approach V/C**	**0.39**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

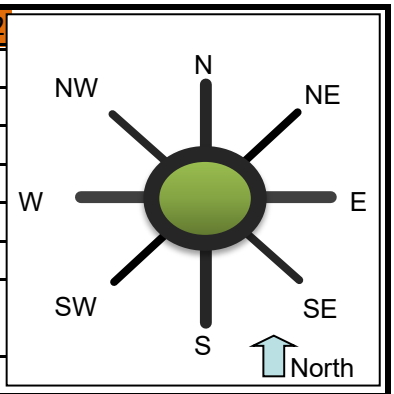
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	
Year, Peak Hour:	2020, 4:45 PM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Southern Pines Dr/McCartha Dr



Volumes		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**5**	0	**35**	0	**10**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**10**	0	0	0	**165**	0	**310**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	**20**	0	**65**	0	0	0	**45**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**5**	0	**185**	0	**65**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	35	0	255	0	265	0	365	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	99.0%	100.0%	97.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	**7**	0	0	0
PHF	*0.63*	*0.95*	*0.77*	*0.95*	*0.71*	*0.95*	*0.82*	*0.95*
F_{HV}	1.000	1.000	0.990	1.000	0.971	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	7	0	51	0	12	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	16	0	0	0	239	0	378	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	32	0	85	0	0	0	55	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	8	0	243	0	94	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	56	0	334	0	384	0	445	0
Conflicting flow, pcu/h	422	0	157	0	406	0	133	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	897	1380	1164	1380	885	1380	1205	1380
Entry Flow Rates, vph	56	0	331	0	373	0	445	0
V/C ratio	**0.06**		**0.28**		**0.42**		**0.37**	
Control Delay, sec/pcu	**4.6**	**2.6**	**5.7**	**2.6**	**9.1**	**2.6**	**6.6**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)	2		13		24		20	
95th % Queue (ft)	**5**		**30**		**55**		**43**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**7.0**	**Int LOS**	**A**	**Max Approach V/C**	**0.42**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

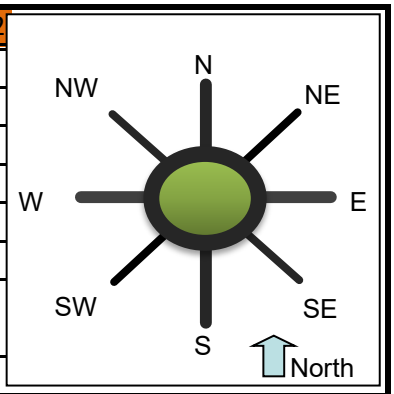
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	
Year, Peak Hour:	2040, 7:15 AM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Southern Pines Dr/McCartha Dr



Volumes		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**15**	0	**20**	0	**15**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**5**	0	0	0	**95**	0	**175**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	**25**	0	**135**	0	0	0	**25**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**5**	0	**295**	0	**20**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	35	0	445	0	135	0	215	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	95.0%	100.0%	99.0%	100.0%	97.0%	100.0%	97.0%	100.0%
% Heavy Vehicles	**5.0%**	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	**3.0%**	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	**3**	0	0	0	**6**	0	**3**	0
PHF	*0.53*	*0.95*	*0.66*	*0.95*	*0.72*	*0.95*	*0.68*	*0.95*
F_{HV}	0.952	1.000	0.990	1.000	0.971	1.000	0.971	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	23	0	29	0	23	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	10	0	0	0	136	0	265	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	50	0	207	0	0	0	38	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	10	0	451	0	29	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	69	0	681	0	193	0	326	0
Conflicting flow, pcu/h	687	0	80	0	298	0	266	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	652	1380	1259	1380	988	1380	1021	1380
Entry Flow Rates, vph	66	0	674	0	188	0	316	0
V/C ratio	**0.10**		**0.54**		**0.19**		**0.31**	
Control Delay, sec/pcu	**6.6**	**2.6**	**8.8**	**2.6**	**5.4**	**2.6**	**6.6**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)	3		41		7		15	
95th % Queue (ft)	**9**		**84**		**18**		**34**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**7.6**	**Int LOS**	**A**	**Max Approach V/C**	**0.54**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

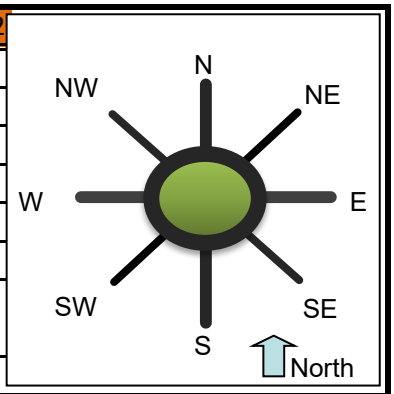
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	
Year, Peak Hour:	2040, 4:45 PM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Southern Pines Dr/McCartha Dr



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**5**	0	**45**	0	**15**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**15**	0	0	0	**220**	0	**420**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	**25**	0	**90**	0	0	0	**60**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**5**	0	**250**	0	**90**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	45	0	345	0	355	0	495	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	99.0%	100.0%	97.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	**7**	0	0	0
PHF	*0.63*	*0.95*	*0.77*	*0.95*	*0.71*	*0.95*	*0.82*	*0.95*
F_{HV}	1.000	1.000	0.990	1.000	0.971	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	7	0	65	0	18	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	24	0	0	0	319	0	512	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	40	0	118	0	0	0	73	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	8	0	328	0	131	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	71	0	453	0	515	0	604	0
Conflicting flow, pcu/h	577	0	214	0	554	0	182	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	766	1380	1098	1380	760	1380	1147	1380
Entry Flow Rates, vph	71	0	448	0	500	0	604	0
V/C ratio	**0.09**		**0.41**		**0.66**		**0.53**	
Control Delay, sec/pcu	**5.6**	**2.6**	**7.6**	**2.6**	**16.6**	**2.6**	**9.2**	**2.6**
LOS	A	A	A	A	C	A	A	A
Average Queue (ft)	3		24		58		39	
95th % Queue (ft)	**8**		**51**		**129**		**80**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**10.9**	**Int LOS**	**B**	**Max Approach V/C**	**0.66**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

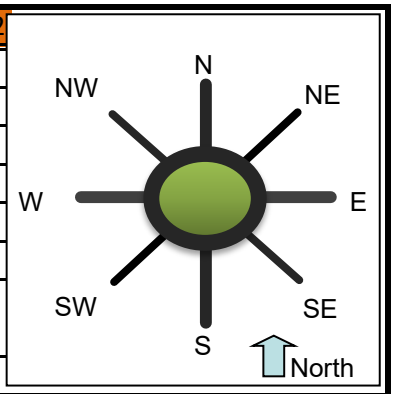
Steam Mill Rd @ Southern Pines Dr/McCartha Drive

Roundabout Analysis with Redirected Volume from Dogwood Drive

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	
Year, Peak Hour:	2020, 7:15 AM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Southern Pines Dr/McCartha Dr



Volumes		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**90**	0	**65**	0	**50**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**10**	0	0	0	**70**	0	**130**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	**55**	0	**100**	0	0	0	**20**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**85**	0	**220**	0	**15**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	150	0	410	0	150	0	200	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	95.0%	100.0%	99.0%	100.0%	97.0%	100.0%	97.0%	100.0%
% Heavy Vehicles	**5.0%**	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	**3.0%**	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	**3**	0	0	0	**6**	0	**3**	0
PHF	*0.53*	*0.95*	*0.66*	*0.95*	*0.72*	*0.95*	*0.68*	*0.95*
F_{HV}	0.952	1.000	0.990	1.000	0.971	1.000	0.971	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	138	0	93	0	76	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	20	0	0	0	100	0	197	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	109	0	153	0	0	0	30	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	168	0	337	0	21	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	297	0	627	0	215	0	303	0
Conflicting flow, pcu/h	511	0	190	0	292	0	282	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	780	1380	1125	1380	993	1380	1005	1380
Entry Flow Rates, vph	283	0	621	0	208	0	294	0
V/C ratio	**0.36**		**0.55**		**0.21**		**0.29**	
Control Delay, sec/pcu	**9.0**	**2.6**	**9.8**	**2.6**	**5.6**	**2.6**	**6.5**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)	18		42		8		13	
95th % Queue (ft)	**44**		**88**		**20**		**32**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	8.4	Int LOS	A	Max Approach V/C	0.55

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

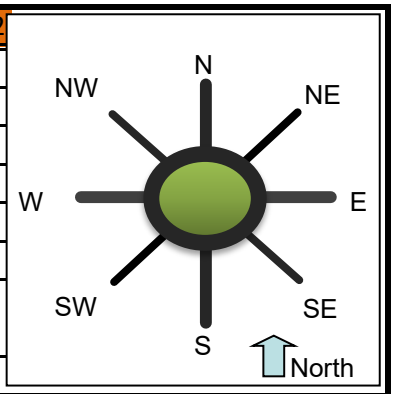
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	
Year, Peak Hour:	2020, 4:45 PM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Southern Pines Dr/McCartha Dr



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**100**	0	**70**	0	**75**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**25**	0	0	0	**165**	0	**310**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	**75**	0	**65**	0	0	0	**45**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**75**	0	**185**	0	**65**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	175	0	350	0	300	0	430	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	99.0%	100.0%	97.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	**7**	0	0	0
PHF	*0.63*	*0.95*	*0.77*	*0.95*	*0.71*	*0.95*	*0.82*	*0.95*
F_{HV}	1.000	1.000	0.990	1.000	0.971	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	131	0	102	0	91	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	40	0	0	0	239	0	378	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	119	0	85	0	0	0	55	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	119	0	243	0	94	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	278	0	459	0	435	0	524	0
Conflicting flow, pcu/h	422	0	287	0	509	0	244	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	897	1380	1019	1380	796	1380	1076	1380
Entry Flow Rates, vph	278	0	455	0	423	0	524	0
V/C ratio	**0.31**		**0.45**		**0.53**		**0.49**	
Control Delay, sec/pcu	**7.4**	**2.6**	**8.6**	**2.6**	**12.2**	**2.6**	**8.9**	**2.6**
LOS	A	A	A	A	B	A	A	A
Average Queue (ft)	14		27		36		32	
95th % Queue (ft)	**33**		**59**		**82**		**69**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**9.4**	**Int LOS**	**A**	**Max Approach V/C**	**0.53**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

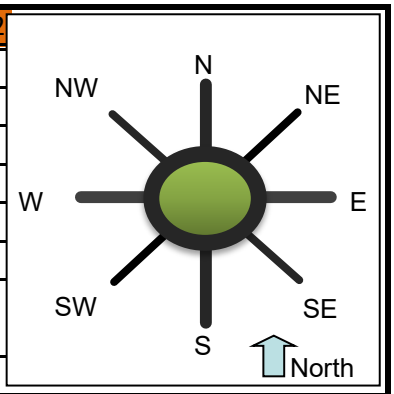
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	
Year, Peak Hour:	2020, 7:15 AM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Southern Pines Dr/McCartha Dr



Volumes		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**125**	0	**85**	0	**70**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**15**	0	0	0	**95**	0	**175**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	**75**	0	**135**	0	0	0	**25**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**115**	0	**295**	0	**20**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	205	0	555	0	200	0	270	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	95.0%	100.0%	99.0%	100.0%	97.0%	100.0%	97.0%	100.0%
% Heavy Vehicles	**5.0%**	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	**3.0%**	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	**3**	0	0	0	**6**	0	**3**	0
PHF	*0.53*	*0.95*	*0.66*	*0.95*	*0.72*	*0.95*	*0.68*	*0.95*
F_{HV}	0.952	1.000	0.990	1.000	0.971	1.000	0.971	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	191	0	122	0	106	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	30	0	0	0	136	0	265	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	149	0	207	0	0	0	38	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	228	0	451	0	29	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	406	0	849	0	286	0	409	0
Conflicting flow, pcu/h	687	0	256	0	401	0	385	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	652	1380	1052	1380	889	1380	904	1380
Entry Flow Rates, vph	387	0	841	0	278	0	397	0
V/C ratio	**0.59**		**0.80**		**0.31**		**0.44**	
Control Delay, sec/pcu	**16.2**	**2.6**	**19.4**	**2.6**	**7.4**	**2.6**	**9.3**	**2.6**
LOS	C	A	C	A	A	A	A	A
Average Queue (ft)	44		114		14		26	
95th % Queue (ft)	**103**		**225**		**34**		**58**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**14.9**	**Int LOS**	**B**	**Max Approach V/C**	**0.80**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

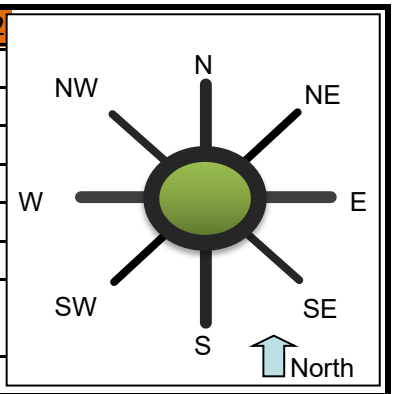
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	171007024
Year, Peak Hour:	2040, 4:45 PM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Southern Pines Dr/McCartha Dr



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**135**	0	**95**	0	**105**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**40**	0	0	0	**220**	0	**420**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	**105**	0	**90**	0	0	0	**60**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**95**	0	**250**	0	**90**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	240	0	475	0	405	0	585	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	99.0%	100.0%	97.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**1.0%**	0.0%	**3.0%**	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	**7**	0	0	0
PHF	*0.63*	*0.95*	*0.77*	*0.95*	*0.71*	*0.95*	*0.82*	*0.95*
F_{HV}	1.000	1.000	0.990	1.000	0.971	1.000	1.000	1.000
F_{ped}	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	177	0	138	0	128	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	63	0	0	0	319	0	512	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	167	0	118	0	0	0	73	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	151	0	328	0	131	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	381	0	623	0	588	0	713	0
Conflicting flow, pcu/h	577	0	396	0	704	0	348	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	766	1380	912	1380	653	1380	967	1380
Entry Flow Rates, vph	381	0	617	0	570	0	713	0
V/C ratio	**0.50**		**0.68**		**0.87**		**0.74**	
Control Delay, sec/pcu	**11.7**	**2.6**	**15.2**	**2.6**	**36.0**	**2.6**	**17.1**	**2.6**
LOS	B	A	C	A	E	A	C	A
Average Queue (ft)	31		65		143		85	
95th % Queue (ft)	**70**		**138**		**267**		**173**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	20.4	Int LOS	C	Max Approach V/C	0.87

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

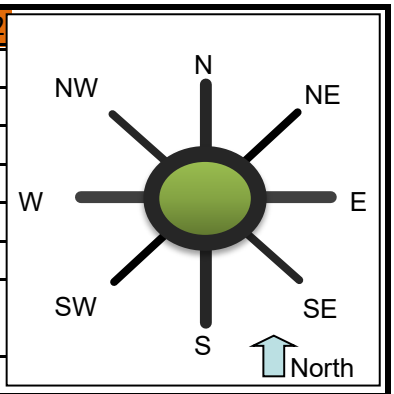
Steam Mill Rd @ Northstar Drive/Shirley Winston Park Driveway

Rounabout Analysis

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	171007024
Year, Peak Hour:	2020, 7:15 AM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Northstar Dr/Shirley Preston Park Drwy



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**5**	0	**5**	0	**5**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	0	0	0	0	**125**	0	**90**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	0	0	**85**	0	0	0	**45**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**5**	0	**120**	0	**70**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	5	0	210	0	200	0	140	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	98.0%	100.0%	97.0%	100.0%	95.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**2.0%**	0.0%	**3.0%**	0.0%	**5.0%**	0.0%
% Bicycle	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	*0.13*	*0.95*	*0.67*	*0.95*	*0.68*	*0.95*	*0.65*	*0.95*
F_{HV}	1.000	1.000	0.980	1.000	0.971	1.000	0.952	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	8	0	8	0	8	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	189	0	145	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	129	0	0	0	73	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	38	0	183	0	106	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	38	0	320	0	303	0	226	0
Conflicting flow, pcu/h	418	0	122	0	153	0	129	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	901	1380	1195	1380	1146	1380	1152	1380
Entry Flow Rates, vph	38	0	313	0	294	0	215	0
V/C ratio	**0.04**		**0.26**		**0.26**		**0.19**	
Control Delay, sec/pcu	**4.4**	**2.6**	**5.4**	**2.6**	**5.5**	**2.6**	**4.8**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)	1		12		11		7	
95th % Queue (ft)	**3**		**27**		**26**		**18**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	5.2	Int LOS	A	Max Approach V/C	0.26

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

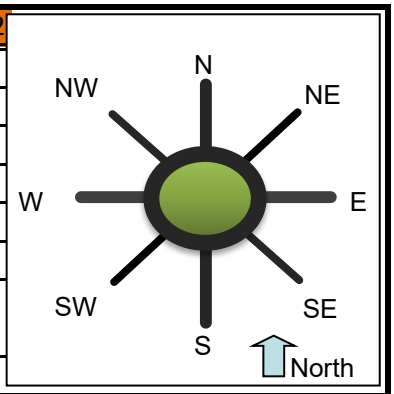
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	171007024
Year, Peak Hour:	2020, 4:45 PM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Northstar Dr/Shirley Preston Park Drwy



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**5**	0	**10**	0	**10**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**5**	0	0	0	**155**	0	**150**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	0	0	**100**	0	0	0	**95**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**10**	0	**95**	0	**55**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	15	0	200	0	220	0	255	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	100.0%	100.0%	99.0%	100.0%	99.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	0.0%	0.0%	**1.0%**	0.0%	**1.0%**	0.0%
% Bicycle	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	*0.41*	*0.95*	*0.75*	*0.95*	*0.60*	*0.95*	*0.74*	*0.95*
F_{HV}	1.000	1.000	1.000	1.000	0.990	1.000	0.990	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	7	0	17	0	14	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	12	0	0	0	261	0	205	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	133	0	0	0	130	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	24	0	127	0	93	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	37	0	267	0	370	0	348	0
Conflicting flow, pcu/h	353	0	123	0	231	0	146	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	963	1380	1217	1380	1080	1380	1178	1380
Entry Flow Rates, vph	37	0	267	0	367	0	345	0
V/C ratio	**0.04**		**0.22**		**0.34**		**0.29**	
Control Delay, sec/pcu	**4.1**	**2.6**	**4.9**	**2.6**	**6.7**	**2.6**	**5.8**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)	1		9		17		14	
95th % Queue (ft)	**3**		**21**		**38**		**31**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	5.8	Int LOS	A	Max Approach V/C	0.34

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

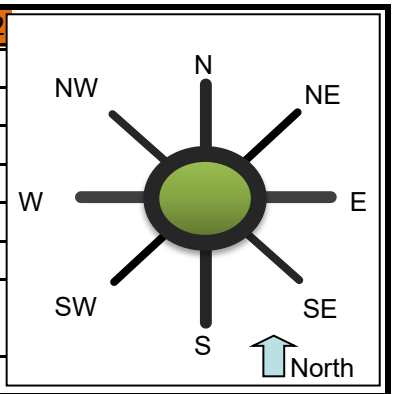
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	171007024
Year, Peak Hour:	2040, 7:15 AM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Northstar Dr/Shirley Preston Park Drwy



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**5**	0	**5**	0	**5**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	0	0	0	0	**170**	0	**120**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	0	0	**115**	0	0	0	**60**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**5**	0	**160**	0	**95**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	5	0	280	0	270	0	185	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	98.0%	100.0%	97.0%	100.0%	95.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	**2.0%**	0.0%	**3.0%**	0.0%	**5.0%**	0.0%
% Bicycle	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	*0.13*	*0.95*	*0.67*	*0.95*	*0.68*	*0.95*	*0.65*	*0.95*
F_{HV}	1.000	1.000	0.980	1.000	0.971	1.000	0.952	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	8	0	8	0	8	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	258	0	194	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	175	0	0	0	97	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	38	0	244	0	144	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	38	0	426	0	409	0	299	0
Conflicting flow, pcu/h	563	0	160	0	202	0	175	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	777	1380	1150	1380	1090	1380	1099	1380
Entry Flow Rates, vph	38	0	418	0	397	0	285	0
V/C ratio	**0.05**		**0.36**		**0.36**		**0.26**	
Control Delay, sec/pcu	**5.1**	**2.6**	**6.7**	**2.6**	**7.0**	**2.6**	**5.7**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)	1		20		19		11	
95th % Queue (ft)	**4**		**43**		**43**		**27**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**6.5**	**Int LOS**	**A**	**Max Approach V/C**	**0.36**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

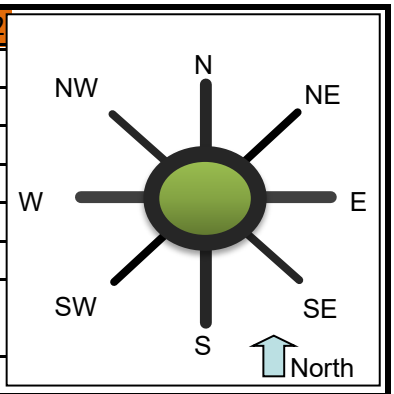
Bypass Lane Merge Point Analysis (if applicable)

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information

v 4.2

Analyst:	Ben Keffer
Agency/Co:	Stantec
Date:	4/20/2020
Project or PI#:	171007024
Year, Peak Hour:	2040, 4:45 PM
County/District:	Muscogee
Intersection Name:	Steam Mill Rd @ Northstar Dr/Shirley Preston Park Drwy



Volumes

		Entry Legs (FROM) N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph	0	0	**5**	0	**15**	0	**15**	0
Exit	NE (2), vph	0	0	0	0	0	0	0	0
Legs	E (3), vph	**5**	0	0	0	**210**	0	**200**	0
(TO)	SE (4), vph	0	0	0	0	0	0	0	0
	S (5), vph	0	0	**135**	0	0	0	**130**	0
	SW (6), vph	0	0	0	0	0	0	0	0
	W (7), vph	**15**	0	**130**	0	**75**	0	0	0
	NW (8), vph	0	0	0	0	0	0	0	0
Output	Total Vehicles	20	0	270	0	300	0	345	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100.0%	100.0%	100.0%	100.0%	99.0%	100.0%	99.0%	100.0%
% Heavy Vehicles	0.0%	0.0%	0.0%	0.0%	**1.0%**	0.0%	**1.0%**	0.0%
% Bicycle	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	*0.41*	*0.95*	*0.75*	*0.95*	*0.60*	*0.95*	*0.74*	*0.95*
F_{HV}	1.000	1.000	1.000	1.000	0.990	1.000	0.990	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	7	0	25	0	20	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	12	0	0	0	354	0	273	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	180	0	0	0	177	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	37	0	173	0	126	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	49	0	360	0	505	0	471	0
Conflicting flow, pcu/h	480	0	172	0	306	0	192	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	846	1380	1158	1380	1000	1380	1123	1380
Entry Flow Rates, vph	49	0	360	0	500	0	466	0
V/C ratio	**0.06**		**0.31**		**0.50**		**0.42**	
Control Delay, sec/pcu	**4.8**	**2.6**	**6.1**	**2.6**	**9.6**	**2.6**	**7.5**	**2.6**
LOS	A	A	A	A	A	A	A	A
Average Queue (ft)	2		15		33		24	
95th % Queue (ft)	**5**		**33**		**72**		**52**	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	**7.8**	**Int LOS**	**A**	**Max Approach V/C**	**0.50**

Notes: v 4.2

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

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?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
F_{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 6th Edition)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (veh)						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

Appendix G TRAFFIC SIGNAL WARRANTS

McCartha Drive /Southern Pines Drive Signal Warrant – Existing Volumes, 70% Factor

Traffic Signal Warrants

Traffic Count Date:	3/3/2020	**City/Town:**	Columbus, GA
Major Street Name:	Steam Mill Rd	**Minor Street Name:**	Southern Pines Dr / McCartha Dr
Major Street Approach Lanes:	1	**Minor Street Approach Lanes:**	1
Major-Street Speed Exceeds 40 MPH?	Y	**Isolated Community With Population Less Than 10,000?**	N

	Major Street VPH		Minor Street VPH - Higher-Volume Approach	WARRANT 1: Eight Hour Vehicular Volume (MUTCD Section 4C.02)												WARRANT 2: Four Hour Vehicular Volume (MUTCD Section 4C.03)	WARRANT 3: Peak Hour (MUTCD Section 4C.04)
				Warrant 1A: Minimum Vehicular Volume			Warrant 1B: Interruption Of Continuous Traffic			Warrant 1C-A: Combination			Warrant 1C-B: Combination				
	Approach #1	Approach #2		Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*		
12 - 1 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
5-6 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
6-7 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 AM	*123*	*302*	*80*	Y	N	**N**	N	Y	**N**	Y	N	**N**	Y	Y	**Y**	**N**	**N**
8-9 AM	*147*	*206*	*120*	Y	Y	**Y**	N	Y	**N**	Y	Y	**Y**	N	Y	**N**	**N**	**N**
9-10 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 AM - 12 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
12-1 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 PM	*294*	*241*	*131*	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**N**
5-6 PM	*362*	*266*	*244*	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
6-7 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
8-9 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
9-10 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 PM - 12 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
				NO, DOES NOT MEET WARRANT			**NO, DOES NOT MEET WARRANT**			**NO, DOES NOT MEET WARRANT**						**NO, DOES NOT MEET WARRANT**	**YES, MEETS WARRANT**

McCartha Drive /Southern Pines Drive Signal Warrant – Existing Volumes, 100% Factor

Traffic Signal Warrants

Traffic Count Date:	3/3/2020	**City/Town:**	Columbus, GA
Major Street Name:	Steam Mill Rd	**Minor Street Name:**	Southern Pines Dr / McCartha Dr
Major Street Approach Lanes:	1	**Minor Street Approach Lanes:**	1
Major-Street Speed Exceeds 40 MPH?	N	**Isolated Community With Population Less Than 10,000?**	N

	Major Street VPH		**Minor Street VPH - Higher-Volume Approach**	**WARRANT 1: Eight Hour Vehicular Volume (MUTCD Section 4C.02)**												**WARRANT 2: Four Hour Vehicular Volume (MUTCD Section 4C.03)**	**WARRANT 3: Peak Hour (MUTCD Section 4C.04)**
				Warrant 1A: Minimum Vehicular Volume			Warrant 1B: Interruption Of Continuous Traffic			Warrant 1C-A: Combination			Warrant 1C-B: Combination				
	Approach #1	**Approach #2**		Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*		
12 - 1 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
5-6 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
6-7 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 AM	*123*	*302*	*80*	N	N	**N**	N	Y	**N**	N	N	**N**	N	Y	**N**	**N**	**N**
8-9 AM	*147*	*206*	*120*	N	N	**N**	N	Y	**N**	N	Y	**N**	N	Y	**N**	**N**	**N**
9-10 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 AM - 12 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
12-1 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 PM	*294*	*241*	*131*	Y	N	**N**	N	Y	**N**	Y	Y	**Y**	N	Y	**N**	**N**	**N**
5-6 PM	*362*	*266*	*244*	Y	Y	**Y**	N	Y	**N**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**N**
6-7 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
8-9 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
9-10 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 PM - 12 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
				NO, DOES NOT MEET WARRANT			**NO, DOES NOT MEET WARRANT**			**NO, DOES NOT MEET WARRANT**						**NO, DOES NOT MEET WARRANT**	**NO, DOES NOT MEET WARRANT**

McCartha Drive /Southern Pines Drive Signal Warrant – 2040 Volumes, 70% Factor

Traffic Signal Warrants

Traffic Count Date:	3/3/2020	**City/Town:**	Columbus, GA
Major Street Name:	Steam Mill Rd	**Minor Street Name:**	Southern Pines Dr / McCartha Dr
Major Street Approach Lanes:	1	**Minor Street Approach Lanes:**	1
Major-Street Speed Exceeds 40 MPH?	Y	**Isolated Community With Population Less Than 10,000?**	N

	Major Street VPH		Minor Street VPH - Higher-Volume Approach	WARRANT 1: Eight Hour Vehicular Volume (MUTCD Section 4C.02)												WARRANT 2: Four Hour Vehicular Volume (MUTCD Section 4C.03)	WARRANT 3: Peak Hour (MUTCD Section 4C.04)
				Warrant 1A: Minimum Vehicular Volume			Warrant 1B: Interruption Of Continuous Traffic			Warrant 1C-A: Combination			Warrant 1C-B: Combination				
	Approach #1	Approach #2		Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*		
12 - 1 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
5-6 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
6-7 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 AM	*166*	*407*	*108*	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**N**
8-9 AM	*198*	*277*	*162*	Y	Y	**Y**	N	Y	**N**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**N**
9-10 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 AM - 12 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
12-1 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 PM	*396*	*325*	*176*	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
5-6 PM	*488*	*358*	*329*	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
6-7 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
8-9 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
9-10 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 PM - 12 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
				NO, DOES NOT MEET WARRANT			**NO, DOES NOT MEET WARRANT**			**NO, DOES NOT MEET WARRANT**						**YES, MEETS WARRANT**	**YES, MEETS WARRANT**

McCartha Drive /Southern Pines Drive Signal Warrant – 2040 Volumes, 100% Factor

Traffic Signal Warrants

Traffic Count Date:	3/3/2020	**City/Town:**	Columbus, GA
Major Street Name:	Steam Mill Rd	**Minor Street Name:**	Southern Pines Dr / McCartha Dr
Major Street Approach Lanes:	1	**Minor Street Approach Lanes:**	1
Major-Street Speed Exceeds 40 MPH?	N	**Isolated Community With Population Less Than 10,000?**	N

	Major Street VPH		**Minor Street VPH - Higher-Volume Approach**	**WARRANT 1: Eight Hour Vehicular Volume (MUTCD Section 4C.02)**												**WARRANT 2: Four Hour Vehicular Volume (MUTCD Section 4C.03)**	**WARRANT 3: Peak Hour (MUTCD Section 4C.04)**
				Warrant 1A: Minimum Vehicular Volume			Warrant 1B: Interruption Of Continuous Traffic			Warrant 1C-A: Combination			Warrant 1C-B: Combination				
	Approach #1	**Approach #2**		Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*		
12 - 1 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
5-6 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
6-7 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 AM	*166*	*407*	*108*	Y	N	**N**	N	Y	**N**	Y	N	**N**	N	Y	**N**	**N**	**N**
8-9 AM	*198*	*277*	*162*	N	Y	**N**	N	Y	**N**	N	Y	**N**	N	Y	**N**	**N**	**N**
9-10 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 AM - 12 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
12-1 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 PM	*396*	*325*	*176*	Y	Y	**Y**	N	Y	**N**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**N**
5-6 PM	*488*	*358*	*329*	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
6-7 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
8-9 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
9-10 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 PM - 12 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
				NO, DOES NOT MEET WARRANT			**NO, DOES NOT MEET WARRANT**			**NO, DOES NOT MEET WARRANT**						**NO, DOES NOT MEET WARRANT**	**YES, MEETS WARRANT**

Northstar Drive /Shirley Winston Park Driveway Signal Warrant

Existing Volumes, 70% Factor

Traffic Signal Warrants

Traffic Count Date:	3/3/2020	**City/Town:**	Columbus, GA
Major Street Name:	Steam Mill Rd	**Minor Street Name:**	Southern Pines Dr / McCartha Dr
Major Street Approach Lanes:	1	**Minor Street Approach Lanes:**	1
Major-Street Speed Exceeds 40 MPH?	Y	**Isolated Community With Population Less Than 10,000?**	N

	Major Street VPH		**Minor Street VPH - Higher-Volume Approach**	**WARRANT 1: Eight Hour Vehicular Volume (MUTCD Section 4C.02)**												**WARRANT 2: Four Hour Vehicular Volume (MUTCD Section 4C.03)**	**WARRANT 3: Peak Hour (MUTCD Section 4C.04)**
				Warrant 1A: Minimum Vehicular Volume			Warrant 1B: Interruption Of Continuous Traffic			Warrant 1C-A: Combination			Warrant 1C-B: Combination				
	Approach #1	**Approach #2**		Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*		
12 - 1 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
5-6 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
6-7 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 AM	*125*	*182*	*176*	N	Y	**N**	N	Y	**N**	Y	Y	**Y**	N	Y	**N**	**N**	**N**
8-9 AM	*95*	*129*	*122*	N	Y	**N**	N	Y	**N**	N	Y	**N**	N	Y	**N**	**N**	**N**
9-10 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 AM - 12 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
12-1 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 PM	*175*	*213*	*180*	Y	Y	**Y**	N	Y	**N**	Y	Y	**Y**	N	Y	**N**	**Y**	**N**
5-6 PM	*258*	*198*	*194*	Y	Y	**Y**	N	Y	**N**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**N**
6-7 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
8-9 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
9-10 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 PM - 12 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
				NO, DOES NOT MEET WARRANT			**NO, DOES NOT MEET WARRANT**			**NO, DOES NOT MEET WARRANT**						**NO, DOES NOT MEET WARRANT**	**NO, DOES NOT MEET WARRANT**

Northstar Drive /Shirley Winston Park Driveway Signal Warrant

Existing Volumes, 100% Factor

Traffic Signal Warrants

Traffic Count Date:	3/3/2020	**City/Town:**	Columbus, GA
Major Street Name:	Steam Mill Rd	**Minor Street Name:**	Southern Pines Dr / McCartha Dr
Major Street Approach Lanes:	1	**Minor Street Approach Lanes:**	1
Major-Street Speed Exceeds 40 MPH?	N	**Isolated Community With Population Less Than 10,000?**	N

	Major Street VPH		Minor Street VPH - Higher-Volume Approach	WARRANT 1: Eight Hour Vehicular Volume (MUTCD Section 4C.02)												WARRANT 2: Four Hour Vehicular Volume (MUTCD Section 4C.03)	WARRANT 3: Peak Hour (MUTCD Section 4C.04)
				Warrant 1A: Minimum Vehicular Volume			Warrant 1B: Interruption Of Continuous Traffic			Warrant 1C-A: Combination			Warrant 1C-B: Combination				
	Approach #1	Approach #2		Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*		
12 - 1 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
5-6 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
6-7 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 AM	*125*	*182*	*176*	N	Y	**N**	N	Y	**N**	N	Y	**N**	N	Y	**N**	**N**	**N**
8-9 AM	*95*	*129*	*122*	N	N	**N**	N	Y	**N**	N	Y	**N**	N	Y	**N**	**N**	**N**
9-10 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 AM - 12 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
12-1 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 PM	*175*	*213*	*180*	N	Y	**N**	N	Y	**N**	N	Y	**N**	N	Y	**N**	**N**	**N**
5-6 PM	*258*	*198*	*194*	N	Y	**N**	N	Y	**N**	N	Y	**N**	N	Y	**N**	**N**	**N**
6-7 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
8-9 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
9-10 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 PM - 12 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
				NO, DOES NOT MEET WARRANT			**NO, DOES NOT MEET WARRANT**			**NO, DOES NOT MEET WARRANT**						**NO, DOES NOT MEET WARRANT**	**NO, DOES NOT MEET WARRANT**

Northstar Drive /Shirley Winston Park Driveway Signal Warrant

2040 Volumes, 70% Factor

Traffic Signal Warrants

Traffic Count Date:	3/3/2020	**City/Town:**	Columbus, GA
Major Street Name:	Steam Mill Rd	**Minor Street Name:**	Southern Pines Dr / McCartha Dr
Major Street Approach Lanes:	1	**Minor Street Approach Lanes:**	1
Major-Street Speed Exceeds 40 MPH?	Y	**Isolated Community With Population Less Than 10,000?**	N

	Major Street VPH		**Minor Street VPH - Higher-Volume Approach**	**WARRANT 1: Eight Hour Vehicular Volume (MUTCD Section 4C.02)**												**WARRANT 2: Four Hour Vehicular Volume (MUTCD Section 4C.03)**	**WARRANT 3: Peak Hour (MUTCD Section 4C.04)**
				Warrant 1A: Minimum Vehicular Volume			Warrant 1B: Interruption Of Continuous Traffic			Warrant 1C-A: Combination			Warrant 1C-B: Combination				
	Approach #1	**Approach #2**		Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*	Major Street	Minor Street	*Both Y?*		
12 - 1 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
5-6 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
6-7 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 AM	*168*	*245*	*237*	Y	Y	**Y**	N	Y	**N**	Y	Y	**Y**	N	Y	**N**	**Y**	**N**
8-9 AM	*128*	*174*	*164*	N	Y	**N**	N	Y	**N**	Y	Y	**Y**	N	Y	**N**	**N**	**N**
9-10 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 AM - 12 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
12-1 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
1-2 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
2-3 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
3-4 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
4-5 PM	*236*	*287*	*242*	Y	Y	**Y**	N	Y	**N**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
5-6 PM	*347*	*267*	*261*	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
6-7 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
7-8 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
8-9 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
9-10 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
10-11 PM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
11 PM - 12 AM				N	N	**N**	N	N	**N**	N	N	**N**	N	N	**N**	**N**	**N**
				NO, DOES NOT MEET WARRANT			**NO, DOES NOT MEET WARRANT**			**NO, DOES NOT MEET WARRANT**						**NO, DOES NOT MEET WARRANT**	**YES, MEETS WARRANT**

Northstar Drive /Shirley Winston Park Driveway Signal Warrant

2040 Volumes, 100% Factor

Traffic Signal Warrants

Traffic Count Date:	3/3/2020	**City/Town:**	Columbus, GA
Major Street Name:	Steam Mill Rd	**Minor Street Name:**	Southern Pines Dr / McCartha Dr
Major Street Approach Lanes:	1	**Minor Street Approach Lanes:**	1
Major-Street Speed Exceeds 40 MPH?	N	**Isolated Community With Population Less Than 10,000?**	N

	Major Street VPH		Minor Street VPH - Higher-Volume Approach	WARRANT 1: Eight Hour Vehicular Volume (MUTCD Section 4C.02)												WARRANT 2: Four Hour Vehicular Volume (MUTCD Section 4C.03)	WARRANT 3: Peak Hour (MUTCD Section 4C.04)
				Warrant 1A: Minimum Vehicular Volume			Warrant 1B: Interruption Of Continuous Traffic			Warrant 1C-A: Combination			Warrant 1C-B: Combination				
	Approach #1	Approach #2		Major Street	Minor Street	Both Y?	Major Street	Minor Street	Both Y?	Major Street	Minor Street	Both Y?	Major Street	Minor Street	Both Y?		
12 - 1 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
1-2 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
2-3 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
3-4 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
4-5 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
5-6 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
6-7 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
7-8 AM	168	245	237	N	Y	N	N	Y	N	N	Y	N	N	Y	N	N	N
8-9 AM	128	174	164	N	Y	N	N	Y	N	N	Y	N	N	Y	N	N	N
9-10 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
10-11 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
11 AM - 12 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
12-1 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
1-2 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
2-3 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
3-4 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
4-5 PM	236	287	242	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	N	N	N
5-6 PM	347	267	261	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	N
6-7 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
7-8 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
8-9 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
9-10 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
10-11 PM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
11 PM - 12 AM				N	N	N	N	N	N	N	N	N	N	N	N	N	N
				NO, DOES NOT MEET WARRANT			NO, DOES NOT MEET WARRANT			NO, DOES NOT MEET WARRANT						NO, DOES NOT MEET WARRANT	NO, DOES NOT MEET WARRANT