

**TRAFFIC IMPACT STUDY  
FOR  
PROPOSED EMBRY FARM ROAD RESIDENTIAL  
DEVELOPMENT ON ROGERS CIRCLE  
CITY OF JOHNS CREEK, GEORGIA**



*Prepared for:*

***Toll Brothers, Inc.  
2400 Lakeview Parkway, Suite 650  
Alpharetta, GA 30009***

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Planning & Zoning**

*Prepared By:*



**A&R Engineering Inc.**

2160 Kingston Court, Suite O  
Marietta, GA 30067  
Tel: (770) 690-9255 Fax: (770) 690-9210  
[www.areng.com](http://www.areng.com)

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A & R Project # 24-118

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# 1.0 INTRODUCTION

The purpose of this study is to determine the traffic impact from the proposed Embry Farm Road residential development consisting of 205 single-family residential units on Rogers Circle in City of Johns Creek. The development proposes to construct a single-lane four-legged roundabout on Rogers Circle by re-aligning southern Embry Farm Road approach (River Trail Middle School access) as a third leg, as well as re-aligning Embry Farm Road (existing road) approach as the fourth leg to the intersection that will be served as the driveway to the proposed residential development. As a result, the new roundabout will replace two stop-controlled closely spaced intersections on Rogers Circle. The development is also proposing to have an emergency access on the driveway of River Trail Middle School and a potential pedestrian connection. The location of the site is shown below.

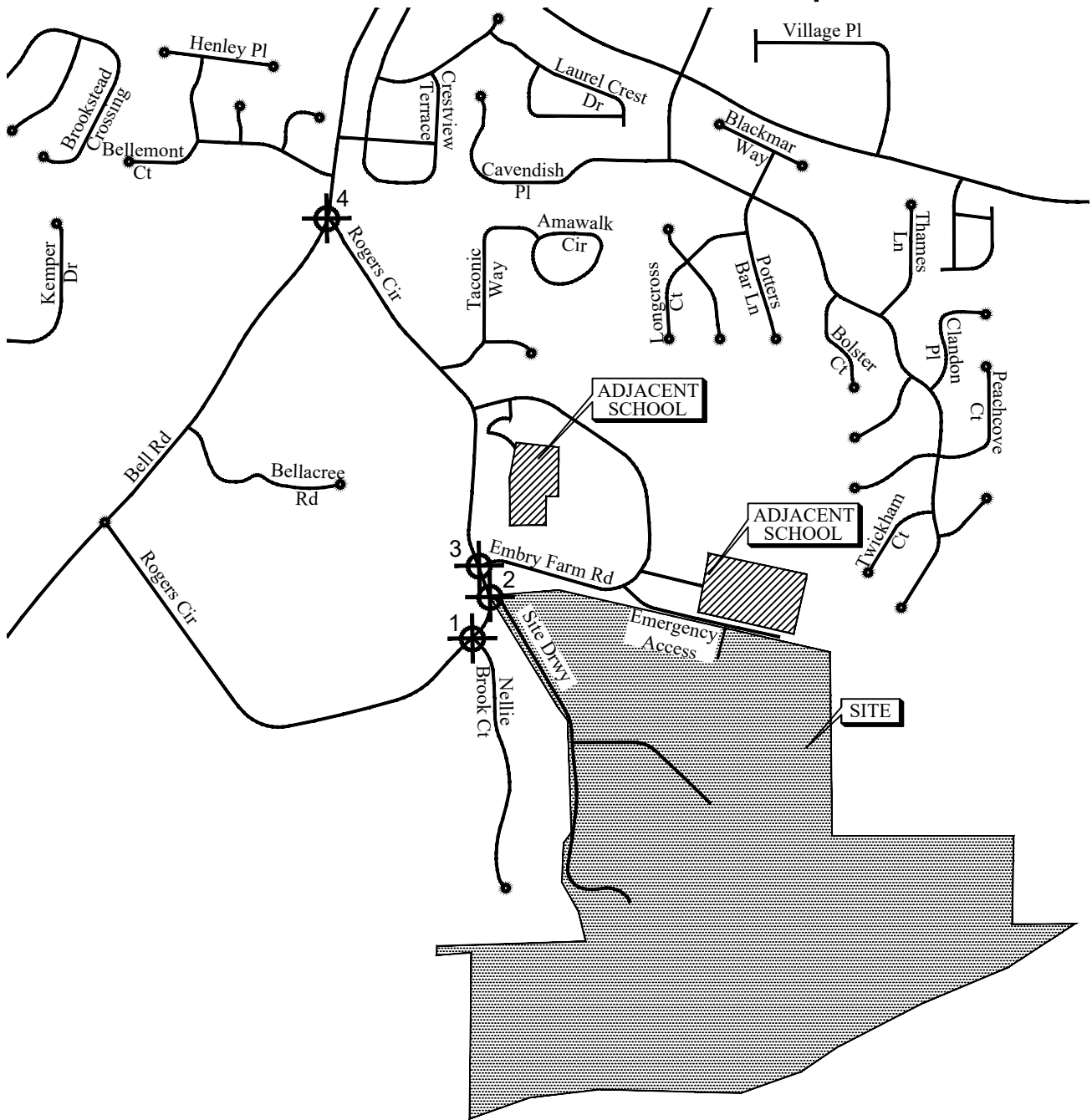


The AM, School Dismissal and PM peak hours have been analysed in this study. This study includes the evaluation of traffic operations at the intersections of:

1. Rogers Circle at Nellie Brook Court
2. Rogers Circle at Embry Farm Road (Southern Access to River Trail Middle School)/Embry Farm Road (Proposed Site's driveway) – Existing two stop-controlled intersections combined into one future four-legged roundabout.
3. Rogers Circle at Bell Road

Recommendations to improve traffic operations have been identified as appropriate and are discussed in detail in the following sections of the report. The location of the development and the surrounding roadway network is shown in Figure 1.

# Study Intersection



LOCATION MAP



FIGURE 1  
A&R Engineering Inc.

## **2.0 EXISTING FACILITIES / CONDITIONS**

### **2.1 Roadway Facilities**

The following is a brief description of each of the roadway facilities located in proximity to the site:

#### **2.1.1 Bell Road**

Bell Road is a north-south, two-lane, undivided roadway with the posted speed limit of 45 mph in the vicinity of the site. Georgia Department of Transportation (GDOT) traffic counts (Station ID: 121-0209) indicate that the daily traffic volume on Bell Road in 2022 was 8,770 vehicles per day south of Bellemont Ridge. GDOT classifies Bell Road as an urban major collector roadway.

#### **2.1.2 Rogers Circle**

Rogers Circle is a north-south, two-lane, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site.

#### **2.1.3 Embry Farm Road**

Embry Farm Road is an east-west, two lane, un-divided roadway with a posted speed limit of 25 mph in the vicinity of the site.

#### **2.1.4 Nellie Brook Court**

Nellie Brook Court is an east-west, two lane, un-divided roadway with a posted speed limit of 25 mph in the vicinity of the site.

### 3.0 STUDY METHODOLOGY

In this study, the methodology used for evaluating traffic operations at each of the subject intersections is based on the criteria set forth in the Transportation Research Board’s Highway Capacity Manual, 6th edition (HCM 6). Synchro software, which utilizes the HCM methodology, was used for the analysis. The following is a description of the methodology employed for the analysis of unsignalized and signalized intersections.

#### 3.1 Unsignalized Intersections

For unsignalized intersections controlled by a stop sign on minor streets, the level-of-service (LOS) for motor vehicles with controlled movements is determined by the computed control delay according to the thresholds stated in Table 1 below. LOS is determined for each minor street movement (or shared movement), as well as major street left turns. LOS is not defined for the intersection as a whole or for major street approaches. The LOS of any controlled movement which experiences a volume to capacity ratio greater than 1 is designated as “F” regardless of the control delay.

Control delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the control delay for unsignalized intersections, such as the availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue.

Level-of-service is assigned a letter designation from “A” through “F”. Level-of-service “A” indicates excellent operations with little delay to motorists, while level-of-service “F” exists when there are insufficient gaps of acceptable size to allow vehicles on the side street to cross the main road without experiencing long delays.

TABLE 1 — LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS		
Control Delay (sec/vehicle)	LOS by Volume-to-Capacity Ratio*	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 and ≤ 15	B	F
> 15 and ≤ 25	C	F
> 25 and ≤ 35	D	F
> 35 and ≤ 50	E	F
> 50	F	F

\*The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection.

Source: Highway Capacity Manual, 6<sup>th</sup> edition, Exhibit 20-2 *LOS Criteria: Motorized Vehicle Mode*



### 3.2 Signalized Intersections

According to HCM procedures, LOS can be calculated for the entire intersection, each intersection approach, and each lane group. HCM uses control delay alone to characterize LOS for the entire intersection or an approach. Control delay per vehicle is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Both control delay and volume-to-capacity ratio are used to characterize LOS for a lane group. A volume-to-capacity ratio of greater than 1.0 for a lane group indicates failure from capacity perspective. Therefore, such a lane group is assigned LOS F regardless of the amount of control delay.

Table 2 below summarizes the LOS criteria from HCM for motorized vehicles at signalized intersection.

TABLE 2 – LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS		
Control Delay (sec/vehicle) *	LOS for Lane Group by Volume-to-Capacity Ratio*	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 and ≤ 20	B	F
> 20 and ≤ 35	C	F
> 35 and ≤ 55	D	F
> 55 and ≤ 80	E	F
> 80	F	F

\*For approach-based and intersection wide assessments, LOS is defined solely by control delay

Source: Highway Capacity Manual, 6<sup>th</sup> edition, Exhibit 19-8 *LOS Criteria: Motorized Vehicle Mode*

LOS A is typically assigned when the volume-to-capacity (v/c) ratio is low and either progression is exceptionally favorable, or the cycle length is very short. LOS B is typically assigned when the v/c ratio is low and either progression is highly favorable, or the cycle length is short. However, more vehicles are stopped than with LOS A. LOS C is typically assigned when progression is favorable, or the cycle length is moderate. Individual *cycle failures* (one or more queued vehicles are not able to depart because of insufficient capacity during the cycle) may begin to appear at this level. Many vehicles still pass through the intersection without stopping, but the number of vehicles stopping is significant. LOS D is typically assigned when the v/c ratio is high and either progression is ineffective, or the cycle length is long. There are many vehicle-stops and individual cycle failures are noticeable. LOS E is typically assigned when the v/c ratio is high, progression is very poor, the cycle length is long, and individual cycle failures are frequent. LOS F is typically assigned when the v/c ratio is very high, progression is very poor, the cycle length is long, and most cycles fail to clear the queue.

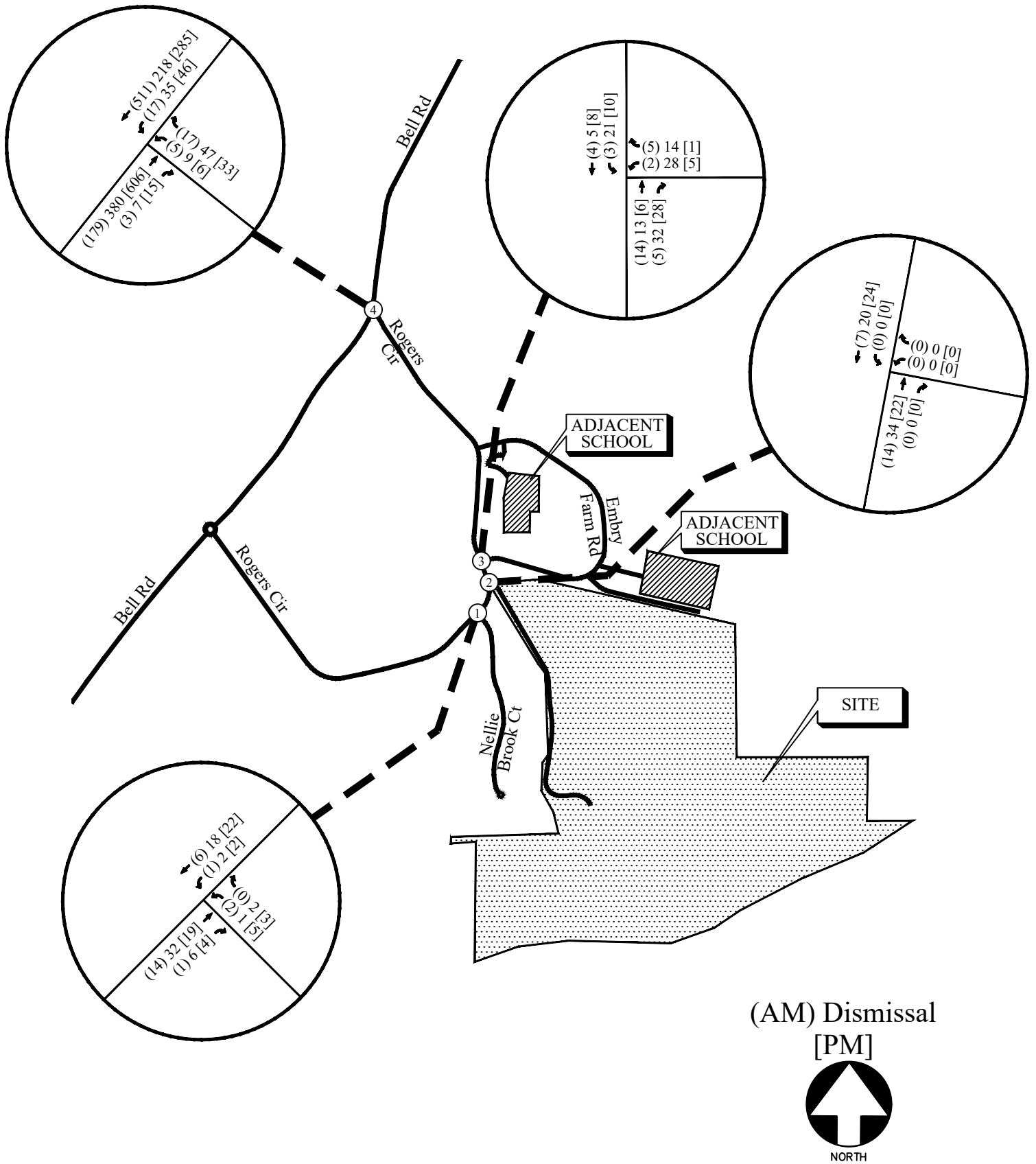
## **4.0 EXISTING 2024 TRAFFIC ANALYSIS**

### **4.1 Existing Traffic Volumes**

Existing traffic counts were obtained at the following study intersections:

1. Rogers Circle at Nellie Brook Court
2. Rogers Circle at Embry Farm Road (Site Driveway)
3. Rogers Circle at Southern Access to River Trail Middle School
4. Rogers Circle at Bell Road




Turning movement counts were collected on Thursday, June 20, 2024. All turning movement counts were recorded during the AM, School Dismissal and PM peak hours between 7:00 AM to 9:00 AM, 2:00 PM to 6:00 PM respectively. The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersections were then determined. These volumes make up the peak hour traffic volumes for the intersections counted and are shown in Figure 2. The existing traffic control and lane geometry for the intersections are shown in Figure 3.

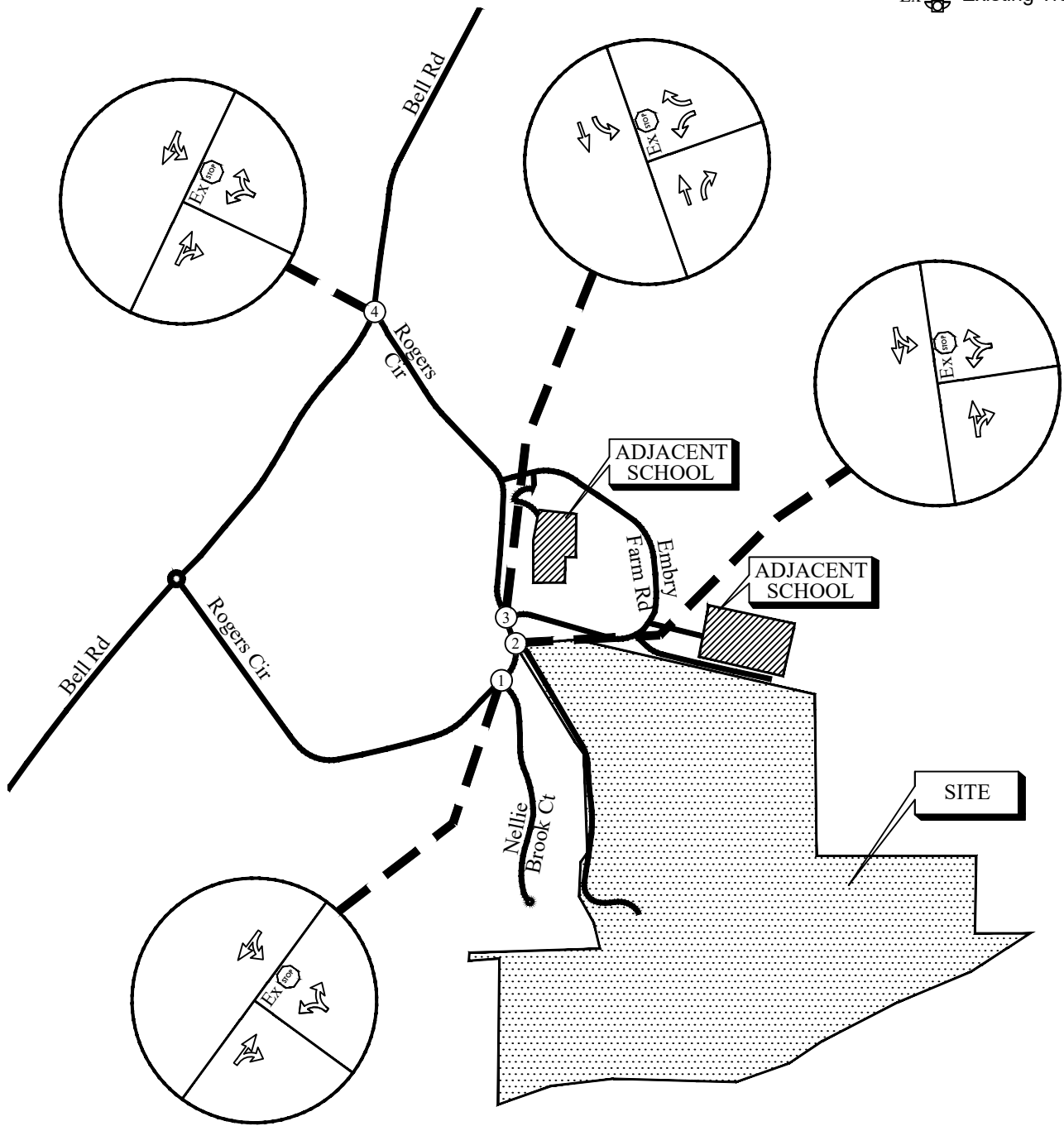


EXISTING WEEKDAY PEAK-HOUR VOLUMES

FIGURE 2  
 A&R Engineering Inc.

**LEGEND**

- Ex  Existing Signed Approach
-  Existing Lane Geometry
- Ex  Existing Traffic Signal



**EXISTING TRAFFIC CONTROL AND LANE GEOMETRY**

**FIGURE 3**

**A&R Engineering Inc.**

## 4.2 Existing Traffic Operations

Existing 2024 traffic operations were analyzed at the study intersections in accordance with the HCM methodology. The results of the analyses are shown in Table 3.

TABLE 3 – EXISTING INTERSECTION OPERATIONS					
Intersection		Traffic Control	LOS (Delay)		
			AM Peak	School Dismissal	PM Peak
1	<b><u>Rogers Circle @ Nellie Brook Ct</u></b> -Westbound Approach -Southbound Left	Stop Controlled on WB Approach	A (8.7)	A (9.0)	A (8.9)
			A (7.3)	A (7.4)	A (7.3)
2	<b><u>Rogers Circle @ Embry Farm Rd (Site Driveway)</u></b> -Westbound Approach -Southbound Left	Stop Controlled on WB Approach	A (0.0)	A (0.0)	A (0.0)
			A (0.0)	A (0.0)	A (0.0)
3	<b><u>Rogers Circle @ Embry Farm Rd (S)</u></b> -Westbound Approach -Southbound Left	Stop Controlled on WB Approach	A (8.5)	A (9.4)	A (8.8)
			A (7.3)	A (7.4)	A (7.3)
4	<b><u>Bell Road @ Rogers Circle</u></b> -Westbound Approach -Southbound Left	Stop Controlled on WB Approach	B (10.6)	B (13.2)	B (14.9)
			A (7.6)	A (8.5)	A (9.1)

The results of existing traffic operations analysis indicate the un-signalized study intersections are operating at levels-of-service “B” or better in all the AM, School Dismissal and PM peak hours. These existing traffic operations are based on traffic volumes during schools’ summer break. For future “No-Build” and “Build” conditions analysis, we have estimated trips from the two schools: River Trial Middle School and Shakerag Elementary School based on their enrolled number of students and included them in our analysis.

## 5.0 PROPOSED DEVELOPMENT

The development will consist of 205 units of detached homes.



As explained earlier in Introduction, the development proposes to construct a single-lane four-legged roundabout on Rogers Circle by re-aligning southern Embry Farm Road approach (River Trail Middle School access) as a third leg, as well as re-aligning Embry Farm Road (existing road) approach as the fourth leg to the intersection that will be served as the driveway to the proposed residential development. As a result, the new roundabout will replace two stop-controlled closely spaced intersections on Johns Creek Road. The development is also proposing to have an emergency access on the driveway of River Trail Middle School and a potential pedestrian connection. A site plan is shown in Figure 4.



## 5.1 Trip Generation

Trip generation estimates for the project were based on the rates and equations published in the 11<sup>th</sup> edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation was based on the following ITE Land Use: 210 – *Single-family Detached Housing*. The calculated total trip generation for the proposed development is shown in Table 4A.

TABLE 4A – TRIP GENERATION – PROPOSED RESIDENTIAL DEVELOPMENT											
Land Use	Size	AM Peak Hour			School Dismissal Peak Hour			PM Peak Hour			Two-way
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	
ITE 210 – Single-Family Detached Housing	205 Units	36	107	143	130	72	202	123	72	195	1,953

The development is adjacent to Shakerag Elementary School and River Trail Middle School, both of which have their driveways on Rogers Circle. Since schools were closed for summer when the traffic counts were collected, we are estimating trips from those two schools on Rogers Circle based on ITE’s trip generation manual using the number of students mentioned on their websites. The school trips are given below in Table 4B.

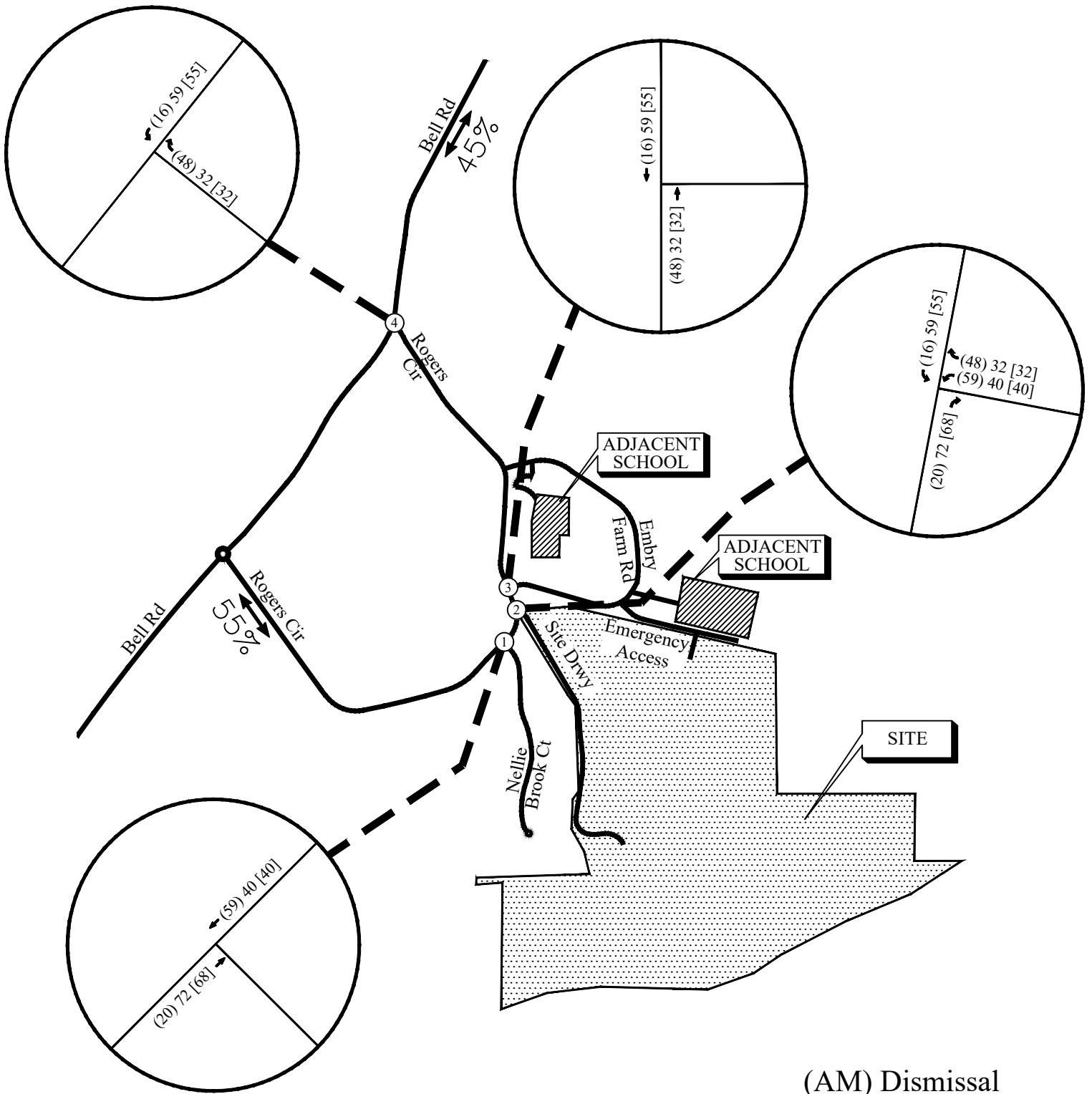
TABLE 4B – TRIP GENERATION – ADJACENT SCHOOLS											
Land Use	Size	AM Peak Hour			School Dismissal Peak Hour			PM Peak Hour			Two-way
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	
ITE 520 – Shakerag Elementary School	627 Students	251	213	464	130	152	282	46	54	100	1,423
ITE 522 – River Trail Middle School	1,093 Students	395	337	732	180	210	390	79	85	164	2,291
<b>Total trips</b>		<b>646</b>	<b>550</b>	<b>1,196</b>	<b>310</b>	<b>362</b>	<b>672</b>	<b>125</b>	<b>139</b>	<b>264</b>	<b>3,714</b>

## 5.2 Trip Distribution

The trip distribution describes how traffic arrives and departs from the site. An overall trip distribution was developed for the site based on a review of the existing travel patterns in the area and the locations of major roadways and highways that will serve the development. The site-generated peak hour traffic volumes, shown in Table 4, were assigned to the study area intersection based on this distribution. The outer-leg distribution and AM and PM peak hour new traffic generated by the site are shown in Figure 5.

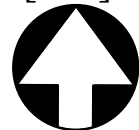
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(AM) Dismissal

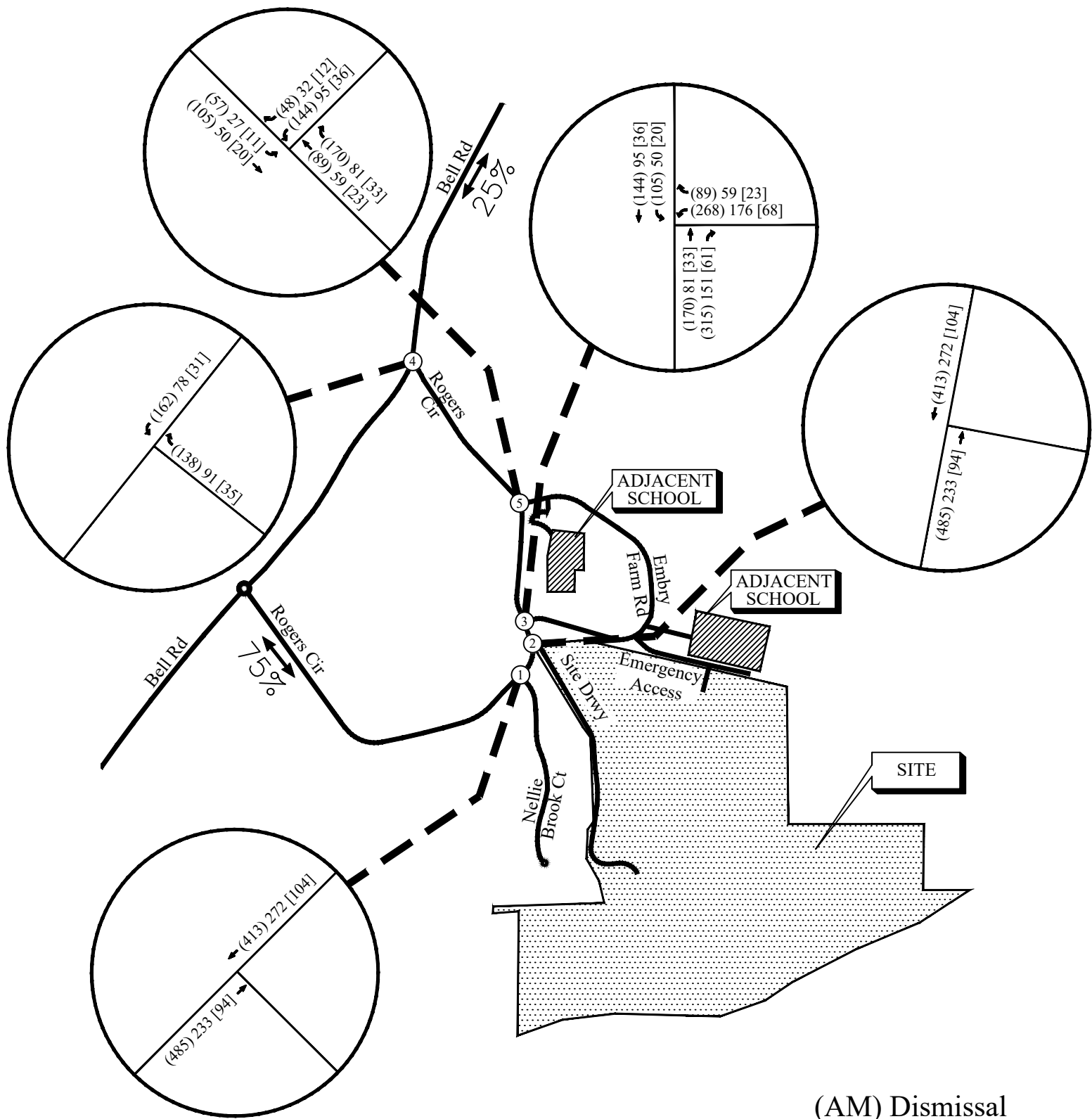
[PM]



NORTH

TRIP DISTRIBUTION AND NEW SITE-GENERATED  
WEEKDAY PEAK HOUR VOLUMES

FIGURE 5  
A&R Engineering Inc.



(AM) Dismissal

[PM]



NORTH

TRIP DISTRIBUTION AND NEW SITE-GENERATED  
ADJACENT SCHOOLS VOLUMES

FIGURE 6  
A&R Engineering Inc.

## **6.0 FUTURE 2026 TRAFFIC ANALYSIS**

The future 2026 traffic operations are analysed for the “Build” and “No-Build” conditions.

### **6.1 Future “No-Build” Conditions**

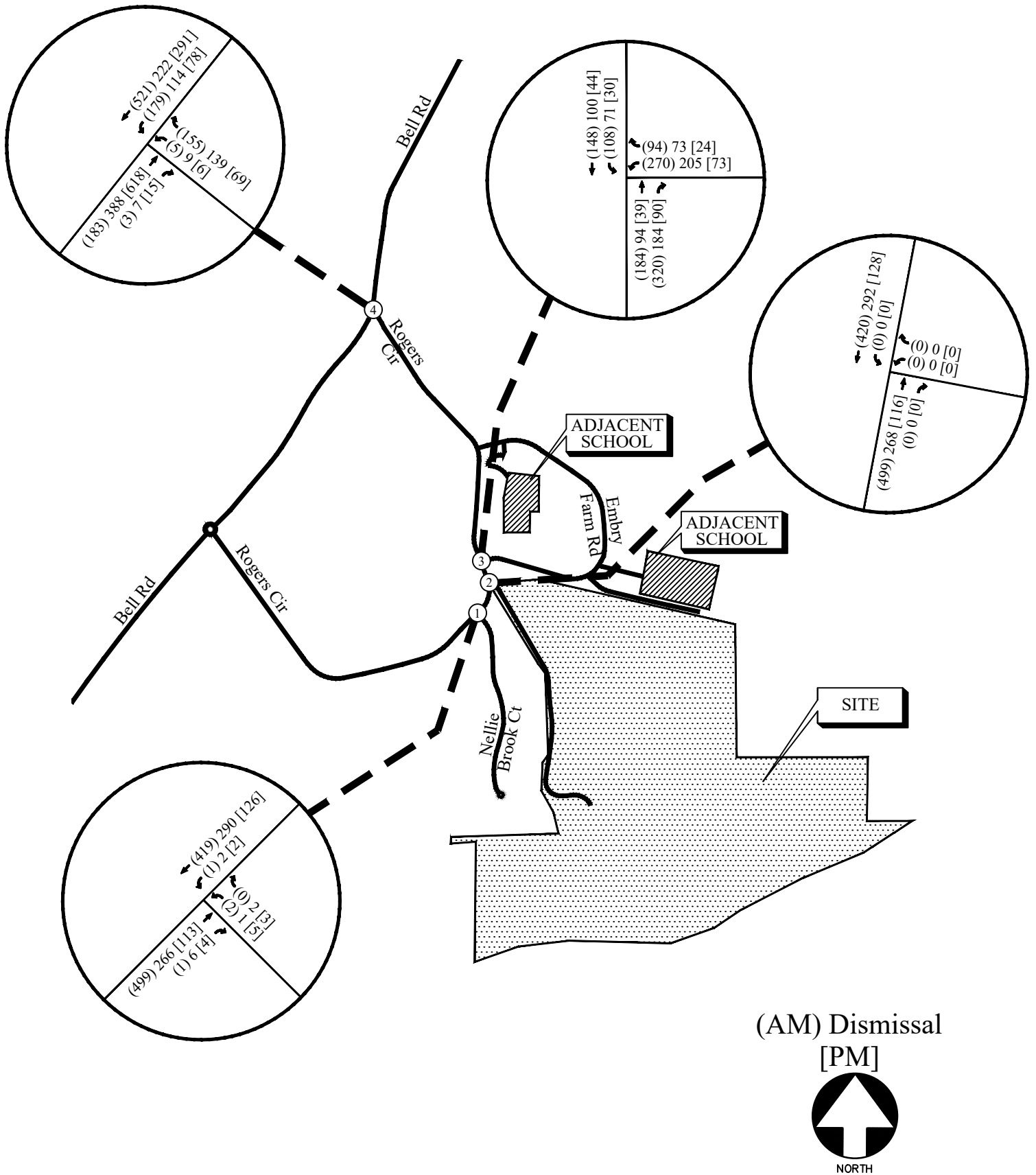
The “No-Build” (or background) conditions provide an assessment of how traffic will operate in the study horizon year without the study site being developed as proposed, with projected increases in through traffic volumes due to normal annual growth. The Future “No-Build” volumes consist of the existing traffic volumes (Figure 2) plus increases for annual growth of through traffic and adjacent school traffic (Figure 6).

#### **6.1.1 Annual Traffic Growth**

In order to evaluate future traffic operations in this area, a projection of normal traffic growth was applied to the existing volumes. The Georgia Department of Transportation recorded average daily traffic volumes at several locations in the vicinity of the site. Reviewing the data over the last five years (2017 – 2019 & 2021 – 2022) revealed growth of approximately 1% in the area. This growth factor was applied to the existing traffic volumes between collector and arterial roadways to estimate the future year traffic volumes prior to the addition of site-generated traffic. The resulting Future “No-Build” volumes on the roadway are shown in Figure 7.

### **6.2 Future “Build” Conditions**

The “Build” or development conditions include the estimated background traffic from the “No-Build” conditions plus the added traffic from the proposed development. In order to evaluate future traffic operations in this area, the additional traffic volumes from the site (Figure 5) were added to base traffic volumes (Figure 7) to calculate the future traffic volumes after the construction of the development. These total future “Build” traffic volumes are shown in Figure 8.



FUTURE (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 7  
A&R Engineering Inc.



### 6.3 Future Build Traffic Operations







The future “No-Build” and “Build” traffic operations were analysed using the volumes in Figure 7 and Figure 8, respectively. The results of the future traffic operations analysis are shown below in Table 5. Recommendations on traffic control and lane geometry are shown in Figure 9.

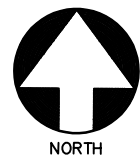
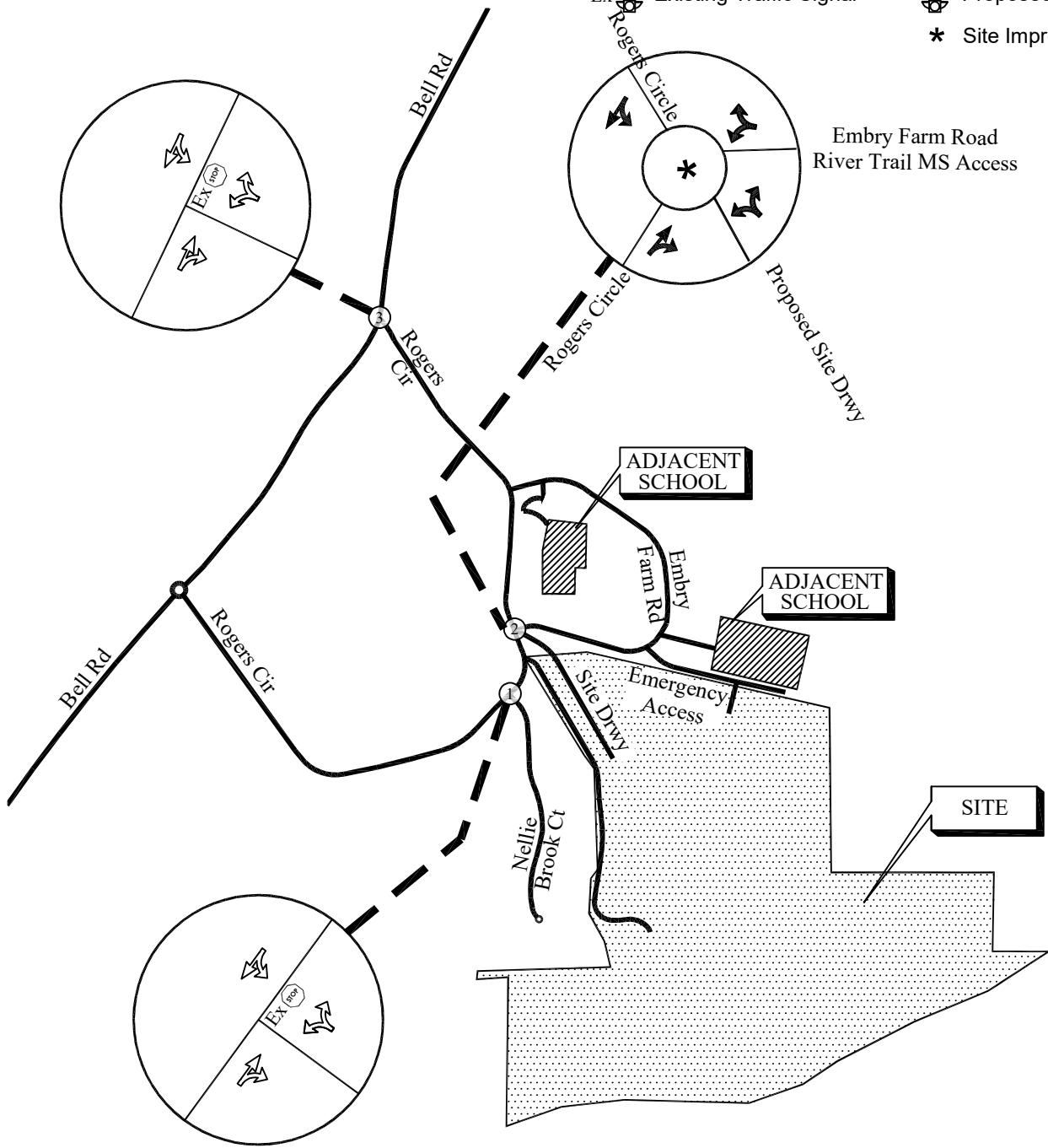
TABLE 5 – FUTURE INTERSECTION OPERATIONS							
Intersection		Future Condition: LOS (Delay)					
		NO-BUILD			BUILD		
		AM	Dismissal	PM	AM	Dismissal	PM
1	<b><u>Rogers Circle @ Nellie Brook Ct</u></b>						
	-Westbound Approach -Southbound Left	C (19.8) A (8.6)	C (20.5) A (9.2)	B (11.0) A (7.7)	C (21.8) A (8.7)	D (27.8) A (9.9)	B (12.7) A (8.0)
2	<b><u>Rogers Cir @ Embry Farm Rd (Site Dr)</u></b>				See intersection # 3 below for proposed 4-legged roundabout combining intersections 2 & 3 in “Build” conditions.		
	-Westbound Approach -Southbound Left	A (0.0) A (0.0)	A (0.0) A (0.0)	A (0.0) A (0.0)			
3	<b><u>Rogers Circle @ Embry Farm Rd (S)</u></b>				<b><u>B (13.5)</u></b>	<b><u>C (15.1)</u></b>	<b><u>A (5.2)</u></b>
	-WB Left (Embry Farm Rd S)	F (203.0)	F (79.6)	B (11.1)	B (14.0)	C (15.4)	A (4.7)
	-NW Left (Residential Dev Drwy)	-	-	-	B (14.8)	C (15.5)	A (5.7)
	-NB Left (Rogers Circle)	A (8.3)	A (7.9)	A (7.5)	B (11.4)	C (15.5)	A (5.0)
	-Southbound Left (Rogers Circle)	-	-	-	A (8.5)	A (7.5)	A (4.6)
4	<b><u>Bell Road @ Rogers Circle</u></b>						
	-Westbound Approach -Southbound Left	B (11.0) A (8.0)	C (15.8) A (8.9)	C (15.7) A (9.3)	B (11.4) A (8.1)	C (17.9) A (9.3)	C (17.0) A (9.6)

The results of “No Build” traffic operations analysis indicate that the westbound stop-controlled approach of Embry Farm Road (South) – River Trail Middle School Driveway will be operating at level-of-service “F” in both AM and School dismissal peak hours. Our analysis includes traffic volumes from both the adjacent middle school and elementary schools. However, the start and dismissal times of both schools are different and the traffic from both schools will arrive and depart at different times and the actual delays for the westbound approach may be slightly better than reported.

With the proposed single-lane four-legged roundabout combining intersections 2 and 3 is constructed, the results of the future “Build” traffic operations analysis indicate that all study intersections will operate at satisfactory levels-of-service “D” or better in all three peak hours.

**LEGEND**

- Ex  Existing Signed Approach
-  Existing Lane Geometry
- Ex  Existing Traffic Signal
-  Proposed Signed Approach
-  Proposed Lane Geometry
-  Proposed Traffic Signal
- \* Site Improvement



**FUTURE TRAFFIC CONTROL AND LANE GEOMETRY**

**FIGURE 9**

**A&R Engineering Inc.**

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated from the residential development that will be located to the southeast corner of the intersection of Rogers Circle and Embry Farm Road in City of Johns Creek, Georgia. The development will consist of 205 units of detached homes.

The development proposes to construct a single-lane four-legged roundabout on Rogers Circle by re-aligning southern Embry Farm Road approach (River Trail Middle School access) as a third leg, as well as re-aligning Embry Farm Road (existing road) approach as the fourth leg to the intersection that will be served as the driveway to the proposed residential development. As a result, the new roundabout will replace two stop-controlled closely spaced intersections on Rogers Circle. The development is also proposing to have an emergency access on the driveway of River Trail Middle School and a potential pedestrian connection.

Existing and future operations after completion of the project were analysed at the intersections of:

1. Rogers Circle at Nellie Brook Court
2. Rogers Circle at Embry Farm Road (Southern Access to River Trail Middle School)/Embry Farm Road (Proposed Site's driveway) – Existing two stop-controlled intersections combined into one future four-legged roundabout.
3. Rogers Circle at Bell Road

The analysis included the evaluation of Future operations for “No-Build” and “Build” conditions, the differences between “No-Build” and “Build” accounts for increase in traffic due to proposed development.

The results of “No Build” traffic operations analysis indicate that the westbound stop-controlled approach of Embry Farm Road (South) – River Trail Middle School Driveway will be operating at level-of-service “F” in both AM and School dismissal peak hours. Our analysis includes traffic volumes from both the adjacent middle school and elementary schools. However, the start and dismissal times of both schools are different and the traffic from both schools will arrive and depart at different times and the actual delays for the westbound approach may be slightly better than reported.

With the proposed single-lane four-legged roundabout combining intersections 2 and 3 constructed, the results of the future “Build” traffic operations analysis indicate that all study intersections will operate at satisfactory levels-of-service “D” or better in all three peak hours.



## **7.1 Site Access Configuration**

The developer proposes to construct a single-lane four-legged roundabout on Rogers Circle, replacing the two stop-controlled, closely spaced intersections of Embry Farm Road (Southern River Trail Middle School access) and the existing Embry Farm Road (residential driveway) intersections. The proposed roundabout will have the following four legs:

Northbound Approach – Rogers Circle

Southbound Approach – Rogers Circle

Westbound Approach – Embry Farm Road (River Trail Middle School Access)

Northwest Approach – Proposed Residential Development Driveway

A concept roundabout design will be prepared and submitted for approval.

**Appendix**

Existing Intersection Traffic Counts .....  
Linear Regression of Daily Traffic.....  
Existing Intersection Analysis.....  
Future “No-Build” Intersection Analysis .....  
Future “Build” Intersection Analysis.....  
Traffic Volume Worksheets .....

# **EXISTING INTERSECTION TRAFFIC COUNTS**

# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Cir @ Embry Farm Rd Southern Rd  
to River Trail Middle School  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240258  
Site Code : 20240258  
Start Date : 06-20-2024  
Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	Rogers Circle Northbound				Rogers Circle Southbound				Eastbound				Embry Farm Road Southern Rd to River Trail Middle School) Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	3	1	4	0	0	0	0	0	0	0	0	0	0	1	1	5
07:15 AM	0	3	1	4	0	4	0	4	0	0	0	0	0	0	0	0	8
07:30 AM	0	0	0	0	3	1	0	4	0	0	0	0	0	0	0	0	4
07:45 AM	0	2	1	3	3	1	0	4	0	0	0	0	1	0	5	6	13
Total	0	8	3	11	6	6	0	12	0	0	0	0	1	0	6	7	30
08:00 AM	0	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	4
08:15 AM	0	4	1	5	0	2	0	2	0	0	0	0	1	0	0	1	8
08:30 AM	0	6	1	7	0	1	0	1	0	0	0	0	0	0	0	0	8
08:45 AM	0	3	0	3	1	0	0	1	0	0	0	0	0	0	0	0	4
Total	0	15	4	19	1	3	0	4	0	0	0	0	1	0	0	1	24
*** BREAK ***																	
02:00 PM	0	2	0	2	4	4	0	8	0	0	0	0	0	0	3	3	13
02:15 PM	0	2	0	2	0	4	0	4	0	0	0	0	1	0	0	1	7
02:30 PM	0	3	0	3	1	1	0	2	0	0	0	0	1	0	0	1	6
02:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	8	0	8	5	9	0	14	0	0	0	0	2	0	3	5	27
03:00 PM	0	1	0	1	0	2	0	2	0	0	0	0	2	0	1	3	6
03:15 PM	0	5	3	8	0	0	0	0	0	0	0	0	0	0	0	0	8
03:30 PM	0	4	8	12	11	2	0	13	0	0	0	0	3	0	2	5	30
03:45 PM	0	3	21	24	10	1	0	11	0	0	0	0	23	0	11	34	69
Total	0	13	32	45	21	5	0	26	0	0	0	0	28	0	14	42	113
04:00 PM	0	4	1	5	0	1	0	1	0	0	0	0	1	0	0	1	7
04:15 PM	0	5	1	6	1	2	0	3	0	0	0	0	2	0	1	3	12
04:30 PM	0	0	2	2	0	2	0	2	0	0	0	0	3	0	1	4	8
04:45 PM	0	2	2	4	1	1	0	2	0	0	0	0	0	0	0	0	6
Total	0	11	6	17	2	6	0	8	0	0	0	0	6	0	2	8	33
05:00 PM	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	0	10
05:15 PM	0	2	3	5	0	1	0	1	0	0	0	0	1	0	0	1	7
05:30 PM	0	0	6	6	4	1	0	5	0	0	0	0	1	0	0	1	12
05:45 PM	0	0	18	18	6	1	0	7	0	0	0	0	3	0	1	4	29
Total	0	6	28	34	10	8	0	18	0	0	0	0	5	0	1	6	58
Grand Total	0	61	73	134	45	37	0	82	0	0	0	0	43	0	26	69	285
Apprch %	0	45.5	54.5		54.9	45.1	0		0	0	0		62.3	0	37.7		
Total %	0	21.4	25.6	47	15.8	13	0	28.8	0	0	0	0	15.1	0	9.1	24.2	

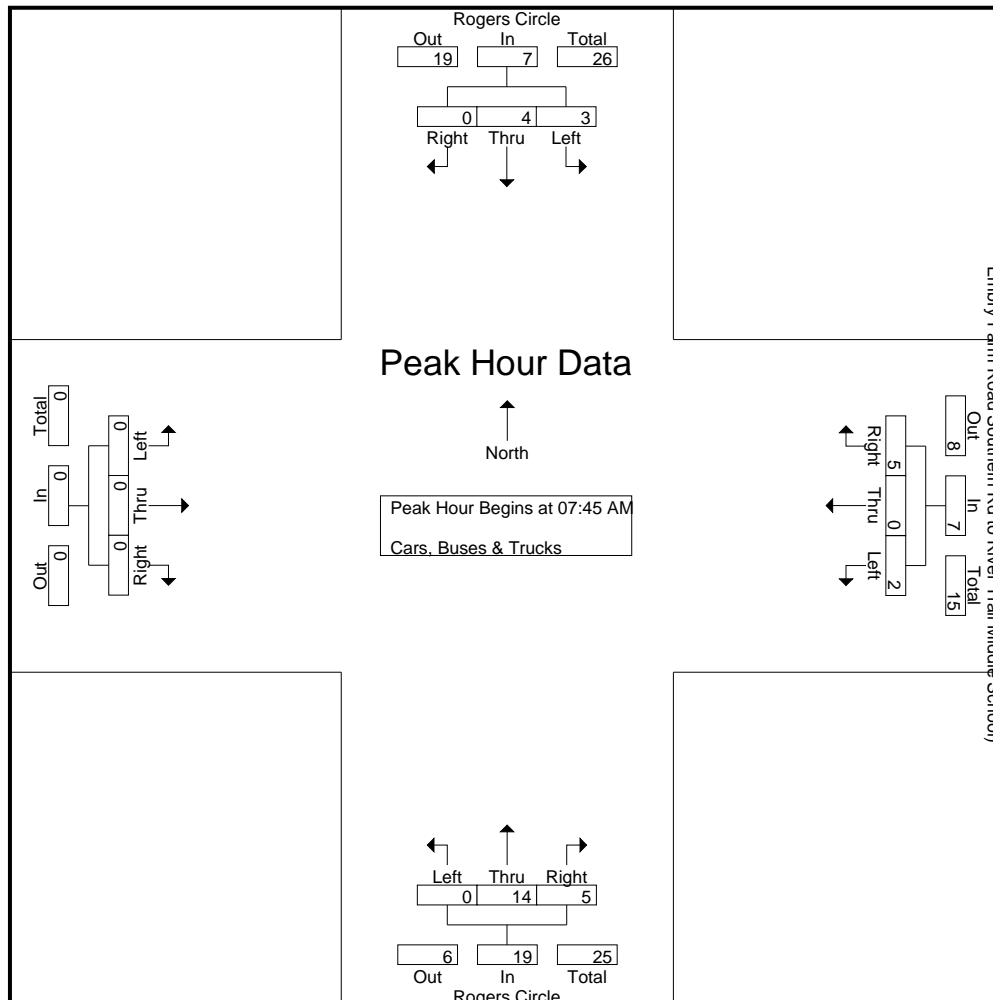
# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Cir @ Embry Farm Rd Southern Rd  
to River Trail Middle School  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240258  
Site Code : 20240258  
Start Date : 06-20-2024  
Page No : 2

Start Time	Rogers Circle Northbound				Rogers Circle Southbound				Eastbound				Embry Farm Road Southern Rd to River Trail Middle School Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	2	1	3	3	1	0	4	0	0	0	0	1	0	5	6	13
08:00 AM	0	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	4
08:15 AM	0	4	1	5	0	2	0	2	0	0	0	0	1	0	0	1	8
08:30 AM	0	6	1	7	0	1	0	1	0	0	0	0	0	0	0	0	8
Total Volume	0	14	5	19	3	4	0	7	0	0	0	0	2	0	5	7	33
% App. Total	0	73.7	26.3		42.9	57.1	0		0	0	0		28.6	0	71.4		
PHF	.000	.583	.625	.679	.250	.500	.000	.438	.000	.000	.000	.000	.500	.000	.250	.292	.635



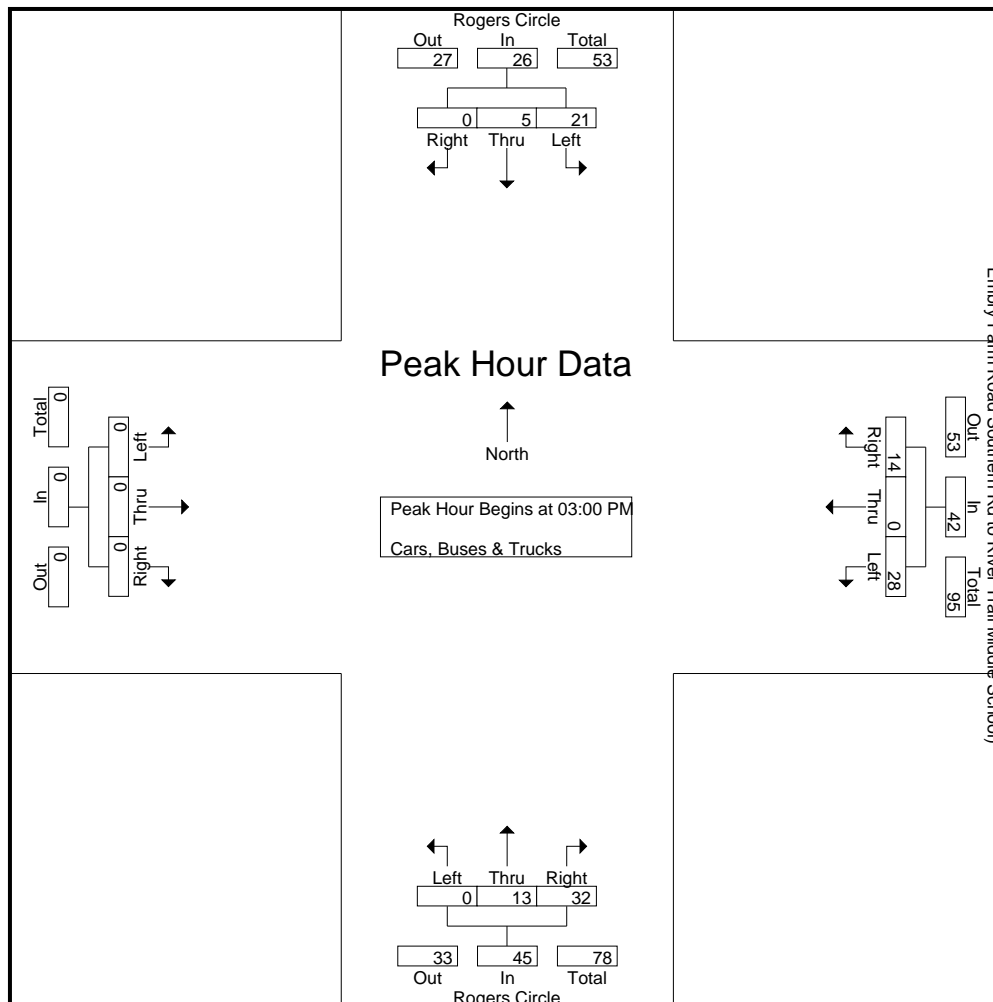
# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Cir @ Embry Farm Rd Southern Rd  
to River Trail Middle School  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240258  
Site Code : 20240258  
Start Date : 06-20-2024  
Page No : 3

Start Time	Rogers Circle Northbound				Rogers Circle Southbound				Eastbound				Embry Farm Road Southern Rd to River Trail Middle School Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	1	0	1	0	2	0	2	0	0	0	0	2	0	1	3	6
03:15 PM	0	5	3	8	0	0	0	0	0	0	0	0	0	0	0	0	8
03:30 PM	0	4	8	12	11	2	0	13	0	0	0	0	3	0	2	5	30
03:45 PM	0	3	21	24	10	1	0	11	0	0	0	0	23	0	11	34	69
Total Volume	0	13	32	45	21	5	0	26	0	0	0	0	28	0	14	42	113
% App. Total	0	28.9	71.1		80.8	19.2	0		0	0	0		66.7	0	33.3		
PHF	.000	.650	.381	.469	.477	.625	.000	.500	.000	.000	.000	.000	.304	.000	.318	.309	.409



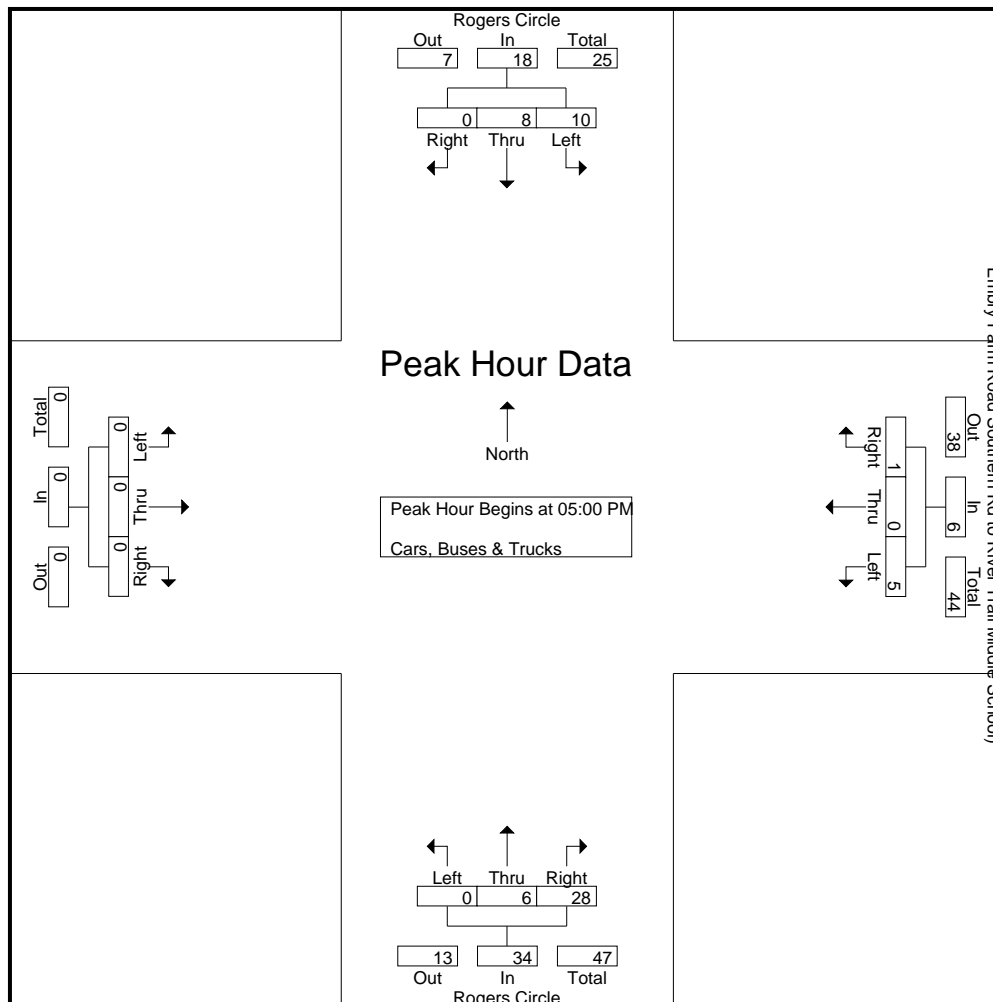
# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Cir @ Embry Farm Rd Southern Rd  
to River Trail Middle School  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240258  
Site Code : 20240258  
Start Date : 06-20-2024  
Page No : 4

Start Time	Rogers Circle Northbound				Rogers Circle Southbound				Eastbound				Embry Farm Road Southern Rd to River Trail Middle School Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	0	10
05:15 PM	0	2	3	5	0	1	0	1	0	0	0	0	1	0	0	1	7
05:30 PM	0	0	6	6	4	1	0	5	0	0	0	0	1	0	0	1	12
05:45 PM	0	0	18	18	6	1	0	7	0	0	0	0	3	0	1	4	29
Total Volume	0	6	28	34	10	8	0	18	0	0	0	0	5	0	1	6	58
% App. Total	0	17.6	82.4		55.6	44.4	0		0	0	0		83.3	0	16.7		
PHF	.000	.375	.389	.472	.417	.400	.000	.643	.000	.000	.000	.000	.417	.000	.250	.375	.500



# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Circle @ Nellie Brook Court  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240257  
Site Code : 20240257  
Start Date : 06-20-2024  
Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	Rogers Circle Northbound				Rogers Circle Southbound				Eastbound				Nellie Brook Court Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	6	0	6	0	0	0	0	0	0	0	0	1	0	0	1	7
07:15 AM	0	2	0	2	0	2	0	2	0	0	0	0	1	0	0	1	5
07:30 AM	0	3	1	4	0	3	0	3	0	0	0	0	0	0	0	0	7
07:45 AM	0	3	0	3	1	1	0	2	0	0	0	0	0	0	0	0	5
Total	0	14	1	15	1	6	0	7	0	0	0	0	2	0	0	2	24
08:00 AM	0	2	0	2	0	1	0	1	0	0	0	0	1	0	2	3	6
08:15 AM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	1	1	4
08:30 AM	0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
08:45 AM	0	4	0	4	0	1	0	1	0	0	0	0	1	0	3	4	9
Total	0	11	0	11	0	5	0	5	0	0	0	0	2	0	6	8	24
*** BREAK ***																	
02:00 PM	0	3	2	5	0	5	0	5	0	0	0	0	1	0	2	3	13
02:15 PM	0	0	1	1	1	4	0	5	0	0	0	0	0	0	1	1	7
02:30 PM	0	2	0	2	2	1	0	3	0	0	0	0	0	0	0	0	5
02:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	1	0	0	1	3
Total	0	6	3	9	3	11	0	14	0	0	0	0	2	0	3	5	28
03:00 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
03:15 PM	0	2	4	6	1	2	0	3	0	0	0	0	0	0	0	0	9
03:30 PM	0	5	1	6	0	0	0	0	0	0	0	0	0	0	2	2	8
03:45 PM	0	23	1	24	1	15	0	16	0	0	0	0	1	0	0	1	41
Total	0	32	6	38	2	18	0	20	0	0	0	0	1	0	2	3	61
04:00 PM	0	9	1	10	0	13	0	13	0	0	0	0	3	0	1	4	27
04:15 PM	0	6	0	6	1	2	0	3	0	0	0	0	0	0	1	1	10
04:30 PM	0	2	3	5	1	4	0	5	0	0	0	0	2	0	1	3	13
04:45 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
Total	0	19	4	23	2	22	0	24	0	0	0	0	5	0	3	8	55
05:00 PM	0	3	1	4	1	3	0	4	0	0	0	0	0	0	2	2	10
05:15 PM	0	7	0	7	1	3	0	4	0	0	0	0	2	0	0	2	13
05:30 PM	0	3	0	3	0	2	0	2	0	0	0	0	0	0	0	0	5
05:45 PM	0	12	0	12	0	3	0	3	0	0	0	0	2	0	0	2	17
Total	0	25	1	26	2	11	0	13	0	0	0	0	4	0	2	6	45
Grand Total	0	107	15	122	10	73	0	83	0	0	0	0	16	0	16	32	237
Apprch %	0	87.7	12.3		12	88	0		0	0	0		50	0	50		
Total %	0	45.1	6.3	51.5	4.2	30.8	0	35	0	0	0	0	6.8	0	6.8	13.5	



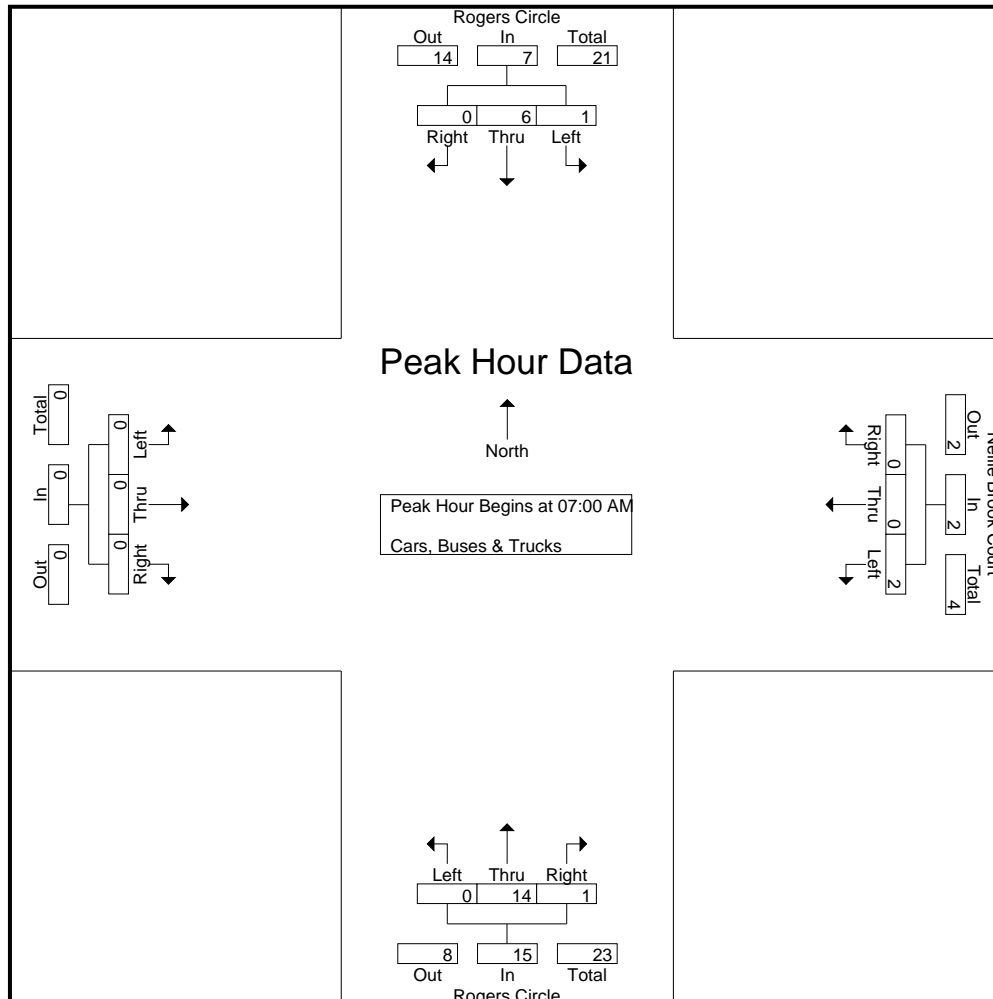
# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Circle @ Nellie Brook Court  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240257  
Site Code : 20240257  
Start Date : 06-20-2024  
Page No : 2

Start Time	Rogers Circle Northbound				Rogers Circle Southbound				Eastbound				Nellie Brook Court Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	6	0	6	0	0	0	0	0	0	0	0	1	0	0	1	7
07:15 AM	0	2	0	2	0	2	0	2	0	0	0	0	1	0	0	1	5
07:30 AM	0	3	1	4	0	3	0	3	0	0	0	0	0	0	0	0	7
07:45 AM	0	3	0	3	1	1	0	2	0	0	0	0	0	0	0	0	5
Total Volume	0	14	1	15	1	6	0	7	0	0	0	0	2	0	0	2	24
% App. Total	0	93.3	6.7		14.3	85.7	0		0	0	0		100	0	0		
PHF	.000	.583	.250	.625	.250	.500	.000	.583	.000	.000	.000	.000	.500	.000	.000	.500	.857



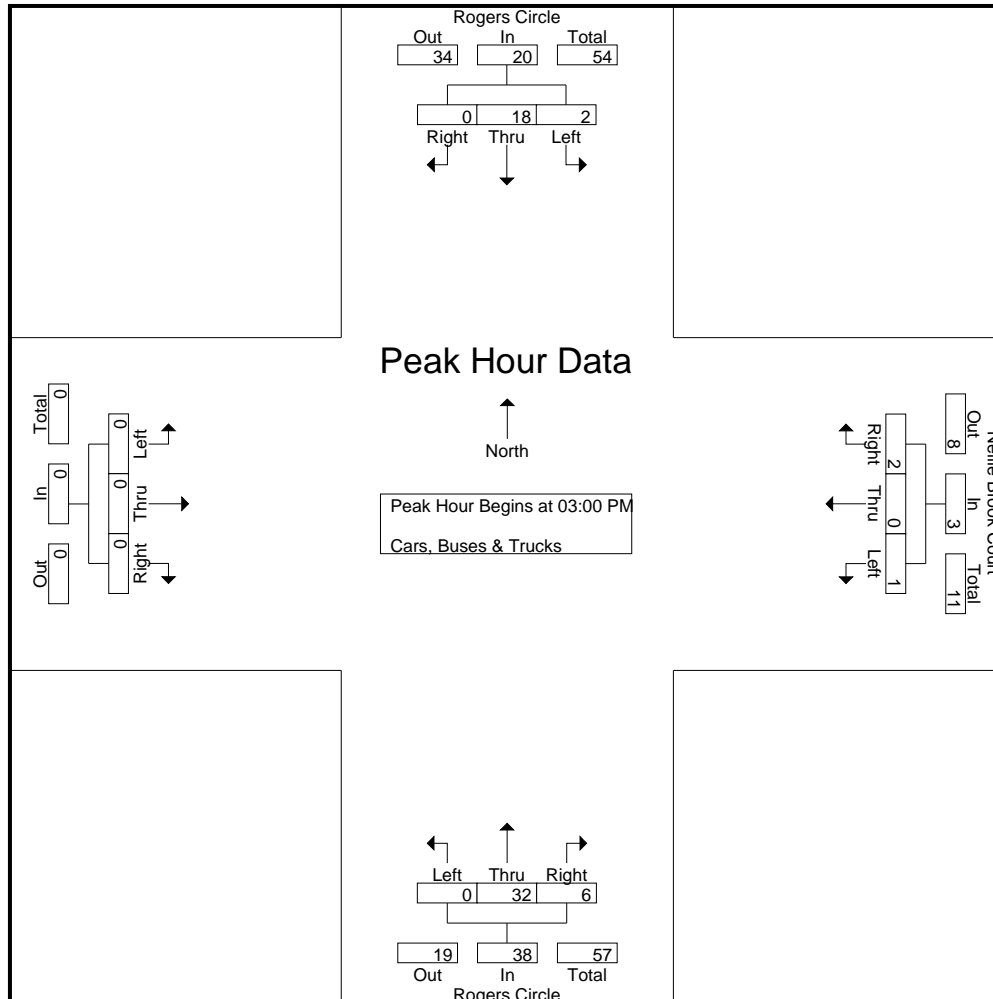
# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Circle @ Nellie Brook Court  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240257  
Site Code : 20240257  
Start Date : 06-20-2024  
Page No : 3

Start Time	Rogers Circle Northbound				Rogers Circle Southbound				Eastbound				Nellie Brook Court Westbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:00 PM																		
03:00 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	3
03:15 PM	0	2	4	6	1	2	0	3	0	0	0	0	0	0	0	0	0	9
03:30 PM	0	5	1	6	0	0	0	0	0	0	0	0	0	0	2	2	8	
03:45 PM	0	23	1	24	1	15	0	16	0	0	0	0	1	0	0	1	41	
Total Volume	0	32	6	38	2	18	0	20	0	0	0	0	1	0	2	3	61	
% App. Total	0	84.2	15.8		10	90	0		0	0	0		33.3	0	66.7			
PHF	.000	.348	.375	.396	.500	.300	.000	.313	.000	.000	.000	.000	.250	.000	.250	.375	.372	



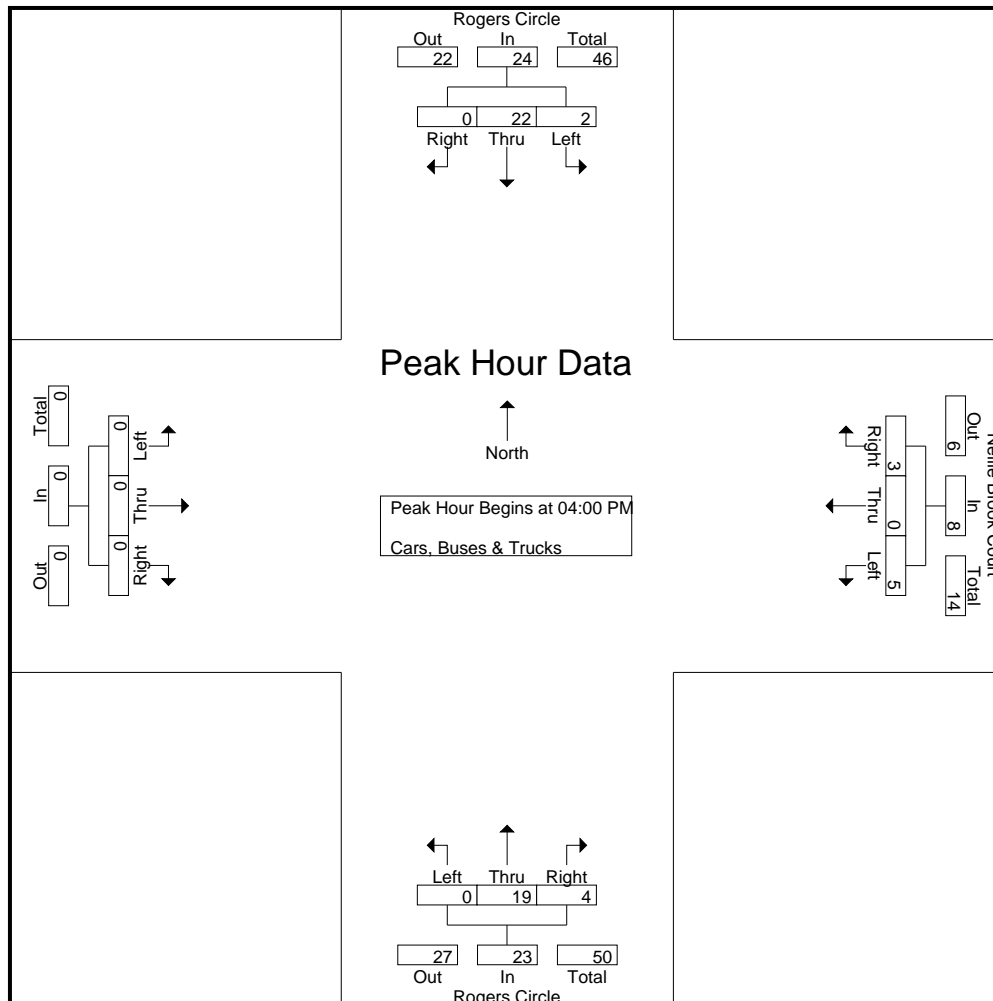
# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Circle @ Nellie Brook Court  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240257  
Site Code : 20240257  
Start Date : 06-20-2024  
Page No : 4

Start Time	Rogers Circle Northbound				Rogers Circle Southbound				Eastbound				Nellie Brook Court Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	9	1	10	0	13	0	13	0	0	0	0	3	0	1	4	27
04:15 PM	0	6	0	6	1	2	0	3	0	0	0	0	0	0	1	1	10
04:30 PM	0	2	3	5	1	4	0	5	0	0	0	0	2	0	1	3	13
04:45 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
Total Volume	0	19	4	23	2	22	0	24	0	0	0	0	5	0	3	8	55
% App. Total	0	82.6	17.4		8.3	91.7	0		0	0	0		62.5	0	37.5		
PHF	.000	.528	.333	.575	.500	.423	.000	.462	.000	.000	.000	.000	.417	.000	.750	.500	.509



# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Circle @ Bell Rd  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240260  
Site Code : 20240260  
Start Date : 06-20-2024  
Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	Bell Rd Northbound				Bell Rd Southbound				Eastbound				Rogers Circle Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	33	2	35	11	103	0	114	0	0	0	0	1	0	5	6	155
07:15 AM	0	35	3	38	6	116	0	122	0	0	0	0	0	0	3	3	163
07:30 AM	0	29	1	30	7	145	0	152	0	0	0	0	0	0	2	2	184
07:45 AM	0	36	0	36	5	136	0	141	0	0	0	0	4	0	6	10	187
Total	0	133	6	139	29	500	0	529	0	0	0	0	5	0	16	21	689
08:00 AM	0	55	0	55	1	113	0	114	0	0	0	0	0	0	4	4	173
08:15 AM	0	59	2	61	4	117	0	121	0	0	0	0	1	0	5	6	188
08:30 AM	0	35	1	36	4	101	0	105	0	0	0	0	2	0	4	6	147
08:45 AM	0	30	3	33	3	93	0	96	0	0	0	0	3	0	4	7	136
Total	0	179	6	185	12	424	0	436	0	0	0	0	6	0	17	23	644
*** BREAK ***																	
02:00 PM	0	58	3	61	7	56	0	63	0	0	0	0	1	0	7	8	132
02:15 PM	0	65	2	67	4	63	0	67	0	0	0	0	0	0	3	3	137
02:30 PM	0	67	2	69	6	55	0	61	0	0	0	0	2	0	9	11	141
02:45 PM	0	81	1	82	3	54	0	57	0	0	0	0	0	0	4	4	143
Total	0	271	8	279	20	228	0	248	0	0	0	0	3	0	23	26	553
03:00 PM	0	75	0	75	3	57	0	60	0	0	0	0	1	0	4	5	140
03:15 PM	0	81	0	81	4	56	0	60	0	0	0	0	0	0	3	3	144
03:30 PM	0	106	4	110	15	49	0	64	0	0	0	0	3	0	15	18	192
03:45 PM	0	118	3	121	13	56	0	69	0	0	0	0	5	0	25	30	220
Total	0	380	7	387	35	218	0	253	0	0	0	0	9	0	47	56	696
04:00 PM	0	105	0	105	3	53	0	56	0	0	0	0	1	0	10	11	172
04:15 PM	0	160	0	160	5	63	0	68	0	0	0	0	2	0	6	8	236
04:30 PM	0	175	2	177	4	68	0	72	0	0	0	0	0	0	4	4	253
04:45 PM	0	179	1	180	4	61	0	65	0	0	0	0	1	0	5	6	251
Total	0	619	3	622	16	245	0	261	0	0	0	0	4	0	25	29	912
05:00 PM	0	150	2	152	5	60	0	65	0	0	0	0	2	0	9	11	228
05:15 PM	0	155	1	156	4	79	0	83	0	0	0	0	0	0	5	5	244
05:30 PM	0	155	4	159	14	75	0	89	0	0	0	0	1	0	7	8	256
05:45 PM	0	146	8	154	23	71	0	94	0	0	0	0	3	0	12	15	263
Total	0	606	15	621	46	285	0	331	0	0	0	0	6	0	33	39	991
Grand Total	0	2188	45	2233	158	1900	0	2058	0	0	0	0	33	0	161	194	4485
Apprch %	0	98	2		7.7	92.3	0		0	0	0	0	17	0	83		
Total %	0	48.8	1	49.8	3.5	42.4	0	45.9	0	0	0	0	0.7	0	3.6	4.3	

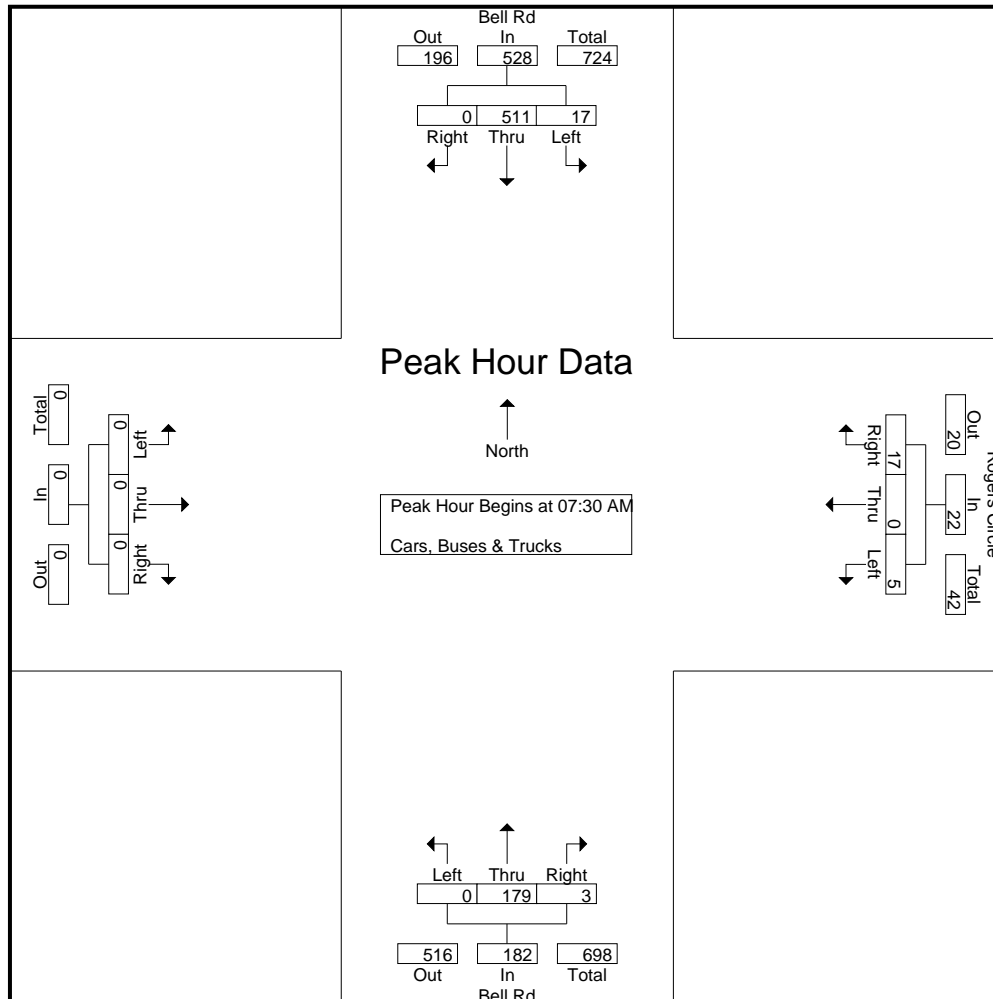
# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Circle @ Bell Rd  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240260  
Site Code : 20240260  
Start Date : 06-20-2024  
Page No : 2

Start Time	Bell Rd Northbound				Bell Rd Southbound				Eastbound				Rogers Circle Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	29	1	30	7	145	0	152	0	0	0	0	0	0	2	2	184
07:45 AM	0	36	0	36	5	136	0	141	0	0	0	0	4	0	6	10	187
08:00 AM	0	55	0	55	1	113	0	114	0	0	0	0	0	0	4	4	173
08:15 AM	0	59	2	61	4	117	0	121	0	0	0	0	1	0	5	6	188
Total Volume	0	179	3	182	17	511	0	528	0	0	0	0	5	0	17	22	732
% App. Total	0	98.4	1.6		3.2	96.8	0		0	0	0		22.7	0	77.3		
PHF	.000	.758	.375	.746	.607	.881	.000	.868	.000	.000	.000	.000	.313	.000	.708	.550	.973



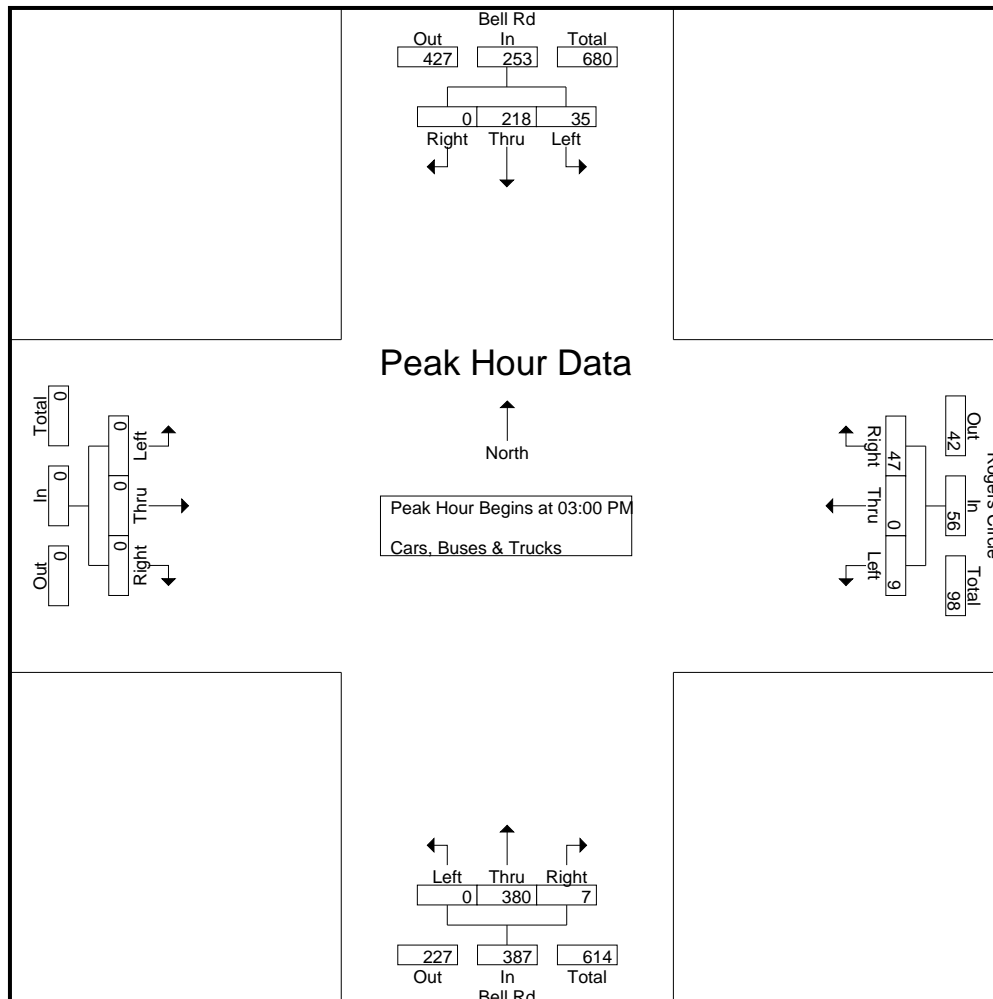
# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Circle @ Bell Rd  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240260  
Site Code : 20240260  
Start Date : 06-20-2024  
Page No : 3

Start Time	Bell Rd Northbound				Bell Rd Southbound				Eastbound				Rogers Circle Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	75	0	75	3	57	0	60	0	0	0	0	1	0	4	5	140
03:15 PM	0	81	0	81	4	56	0	60	0	0	0	0	0	0	3	3	144
03:30 PM	0	106	4	110	15	49	0	64	0	0	0	0	3	0	15	18	192
03:45 PM	0	118	3	121	13	56	0	69	0	0	0	0	5	0	25	30	220
Total Volume	0	380	7	387	35	218	0	253	0	0	0	0	9	0	47	56	696
% App. Total	0	98.2	1.8		13.8	86.2	0		0	0	0		16.1	0	83.9		
PHF	.000	.805	.438	.800	.583	.956	.000	.917	.000	.000	.000	.000	.450	.000	.470	.467	.791



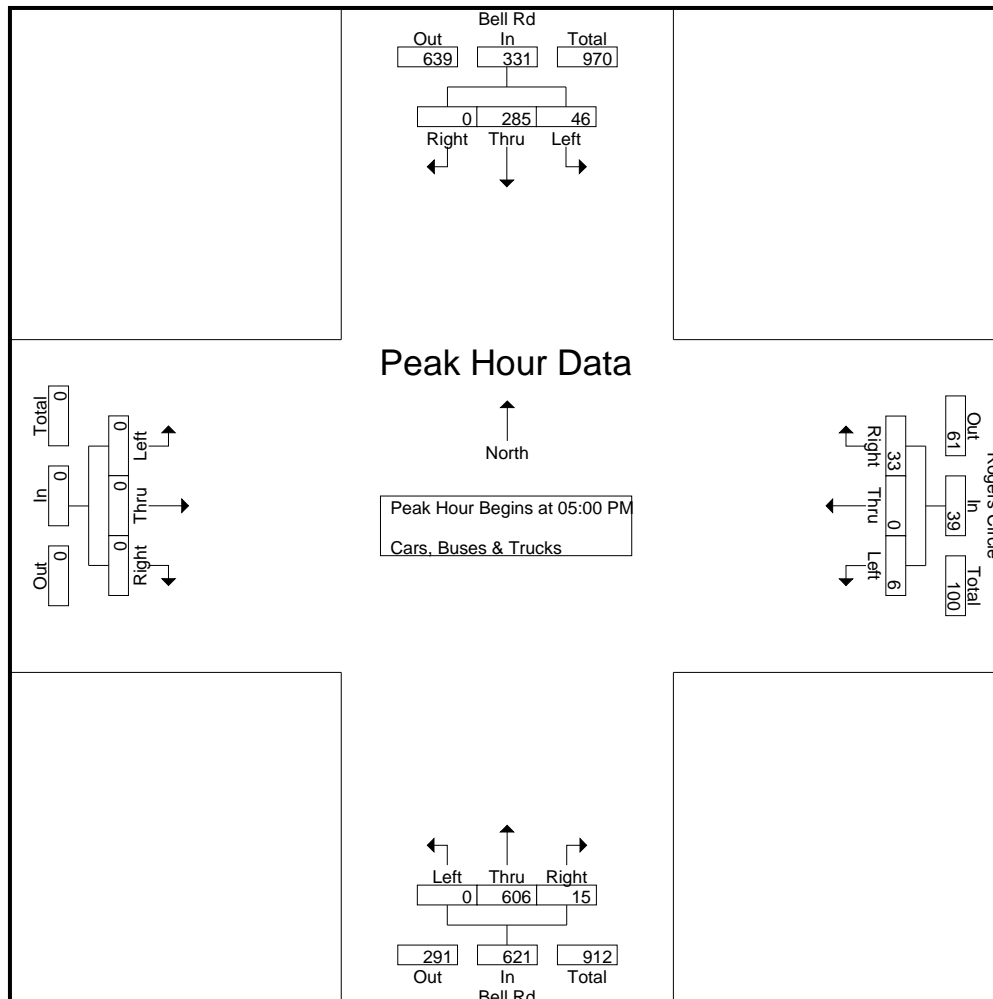
# A & R Engineering, Inc.

2160 Kingston Court Suite '0'  
Marietta, GA 30067

TMC Data  
Rogers Circle @ Bell Rd  
7-9 am | 2-4 pm | 4-6 pm

File Name : 20240260  
Site Code : 20240260  
Start Date : 06-20-2024  
Page No : 4

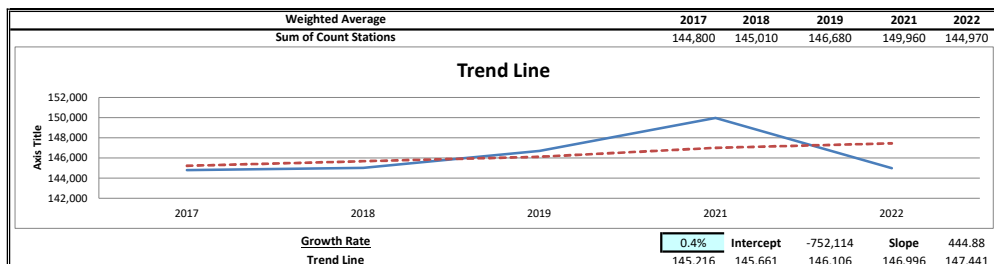
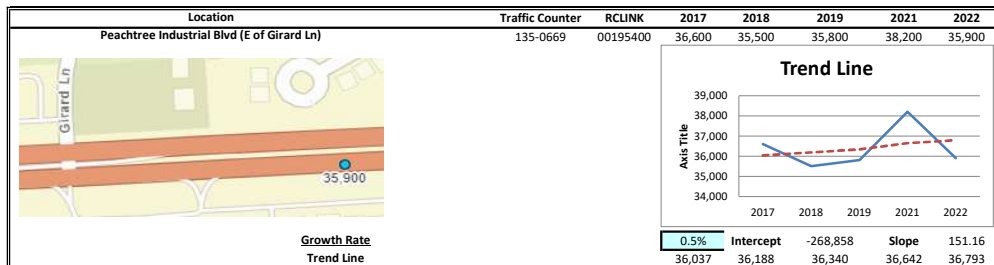
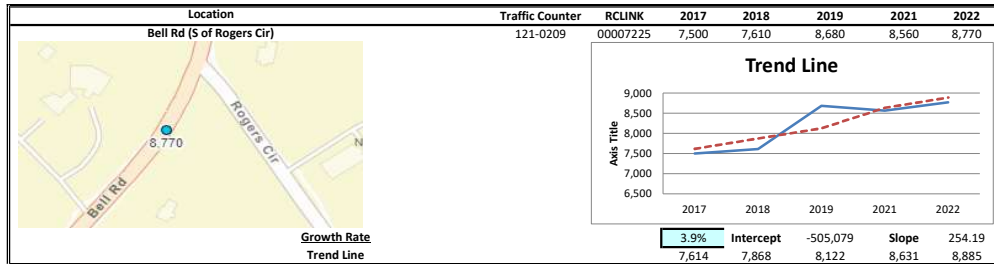
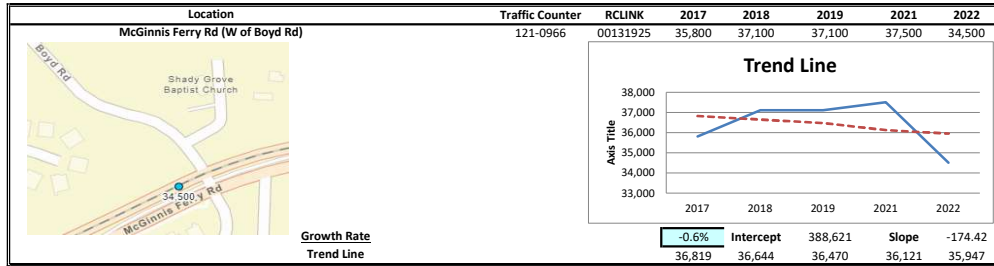
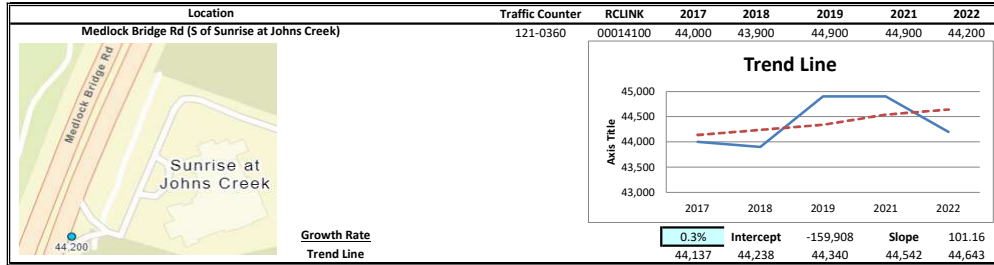
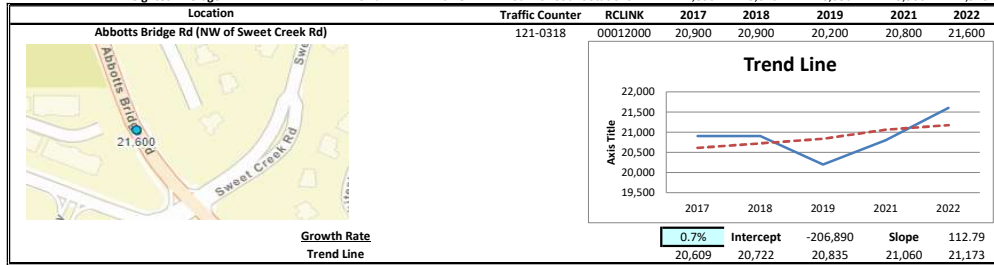
Start Time	Bell Rd Northbound				Bell Rd Southbound				Eastbound				Rogers Circle Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	150	2	152	5	60	0	65	0	0	0	0	2	0	9	11	228
05:15 PM	0	155	1	156	4	79	0	83	0	0	0	0	0	0	5	5	244
05:30 PM	0	155	4	159	14	75	0	89	0	0	0	0	1	0	7	8	256
05:45 PM	0	146	8	154	23	71	0	94	0	0	0	0	3	0	12	15	263
Total Volume	0	606	15	621	46	285	0	331	0	0	0	0	6	0	33	39	991
% App. Total	0	97.6	2.4		13.9	86.1	0		0	0	0		15.4	0	84.6		
PHF	.000	.977	.469	.976	.500	.902	.000	.880	.000	.000	.000	.000	.500	.000	.688	.650	.942



# **LINEAR REGRESSION OF DAILY TRAFFIC**



Location	Growth Rate	R Squared	Station ID	Route	2017	2018	2019	2021	2022
Abbotts Bridge Rd (NW of Sweet Creek Rd)	0.7%	0.22	121-0318	00012000	20,900	20,900	20,200	20,800	21,600
Medlock Bridge Rd (S of Sunrise at Johns Creek)	0.3%	0.19	121-0360	00014100	44,000	43,900	44,900	44,900	44,200
McGinnis Ferry Rd (W of Boyd Rd)	-0.6%	0.08	121-0966	00131925	35,800	37,100	37,100	37,500	34,500
Bell Rd (S of Rogers Cir)	3.9%	0.73	121-0209	00007225	7,500	7,610	8,680	8,560	8,770
Peachtree Industrial Blvd (E of Girard Ln)	0.5%	0.08	135-0669	00195400	36,600	35,500	35,800	38,200	35,900
<b>Weighted Average</b>	<b>0.4%</b>	<b>0.18</b>	Sum of Count Stations =		<b>144,800</b>	<b>145,010</b>	<b>146,680</b>	<b>149,960</b>	<b>144,970</b>



## **EXISTING INTERSECTION ANALYSIS**

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	0	14	1	1	6
Future Vol, veh/h	2	0	14	1	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	16	1	1	7

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	26	17	0	0	17	0
Stage 1	17	-	-	-	-	-
Stage 2	9	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	989	1062	-	-	1600	-
Stage 1	1006	-	-	-	-	-
Stage 2	1014	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	988	1062	-	-	1600	-
Mov Cap-2 Maneuver	988	-	-	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	1013	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	988	1600
HCM Lane V/C Ratio	-	-	0.002	0.001
HCM Control Delay (s)	-	-	8.7	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	2	5	14	5	3	4
Future Vol, veh/h	2	5	14	5	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	50	-	105	130	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	8	22	8	5	6

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	38	22	0	0	22	0
Stage 1	22	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	974	1055	-	-	1593	-
Stage 1	1001	-	-	-	-	-
Stage 2	1007	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	971	1055	-	-	1593	-
Mov Cap-2 Maneuver	971	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	1004	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	3.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	971	1055	1593	-
HCM Lane V/C Ratio	-	-	0.003	0.007	0.003	-
HCM Control Delay (s)	-	-	8.7	8.4	7.3	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	17	179	3	17	511
Future Vol, veh/h	5	17	179	3	17	511
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	18	185	3	18	527

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	750	187	0	0	188
Stage 1	187	-	-	-	-
Stage 2	563	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	379	855	-	-	1386
Stage 1	845	-	-	-	-
Stage 2	570	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	372	855	-	-	1386
Mov Cap-2 Maneuver	372	-	-	-	-
Stage 1	845	-	-	-	-
Stage 2	560	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	660	1386
HCM Lane V/C Ratio	-	-	0.034	0.013
HCM Control Delay (s)	-	-	10.6	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	2	32	6	2	18
Future Vol, veh/h	1	2	32	6	2	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	37	37	37	37	37	37
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	5	86	16	5	49

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	153	94	0	0	102
Stage 1	94	-	-	-	-
Stage 2	59	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	839	963	-	-	1490
Stage 1	930	-	-	-	-
Stage 2	964	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	836	963	-	-	1490
Mov Cap-2 Maneuver	836	-	-	-	-
Stage 1	930	-	-	-	-
Stage 2	961	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	917	1490
HCM Lane V/C Ratio	-	-	0.009	0.004
HCM Control Delay (s)	-	-	9	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	4.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	28	14	13	32	21	5
Future Vol, veh/h	28	14	13	32	21	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	50	-	105	130	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	41	41	41	41	41	41
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	34	32	78	51	12

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	146	32	0	0	32	0
Stage 1	32	-	-	-	-	-
Stage 2	114	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	846	1042	-	-	1580	-
Stage 1	991	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	819	1042	-	-	1580	-
Mov Cap-2 Maneuver	819	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	882	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	5.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	819	1042	1580	-
HCM Lane V/C Ratio	-	-	0.083	0.033	0.032	-
HCM Control Delay (s)	-	-	9.8	8.6	7.4	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.1	-

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	47	380	7	35	218
Future Vol, veh/h	9	47	380	7	35	218
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	59	481	9	44	276

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	850	486	0	0	490
Stage 1	486	-	-	-	-
Stage 2	364	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	331	581	-	-	1073
Stage 1	618	-	-	-	-
Stage 2	703	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	315	581	-	-	1073
Mov Cap-2 Maneuver	315	-	-	-	-
Stage 1	618	-	-	-	-
Stage 2	669	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	512	1073
HCM Lane V/C Ratio	-	-	0.138	0.041
HCM Control Delay (s)	-	-	13.2	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1



Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	5	3	19	4	2	22
Future Vol, veh/h	5	3	19	4	2	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	6	37	8	4	43

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	92	41	0	0	45	0
Stage 1	41	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	908	1030	-	-	1563	-
Stage 1	981	-	-	-	-	-
Stage 2	971	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	905	1030	-	-	1563	-
Mov Cap-2 Maneuver	905	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	948	1563
HCM Lane V/C Ratio	-	-	0.017	0.003
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	5	1	6	28	10	8
Future Vol, veh/h	5	1	6	28	10	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	50	-	105	130	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	2	12	56	20	16

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	68	12	0
Stage 1	12	-	-
Stage 2	56	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	937	1069	-
Stage 1	1011	-	-
Stage 2	967	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	926	1069	-
Mov Cap-2 Maneuver	926	-	-
Stage 1	1011	-	-
Stage 2	955	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	926	1069	1607
HCM Lane V/C Ratio	-	-	0.011	0.002	0.012
HCM Control Delay (s)	-	-	8.9	8.4	7.3
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	0

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	33	606	15	46	285
Future Vol, veh/h	6	33	606	15	46	285
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	35	645	16	49	303

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1054	653	0	0	661	0
Stage 1	653	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	250	467	-	-	927	-
Stage 1	518	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	234	467	-	-	927	-
Mov Cap-2 Maneuver	234	-	-	-	-	-
Stage 1	518	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	405	927
HCM Lane V/C Ratio	-	-	0.102	0.053
HCM Control Delay (s)	-	-	14.9	9.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2

**FUTURE “NO-BUILD” INTERSECTION  
ANALYSIS**

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		TT		TT	TT
Traffic Vol, veh/h	2	0	499	1	1	419
Future Vol, veh/h	2	0	499	1	1	419
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	580	1	1	487

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1070	581	0	0	581	0
Stage 1	581	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	245	514	-	-	993	-
Stage 1	559	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	245	514	-	-	993	-
Mov Cap-2 Maneuver	245	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	245	993
HCM Lane V/C Ratio	-	-	0.009	0.001
HCM Control Delay (s)	-	-	19.8	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	66.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	270	94	184	320	108	148
Future Vol, veh/h	270	94	184	320	108	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	50	-	105	130	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	422	147	288	500	169	231

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	857	288	0	0	288	0
Stage 1	288	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 328	751	-	-	1274	-
Stage 1	761	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 284	751	-	-	1274	-
Mov Cap-2 Maneuver	~ 284	-	-	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	491	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	203	0	3.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	284	751	1274	-
HCM Lane V/C Ratio	-	-	1.485	0.196	0.132	-
HCM Control Delay (s)	-	-	269.8	11	8.3	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	23.9	0.7	0.5	-

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

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	155	183	3	179	521
Future Vol, veh/h	5	155	183	3	179	521
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	160	189	3	185	537

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1098	191	0	0	192
Stage 1	191	-	-	-	-
Stage 2	907	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	235	851	-	-	1381
Stage 1	841	-	-	-	-
Stage 2	394	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	190	851	-	-	1381
Mov Cap-2 Maneuver	190	-	-	-	-
Stage 1	841	-	-	-	-
Stage 2	319	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	768	1381
HCM Lane V/C Ratio	-	-	0.215	0.134
HCM Control Delay (s)	-	-	11	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0.5

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	1	2	266	6	2	290
Future Vol, veh/h	1	2	266	6	2	290
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	37	37	37	37	37	37
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	5	719	16	5	784

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1521	727	0	0	735
Stage 1	727	-	-	-	-
Stage 2	794	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	130	424	-	-	870
Stage 1	478	-	-	-	-
Stage 2	445	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	129	424	-	-	870
Mov Cap-2 Maneuver	129	-	-	-	-
Stage 1	478	-	-	-	-
Stage 2	441	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.5	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	241	870
HCM Lane V/C Ratio	-	-	0.034	0.006
HCM Control Delay (s)	-	-	20.5	9.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0



Intersection						
Int Delay, s/veh	31.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	205	73	94	184	71	100
Future Vol, veh/h	205	73	94	184	71	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	50	-	105	130	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	410	146	188	368	142	200

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	672	188	0	0	188	0
Stage 1	188	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	421	854	-	-	1386	-
Stage 1	844	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	~ 378	854	-	-	1386	-
Mov Cap-2 Maneuver	~ 378	-	-	-	-	-
Stage 1	844	-	-	-	-	-
Stage 2	557	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	79.6	0	3.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	378	854	1386
HCM Lane V/C Ratio	-	-	1.085	0.171	0.102
HCM Control Delay (s)	-	-	104.4	10.1	7.9
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	14.6	0.6	0.3

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

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	139	388	7	114	222
Future Vol, veh/h	9	139	388	7	114	222
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	176	491	9	144	281

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1065	496	0	0	500	0
Stage 1	496	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	246	574	-	-	1064	-
Stage 1	612	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	207	574	-	-	1064	-
Mov Cap-2 Maneuver	207	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	475	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	518	1064
HCM Lane V/C Ratio	-	-	0.362	0.136
HCM Control Delay (s)	-	-	15.8	8.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.6	0.5

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	3	113	4	2	126
Future Vol, veh/h	5	3	113	4	2	126
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	6	222	8	4	247

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	481	226	0	0	230
Stage 1	226	-	-	-	-
Stage 2	255	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	544	813	-	-	1338
Stage 1	812	-	-	-	-
Stage 2	788	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	542	813	-	-	1338
Mov Cap-2 Maneuver	542	-	-	-	-
Stage 1	812	-	-	-	-
Stage 2	786	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	619	1338
HCM Lane V/C Ratio	-	-	0.025	0.003
HCM Control Delay (s)	-	-	11	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	73	24	39	90	30	44
Future Vol, veh/h	73	24	39	90	30	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	50	-	105	130	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	146	48	78	180	60	88

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	286	78	0	0	78	0
Stage 1	78	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	704	983	-	-	1520	-
Stage 1	945	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	677	983	-	-	1520	-
Mov Cap-2 Maneuver	677	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	795	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	677	983	1520	-
HCM Lane V/C Ratio	-	-	0.216	0.049	0.039	-
HCM Control Delay (s)	-	-	11.8	8.9	7.5	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.2	0.1	-

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	69	618	15	78	291
Future Vol, veh/h	6	69	618	15	78	291
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	73	657	16	83	310

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1141	665	0	0	673
Stage 1	665	-	-	-	-
Stage 2	476	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	222	460	-	-	918
Stage 1	511	-	-	-	-
Stage 2	625	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	198	460	-	-	918
Mov Cap-2 Maneuver	198	-	-	-	-
Stage 1	511	-	-	-	-
Stage 2	557	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	416	918
HCM Lane V/C Ratio	-	-	0.192	0.09
HCM Control Delay (s)	-	-	15.7	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.3

# **FUTURE "BUILD" INTERSECTION ANALYSIS**

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	0	519	1	1	478
Future Vol, veh/h	2	0	519	1	1	478
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	603	1	1	556

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1162	604	0	0	604
Stage 1	604	-	-	-	-
Stage 2	558	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	216	498	-	-	974
Stage 1	546	-	-	-	-
Stage 2	573	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	216	498	-	-	974
Mov Cap-2 Maneuver	216	-	-	-	-
Stage 1	546	-	-	-	-
Stage 2	572	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	216	974
HCM Lane V/C Ratio	-	-	0.011	0.001
HCM Control Delay (s)	-	-	21.8	8.7
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection				
Intersection Delay, s/veh	13.5			
Intersection LOS	B			
Approach	WB	NB	SB	NW
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	569	809	417	110
Demand Flow Rate, veh/h	580	825	425	112
Vehicles Circulating, veh/h	406	189	492	821
Vehicles Exiting, veh/h	527	728	494	193
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.0	14.8	11.4	8.5
Approach LOS	B	B	B	A
Lane	Left	Left	Left	Left
Designated Moves	LR	TR	LT	LR
Assumed Moves	LR	TR	LT	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	580	825	425	112
Cap Entry Lane, veh/h	912	1138	835	597
Entry HV Adj Factor	0.981	0.981	0.981	0.982
Flow Entry, veh/h	569	809	417	110
Cap Entry, veh/h	895	1116	820	587
V/C Ratio	0.636	0.725	0.509	0.188
Control Delay, s/veh	14.0	14.8	11.4	8.5
LOS	B	B	B	A
95th %tile Queue, veh	5	7	3	1



Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	203	183	3	195	521
Future Vol, veh/h	5	203	183	3	195	521
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	209	189	3	201	537

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1130	191	0	0	192
Stage 1	191	-	-	-	-
Stage 2	939	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	225	851	-	-	1381
Stage 1	841	-	-	-	-
Stage 2	380	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	178	851	-	-	1381
Mov Cap-2 Maneuver	178	-	-	-	-
Stage 1	841	-	-	-	-
Stage 2	301	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	2.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	780	1381
HCM Lane V/C Ratio	-	-	0.275	0.146
HCM Control Delay (s)	-	-	11.4	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0.5

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	1	2	338	6	2	330
Future Vol, veh/h	1	2	338	6	2	330
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	37	37	37	37	37	37
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	5	914	16	5	892

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1824	922	0	0	930
Stage 1	922	-	-	-	-
Stage 2	902	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	85	327	-	-	736
Stage 1	387	-	-	-	-
Stage 2	396	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	84	327	-	-	736
Mov Cap-2 Maneuver	84	-	-	-	-
Stage 1	387	-	-	-	-
Stage 2	391	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.8	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	166	736
HCM Lane V/C Ratio	-	-	0.049	0.007
HCM Control Delay (s)	-	-	27.8	9.9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection				
Intersection Delay, s/veh	15.1			
Intersection LOS	C			
Approach	WB	NB	SB	NW
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	678	769	481	92
Demand Flow Rate, veh/h	692	785	490	94
Vehicles Circulating, veh/h	328	241	562	757
Vehicles Exiting, veh/h	523	811	458	269
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	15.4	15.5	15.5	7.5
Approach LOS	C	C	C	A
Lane	Left	Left	Left	Left
Designated Moves	LR	TR	LT	LR
Assumed Moves	LR	TR	LT	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	692	785	490	94
Cap Entry Lane, veh/h	988	1079	778	638
Entry HV Adj Factor	0.980	0.980	0.981	0.979
Flow Entry, veh/h	678	769	481	92
Cap Entry, veh/h	968	1058	763	624
V/C Ratio	0.701	0.727	0.630	0.147
Control Delay, s/veh	15.4	15.5	15.5	7.5
LOS	C	C	C	A
95th %tile Queue, veh	6	7	5	1

Intersection						
Int Delay, s/veh	5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	9	171	388	7	173	222
Future Vol, veh/h	9	171	388	7	173	222
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	216	491	9	219	281

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1215	496	0	0	500
Stage 1	496	-	-	-	-
Stage 2	719	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	200	574	-	-	1064
Stage 1	612	-	-	-	-
Stage 2	483	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	151	574	-	-	1064
Mov Cap-2 Maneuver	151	-	-	-	-
Stage 1	612	-	-	-	-
Stage 2	365	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	4.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	503	1064
HCM Lane V/C Ratio	-	-	0.453	0.206
HCM Control Delay (s)	-	-	17.9	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	2.3	0.8

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	5	3	181	4	2	166
Future Vol, veh/h	5	3	181	4	2	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	6	355	8	4	325

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	692	359	0	0	363	0
Stage 1	359	-	-	-	-	-
Stage 2	333	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	410	685	-	-	1196	-
Stage 1	707	-	-	-	-	-
Stage 2	726	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	408	685	-	-	1196	-
Mov Cap-2 Maneuver	408	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	481	1196
HCM Lane V/C Ratio	-	-	0.033	0.003
HCM Control Delay (s)	-	-	12.7	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection				
Intersection Delay, s/veh	5.2			
Intersection LOS	A			
Approach	WB	NB	SB	NW
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	194	344	208	92
Demand Flow Rate, veh/h	198	352	212	94
Vehicles Circulating, veh/h	174	122	201	325
Vehicles Exiting, veh/h	245	291	171	149
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.7	5.7	5.0	4.6
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LR	TR	LT	LR
Assumed Moves	LR	TR	LT	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	198	352	212	94
Cap Entry Lane, veh/h	1155	1218	1124	991
Entry HV Adj Factor	0.980	0.978	0.981	0.979
Flow Entry, veh/h	194	344	208	92
Cap Entry, veh/h	1132	1192	1103	969
V/C Ratio	0.171	0.289	0.189	0.095
Control Delay, s/veh	4.7	5.7	5.0	4.6
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	0

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	6	101	618	15	133	291
Future Vol, veh/h	6	101	618	15	133	291
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	107	657	16	141	310

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1257	665	0	0	673
Stage 1	665	-	-	-	-
Stage 2	592	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	189	460	-	-	918
Stage 1	511	-	-	-	-
Stage 2	553	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	154	460	-	-	918
Mov Cap-2 Maneuver	154	-	-	-	-
Stage 1	511	-	-	-	-
Stage 2	451	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17	0	3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	414	918
HCM Lane V/C Ratio	-	-	0.275	0.154
HCM Control Delay (s)	-	-	17	9.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.1	0.5

# **TRAFFIC VOLUME WORKSHEETS**



**24-118 - Embry Tract Residential Development, Johns Creek - TIS**  
**Traffic Volumes**

A&R Engineering  
 July 2024

**1. Rogers Cir @ Nellie Brook Ct**  
**A.M. Peak Hour**

Condition	Rogers Circle Northbound			Rogers Circle Southbound			Eastbound			Nellie Brook Court Westbound				
	L	T	R	L	T	R	L	T	R	L	T	R	Tot	
	Tot			Tot			Tot			Tot				
Existing 2024 Traffic Counts:	0	14	1	15	1	6	0	7	0	0	0	0	0	2
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjacent Schools Volumes:	0	485	0	485	0	413	0	413	0	0	0	0	0	0
No-Build 2026 Volumes:	0	499	1	500	1	419	0	420	0	0	0	0	0	2
Total New Trips:	0	20	0	20	0	59	0	59	0	0	0	0	0	0
Future 2026 Traffic Volumes:	0	519	1	520	1	478	0	479	0	0	0	0	0	2

**Dismissal Peak Hour**

Condition	Rogers Circle Northbound			Rogers Circle Southbound			Eastbound			Nellie Brook Court Westbound				
	L	T	R	L	T	R	L	T	R	L	T	R	Tot	
	Tot			Tot			Tot			Tot				
Existing 2024 Traffic Counts:	0	32	6	38	2	18	0	20	0	0	0	0	0	3
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjacent Schools Volumes:	0	233	0	233	0	272	0	272	0	0	0	0	0	0
No-Build 2026 Volumes:	0	266	6	272	2	290	0	292	0	0	0	0	0	3
Total New Trips:	0	72	0	72	0	40	0	40	0	0	0	0	0	0
Future 2026 Traffic Volumes:	0	338	6	344	2	330	0	332	0	0	0	0	0	3

**P.M. Peak Hour**

Condition	Rogers Circle Northbound			Rogers Circle Southbound			Eastbound			Nellie Brook Court Westbound				
	L	T	R	L	T	R	L	T	R	L	T	R	Tot	
	Tot			Tot			Tot			Tot				
Existing 2024 Traffic Counts:	0	19	4	23	2	22	0	24	0	0	0	0	0	8
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjacent Schools Volumes:	0	94	0	94	0	104	0	104	0	0	0	0	0	0
No-Build 2026 Volumes:	0	113	4	117	2	126	0	128	0	0	0	0	0	8
Total New Trips:	0	68	0	68	0	40	0	40	0	0	0	0	0	0
Future 2026 Traffic Volumes:	0	181	4	185	2	166	0	168	0	0	0	0	0	8

**24-118 - Embury Tract Residential Development, Johns Creek - TIS**  
**Traffic Volumes**

A&R Engineering  
 July 2024

**2. RogersCir @ Embury Farm Rd(S)**  
**A.M. Peak Hour**

Condition	Rogers Circle Northbound			Rogers Circle Southbound			- Eastbound			Embury Farm Road (South) Westbound							
	L	T	R	L	T	R	L	T	R	L	T	R	Tot				
Existing 2024 Traffic Counts:	0	14	5	19	3	4	0	7	0	0	0	0	0	2	0	5	7
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjacent Schools Volumes:	0	170	315	485	105	144	0	249	0	0	0	0	0	268	0	89	357
No-Build 2026 Volumes:	0	184	320	504	108	148	0	256	0	0	0	0	0	270	0	94	364
Total New Trips:	0	0	20	20	16	0	0	16	0	0	0	0	0	59	0	48	107
Future 2026 Traffic Volumes:	0	184	340	524	124	148	0	272	0	0	0	0	0	329	0	142	471

**Dismissal Peak Hour**

Condition	Rogers Circle Northbound			Rogers Circle Southbound			- Eastbound			Embury Farm Road (South) Westbound							
	L	T	R	L	T	R	L	T	R	L	T	R	Tot				
Existing 2024 Traffic Counts:	0	13	32	45	21	5	0	26	0	0	0	0	0	28	0	14	42
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjacent Schools Volumes:	0	81	151	232	50	95	0	145	0	0	0	0	0	176	0	59	235
No-Build 2026 Volumes:	0	94	184	278	71	100	0	171	0	0	0	0	0	205	0	73	278
Total New Trips:	0	0	72	72	59	0	0	59	0	0	0	0	0	40	0	32	72
Future 2026 Traffic Volumes:	0	94	256	350	130	100	0	230	0	0	0	0	0	245	0	105	350

**P.M. Peak Hour**

Condition	Rogers Circle Northbound			Rogers Circle Southbound			- Eastbound			Embury Farm Road (South) Westbound							
	L	T	R	L	T	R	L	T	R	L	T	R	Tot				
Existing 2024 Traffic Counts:	0	6	28	34	10	8	0	18	0	0	0	0	0	5	0	1	6
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjacent Schools Volumes:	0	33	61	94	20	36	0	56	0	0	0	0	0	68	0	23	91
No-Build 2026 Volumes:	0	39	90	129	30	44	0	74	0	0	0	0	0	73	0	24	97
Total New Trips:	0	0	68	68	55	0	0	55	0	0	0	0	0	40	0	32	72
Future 2026 Traffic Volumes:	0	39	158	197	85	44	0	129	0	0	0	0	0	113	0	56	169

**24-118 - Embury Tract Residential Development, Johns Creek - TIS**  
**Traffic Volumes**

A&R Engineering  
 July 2024

**Future Int. 2 (Roundabout)**

**A.M. Peak Hour**

Condition	Rogers Circle Northbound			Rogers Circle Southbound			Site Driveway Northwestbound				Embury Farm Road (South) Westbound					
	T	R	Tot	L	Bare	T	Hard	L	Bare	R	Hard	L	R	Tot		
	Existing 2024 Traffic Counts:	14	5	19	3	0	4	7	0	0	0	0	0	2	5	7
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Adjacent Schools Volumes:	170	315	0	485	105	0	144	249	0	0	0	0	268	89	357	
No-Build 2026 Volumes:	184	320	0	504	108	0	148	256	0	0	0	0	270	94	364	
Total New Trips:	0	0	20	20	0	16	16	16	59	48	0	107	0	0	0	
Future 2026 Traffic Volumes:	184	320	20	524	108	16	148	272	59	48	0	107	0	270	94	364

**Dismissal Peak Hour**

Condition	Rogers Circle Northbound			Rogers Circle Southbound			Site Driveway Northwestbound				Embury Farm Road (South) Westbound					
	T	R	Tot	L	Bare	T	Hard	L	Bare	R	Hard	L	R	Tot		
	Existing 2024 Traffic Counts:	13	32	45	21	0	5	26	0	0	0	0	0	28	14	42
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Adjacent Schools Volumes:	81	151	0	232	50	0	95	145	0	0	0	0	176	59	235	
No-Build 2026 Volumes:	94	184	0	278	71	0	100	171	0	0	0	0	205	73	278	
Total New Trips:	0	0	72	72	0	59	59	59	40	32	0	72	0	0	0	
Future 2026 Traffic Volumes:	94	184	72	350	71	59	100	230	40	32	0	72	0	205	73	278

**P.M. Peak Hour**

Condition	Rogers Circle Northbound			Rogers Circle Southbound			Site Driveway Northwestbound				Embury Farm Road (South) Westbound					
	T	R	Tot	L	Bare	T	Hard	L	Bare	R	Hard	L	R	Tot		
	Existing 2024 Traffic Counts:	6	28	34	10	0	8	18	0	0	0	0	0	5	1	6
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Adjacent Schools Volumes:	33	61	0	94	20	0	36	56	0	0	0	0	68	23	91	
No-Build 2026 Volumes:	39	90	0	129	30	0	44	74	0	0	0	0	73	24	97	
Total New Trips:	0	0	68	68	0	55	55	55	40	32	0	72	0	0	0	
Future 2026 Traffic Volumes:	39	90	68	197	30	55	44	129	40	32	0	72	0	73	24	97

**24-118 - Embury Tract Residential Development, Johns Creek - TIS**  
**Traffic Volumes**

A&R Engineering  
 July 2024

**3. Bell Rd @ Rogers Cir**  
**A.M. Peak Hour**

Condition	Bell Road Northbound			Bell Road Southbound			Eastbound			Rogers Circle Westbound							
	L	T	R	L	T	R	L	T	R	L	T	R	Tot				
Existing 2024 Traffic Counts:	0	179	3	182	17	511	0	528	0	0	0	0	0	5	0	17	22
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjacent Schools Volumes:	0	0	0	0	162	0	0	162	0	0	0	0	0	0	0	0	138
No-Build 2026 Volumes:	0	183	3	186	179	521	0	700	0	0	0	0	0	5	0	155	160
Total New Trips:	0	0	0	0	16	0	0	16	0	0	0	0	0	0	0	0	48
Future 2026 Traffic Volumes:	0	183	3	186	195	521	0	716	0	0	0	0	0	5	0	203	208

**Dismissal Peak Hour**

Condition	Bell Road Northbound			Bell Road Southbound			Eastbound			Rogers Circle Westbound							
	L	T	R	L	T	R	L	T	R	L	T	R	Tot				
Existing 2024 Traffic Counts:	0	380	7	387	35	218	0	253	0	0	0	0	0	9	0	47	56
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjacent Schools Volumes:	0	0	0	0	78	0	0	78	0	0	0	0	0	0	0	0	91
No-Build 2026 Volumes:	0	388	7	395	114	222	0	336	0	0	0	0	0	9	0	139	148
Total New Trips:	0	0	0	0	59	0	0	59	0	0	0	0	0	0	0	0	32
Future 2026 Traffic Volumes:	0	388	7	395	173	222	0	395	0	0	0	0	0	9	0	171	180

**P.M. Peak Hour**

Condition	Bell Road Northbound			Bell Road Southbound			Eastbound			Rogers Circle Westbound							
	L	T	R	L	T	R	L	T	R	L	T	R	Tot				
Existing 2024 Traffic Counts:	0	606	15	621	46	285	0	331	0	0	0	0	0	6	0	33	39
Growth Factor (%):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjacent Schools Volumes:	0	0	0	0	31	0	0	31	0	0	0	0	0	0	0	0	35
No-Build 2026 Volumes:	0	618	15	633	78	291	0	369	0	0	0	0	0	6	0	69	75
Total New Trips:	0	0	0	0	55	0	0	55	0	0	0	0	0	0	0	0	32
Future 2026 Traffic Volumes:	0	618	15	633	133	291	0	424	0	0	0	0	0	6	0	101	107