

**TRAFFIC IMPACT STUDY
FOR
PROPOSED RESIDENTIAL DEVELOPMENT
AT 4370 BENEFIELD ROAD
HALL COUNTY, GEORGIA**



Prepared for:

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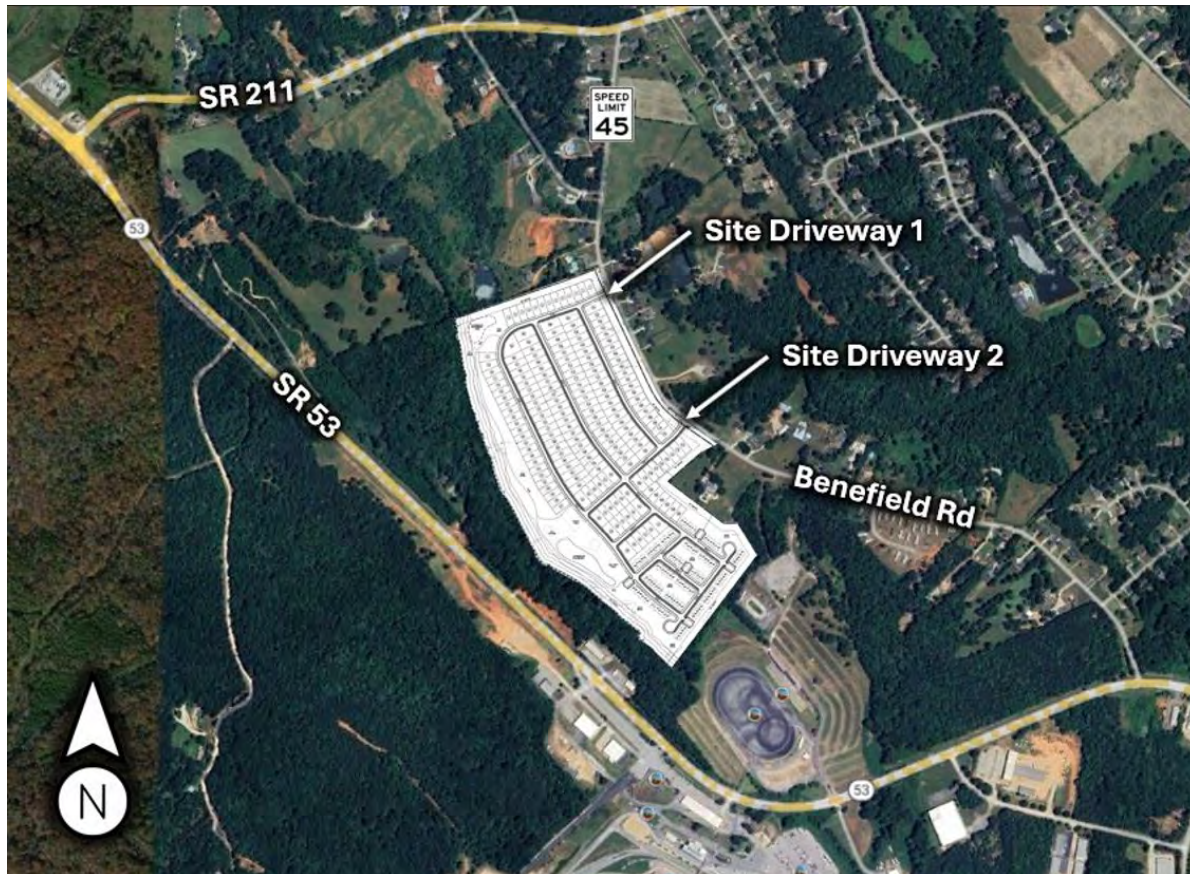
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1.0 INTRODUCTION

The purpose of this study is to determine the traffic impact from the proposed residential development that will be located at 4370 Benefield Road in Hall County, Georgia. The traffic analysis includes evaluation of the current operations and future conditions with the traffic generated by the development. The development will consist of 186 single-family houses and 116 townhomes.



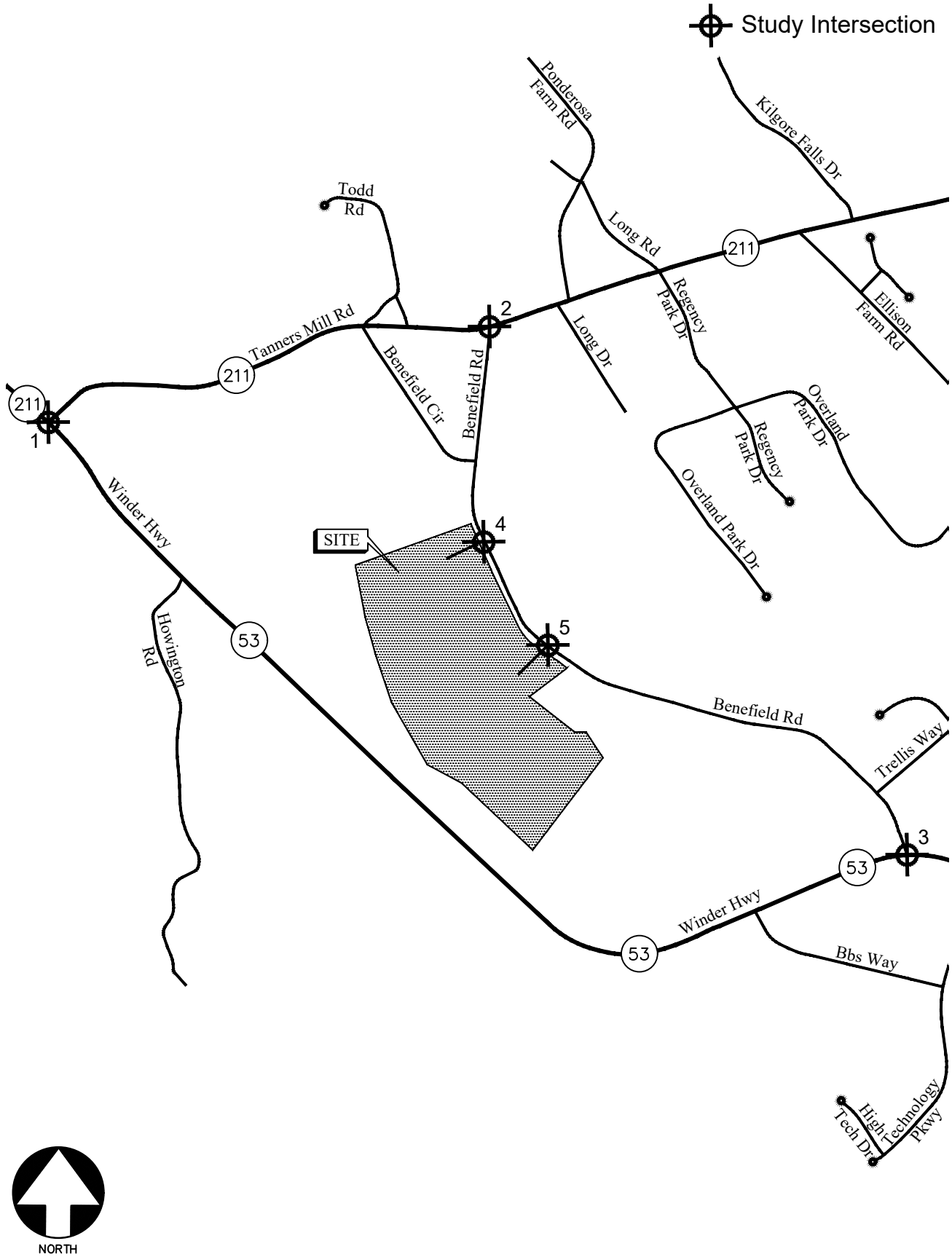
The development proposes access at the following locations:

- Site Driveway 1 (North): Full access driveway on Benefield Road
- Site Driveway 2 (South): Full access driveway on Benefield Road

The AM and PM peak hours have been analyzed in this study. In addition to the site access points, this study includes the evaluation of traffic operations at the intersections of:

- SR 211/SR 53 (Winder Highway) at SR 211 (Tanners Mill Road)
- SR 211 (Tanners Mill Road) at Benefield Road
- SR 53 (Winder Highway) at Benefield 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 are shown in Figure 1.



LOCATION MAP

FIGURE 1
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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 SR 211/SR 53 (Winder Highway)

SR 211/SR 53 (Winder Highway) is a north-south, four-lane, median-divided roadway with a posted speed limit of 45 mph in the vicinity of the site. Georgia Department of Transportation (GDOT) traffic counts (Station ID: 139-0292) indicate that the daily traffic volume on SR 211/SR 53 (Winder Highway) in 2022 was 14,700 vehicles per day north of SR 211 (Tanners Mill Road). GDOT classifies SR 211/SR 53 (Winder Highway) as a minor arterial roadway.

2.1.2 SR 53 (Winder Highway)

SR 53 (Winder Highway) is a two-lane, undivided roadway with a posted speed limit of 55 mph in the vicinity of the site. Georgia Department of Transportation (GDOT) traffic counts (Station ID: 139-0294) indicate that the daily traffic volume on SR 53 (Winder Highway) in 2022 was 10,900 vehicles per day south of SR 211 (Tanners Mill Road). GDOT classifies SR 53 (Winder Highway) as a minor arterial roadway.

2.1.3 SR 211 (Tanners Mill Road)

SR 211 (Tanners Mill Road) is an east-west, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. Georgia Department of Transportation (GDOT) traffic counts (Station ID: 139-0547) indicate that the daily traffic volume on SR 211 (Tanners Mill Road) in 2022 was 4,540 vehicles per day east of SR 53 (Winder Highway). GDOT classifies SR 211 (Tanners Mill Road) as a major collector roadway.

2.1.4 Benefield Road

Benefield Road is a north-south, two-lane, undivided roadway with a posted speed limit of 45 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 total 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, 6th 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, 6th 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.

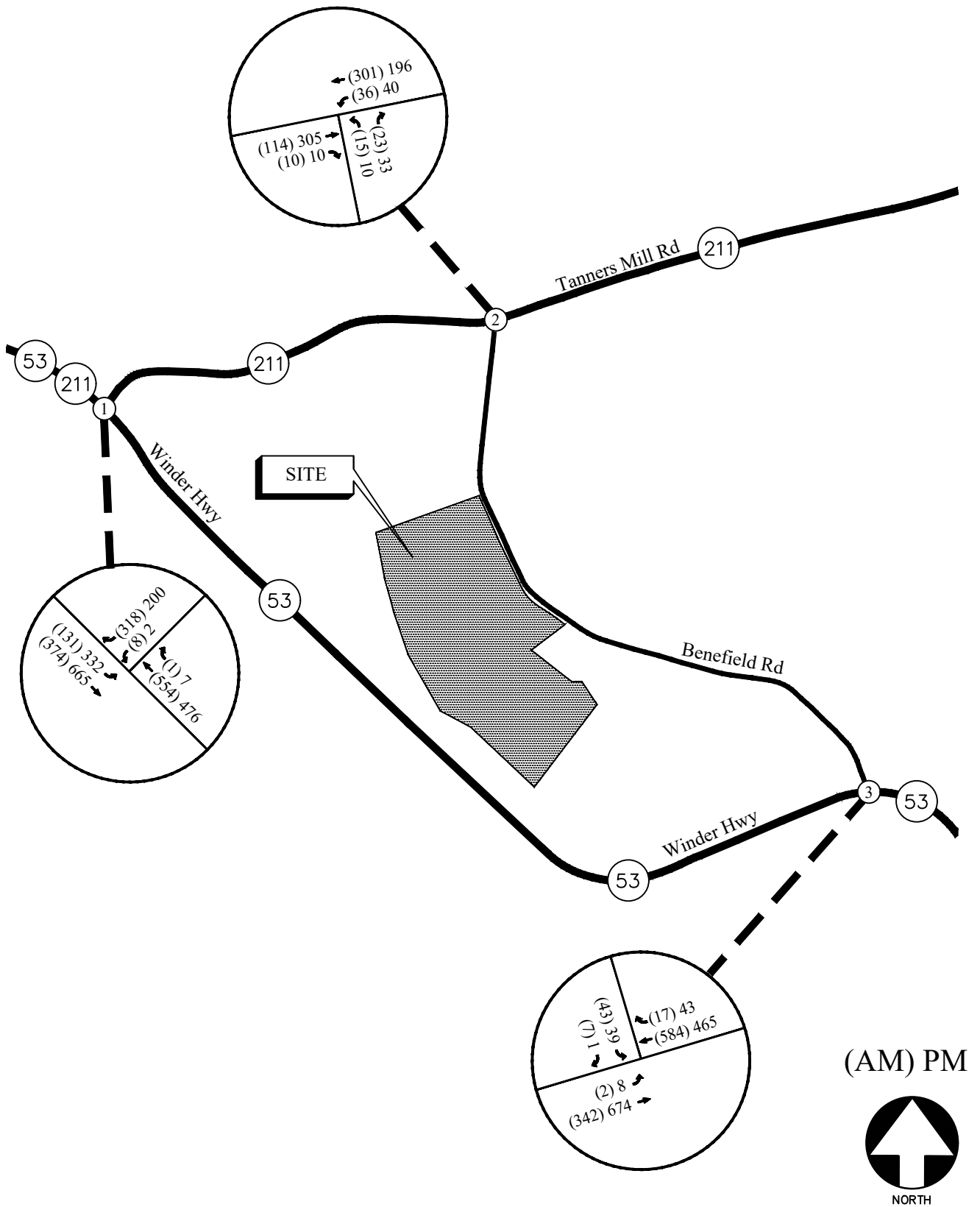
4.0 EXISTING 2024 TRAFFIC ANALYSIS

4.1 Existing Traffic Volumes

Existing traffic counts were obtained at the following study intersections:

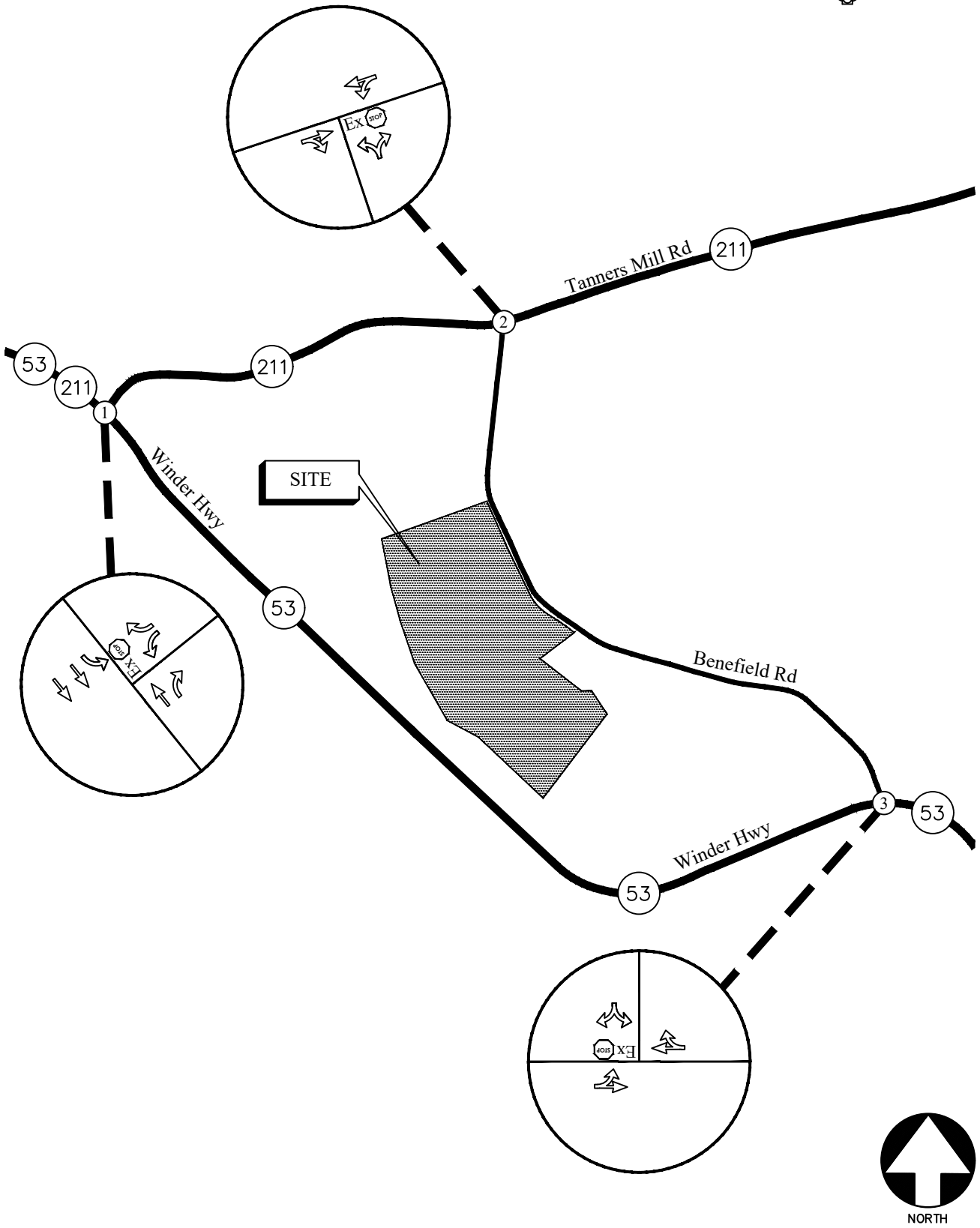
- SR 211/SR 53 (Winder Highway) at SR 211 (Tanners Mill Road)
- SR 211 (Tanners Mill Road) at Benefield Road
- SR 53 (Winder Highway) at Benefield Road

Turning movement counts were collected on Thursday, February 8, 2024. All turning movement counts were recorded during the AM and PM peak hours between 7:00 am to 9:00 am and 4:00 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.



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 analysis are shown in Table 3.

TABLE 3 – EXISTING INTERSECTION OPERATIONS			
Intersection	Traffic Control	LOS (Delay)	
		AM Peak Hour	PM Peak Hour
1 <u>SR 211/SR 53 (Winder Highway) @ SR 211 (Tanners Mill Road)</u> -Westbound Approach -Southbound Left	Stop Controlled on WB Approach	C (23.2) A (9.2)	C (15.9) B (10.2)
2 <u>SR 211 (Tanners Mill Road) @ Benefield Road</u> -Westbound Left -Northbound Approach	Stop Controlled on NB Approach	A (7.5) B (10.5)	A (8.0) B (11.3)
3 <u>SR 53 (Winder Highway) @ Benefield Road</u> -Eastbound Left -Southbound Approach	Stop Controlled on SB Approach	A (8.8) C (20.4)	A (8.5) D (29.5)

The results of the existing traffic operations analysis indicate that the stop-controlled approaches at the unsignalized study intersections are operating at a level of service “D” or better with peak hour traffic.

5.0 PROPOSED DEVELOPMENT

The proposed residential development will consist of 186 single-family houses and 116 townhomes.



The development proposes access at the following locations:

- Site Driveway 1 (North): Full access driveway on Benefield Road
- Site Driveway 2 (South): Full access driveway on Benefield Road

A site plan is shown in Figure 4.

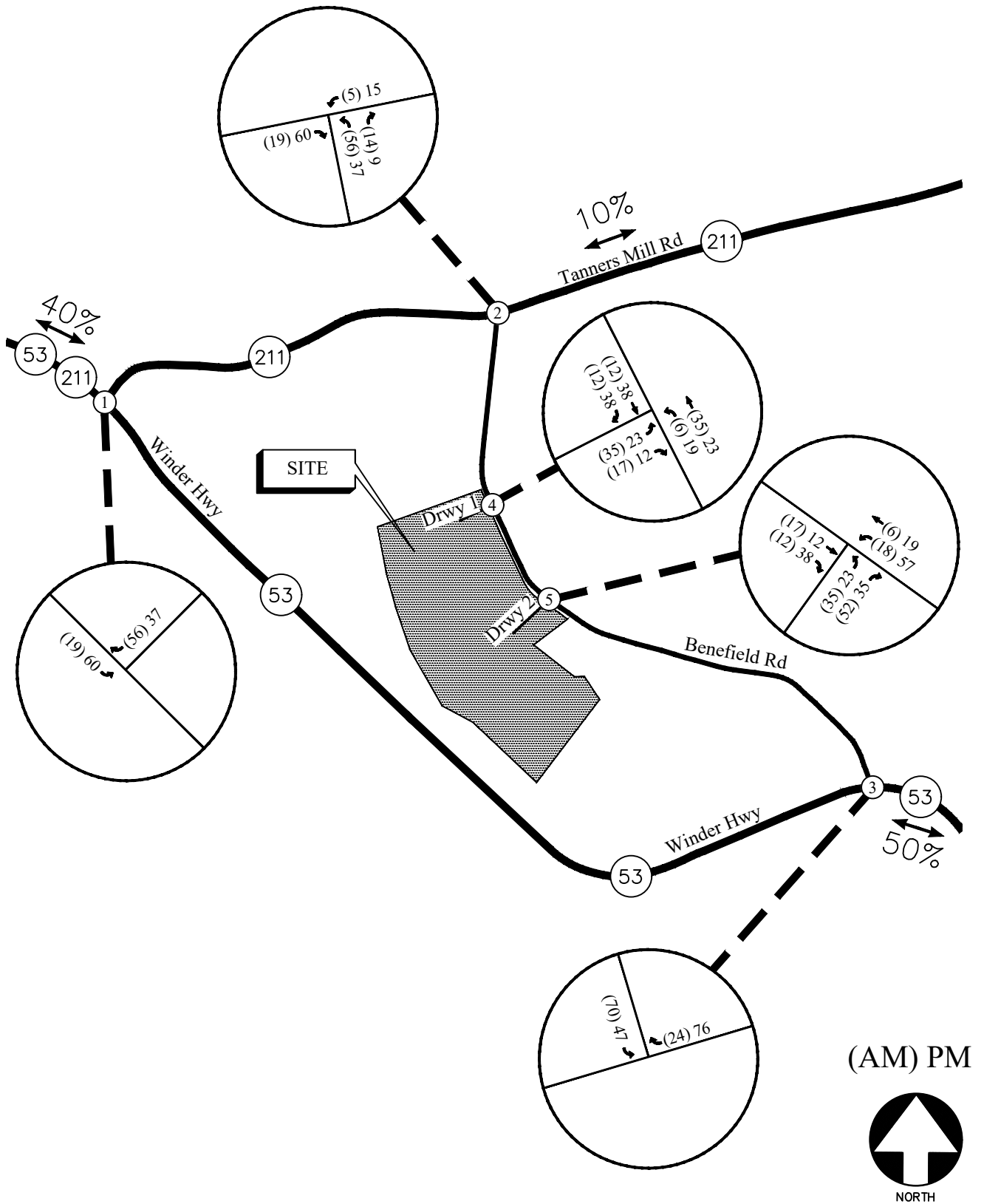
5.1 Trip Generation

Trip generation estimates for the project were based on the rates and equations published in the 11th 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 ITE land use categories 210 - *Single-Family Detached Housing* and 215 - *Single-Family Attached Housing*. The calculated total trip generation for the proposed development is shown in Table 4.

TABLE 4 – TRIP GENERATION								
Land Use	Size	AM Peak Hour			PM Peak Hour			24 Hour
		Enter	Exit	Total	Enter	Exit	Total	Two-Way
ITE 210 - Single-Family Detached Housing	186 Units	33	98	131	112	66	178	1,786
ITE 215 - Single-Family Attached Housing	116 Units	14	41	55	39	27	66	833
Total New Trips		47	139	186	151	93	244	2,619

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 intersections 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.



TRIP DISTRIBUTION AND SITE-GENERATED
WEEKDAY PEAK HOUR VOLUMES

FIGURE 5
A&R Engineering Inc.

6.0 FUTURE 2026 TRAFFIC ANALYSIS

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

6.1 Future “No-Build” Conditions

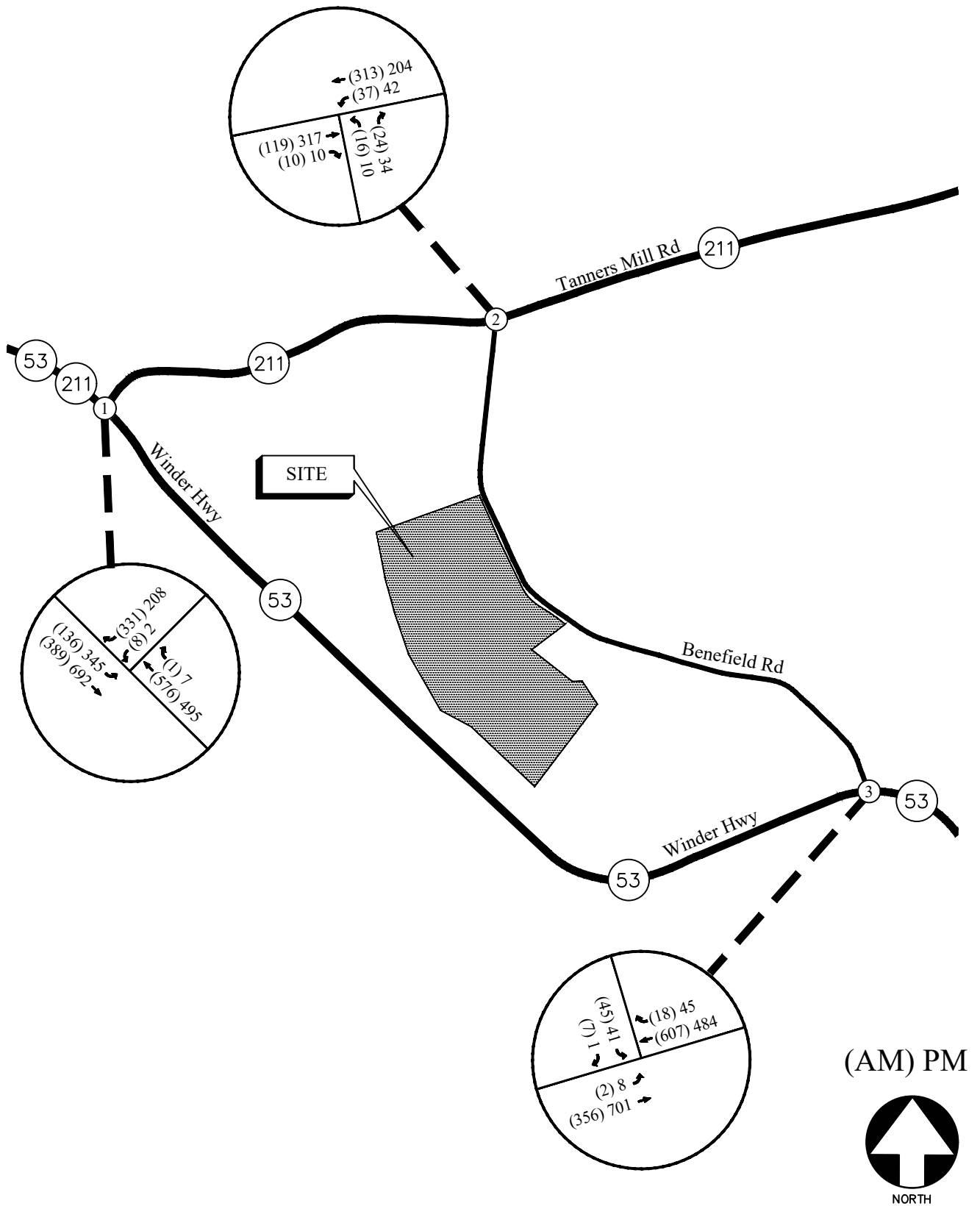
The “No-Build” (or background) conditions provide an assessment of how traffic will operate in the study horizon year without the study site being developed as proposed, with projected increases in through traffic volumes due to normal annual growth. The future “No-Build” volumes consist of the existing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

6.1.1 Annual Traffic Growth

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 growth over the last five years (2017 - 2019 & 2021 - 2022) revealed a traffic volume increase of approximately 2% 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 6.

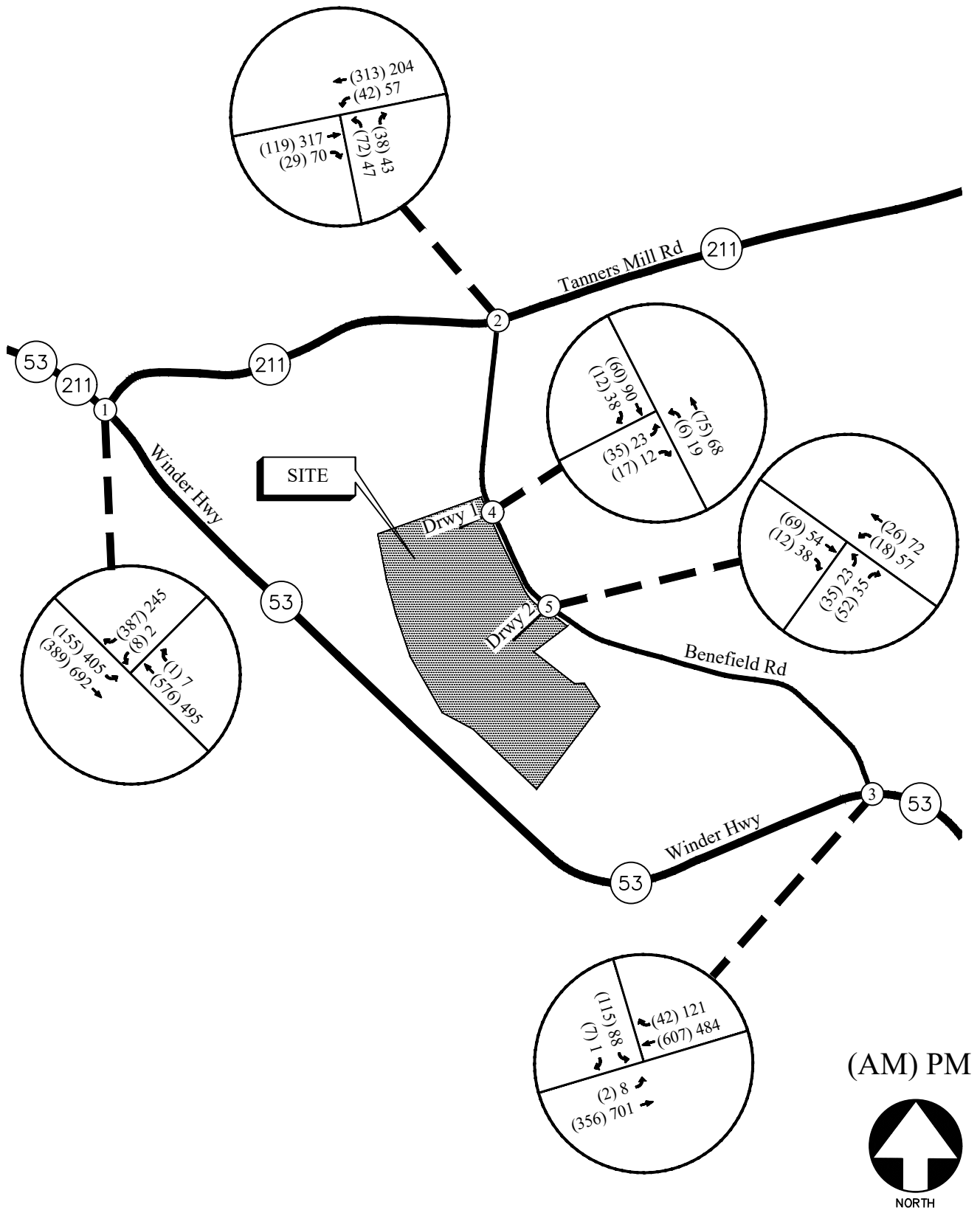
6.2 Future “Build” Conditions

The “Build” or development conditions include the estimated background traffic from the “No-Build” conditions plus the added traffic from the proposed development. To evaluate future traffic operations in this area, the additional traffic volumes from the site (Figure 5) were added to base traffic volumes (Figure 6) to calculate the future traffic volumes after the construction of the development. These total future “Build” traffic volumes are shown in Figure 7.



FUTURE (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 6
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FUTURE (BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 7

A&R Engineering Inc.

6.3 Auxiliary Lane Analysis

Included below are analyses for left turn and right turn lanes for all site driveways per GDOT standards. The analyses below are based off the trip distribution values included in Section 5.2. According to the trip distribution, the 24-hour two-way volume for traffic entering and exiting the site is 2,619 vehicles. The ADT on Benefield Road was assumed to be less than 6,000 vehicles per day based on GDOT volumes on the surrounding roadway network.

6.3.1 Left Turn Lane Analysis

For a two-lane roadway with an AADT under 6,000 vehicles and a posted speed limit of 45 mph, the daily site-generated traffic left-turn movements threshold to warrant a turn lane is 250 left-turning vehicles a day. The projected left turn volumes per day at the site driveways are shown in Table 5 below.

TABLE 5 – GDOT REQUIREMENTS FOR LEFT TURN LANES					
Intersection	Left Turn Traffic (% total entering)	Left Turn Volume (vehicles/day)	Roadway Speed / # Lanes / ADT	GDOT Threshold (vehicles/ day)	Warrants Met?
Benefield Rd @ Site Driveway 1	12.5% (Northbound)	164 (Total Trips) ÷ 2 × 0.125 = (2,619) ÷ 2 × 0.125 = 164	45 mph / 2-Lane / < 6,000	250	No
Benefield Rd @ Site Driveway 2	37.5% (Northbound)	491 (Total Trips) ÷ 2 × 0.375 = (2,619) ÷ 2 × 0.375 = 491	45 mph / 2-Lane / < 6,000	250	Yes

A left turn lane is warranted at site driveway 2 on Benefield Road as per GDOT standards.

6.3.2 Deceleration Turn Lane Analysis

For a two-lane roadway with an AADT under 6,000 vehicles and a posted speed limit of 45 mph, the daily site-generated traffic right turns movements threshold to warrant a deceleration lane is 150 right-turning vehicles a day. The projected daily right turn volumes at the site driveways are shown in Table 6.

TABLE 6 – GDOT REQUIREMENTS FOR DECELERATION LANES					
Intersection	Right Turn Traffic (% total entering)	Right Turn Volume (vehicles/day)	Roadway Speed / # Lanes / ADT	GDOT Threshold (vehicles/ day)	Warrants Met?
Benefield Rd @ Site Driveway 1	25% (Southbound)	327 (Total Trips) ÷ 2 × 0.25 = (2,619) ÷ 2 × 0.25 = 327	45 mph / 2-Lane / < 6,000	150	Yes
Benefield Rd @ Site Driveway 2	25% (Southbound)	327 (Total Trips) ÷ 2 × 0.25 = (2,619) ÷ 2 × 0.25 = 327	45 mph / 2-Lane / < 6,000	150	Yes

A right turn lane is warranted at both site driveways as per GDOT standards.

6.4 Future Traffic Operations

The future “No-Build” and “Build” traffic operations were analysed using the volumes in Figures 6 and 7, respectively. The results of the future traffic operations analysis are shown below in Table 7. Recommendations on traffic control and lane geometry are shown in Figure 8.







TABLE 7 – FUTURE INTERSECTION OPERATIONS					
Intersection		Future Condition: LOS (Delay)			
		NO-BUILD		BUILD-OUT	
		AM Peak	PM Peak	AM Peak	PM Peak
1	<u>SR 211/SR 53 (Winder Highway) @ SR 211 (Tanners Mill Road)</u>				
	-Westbound Approach	D (25.8)	C (16.8)	D (34.0)	C (18.5)
	-Southbound Left	A (9.3)	B (10.5)	A (9.5)	B (11.1)
2	<u>SR 211 (Tanners Mill Road) @ Benefield Road</u>				
	-Westbound Left	A (7.6)	A (8.1)	A (7.6)	A (8.3)
	-Northbound Approach	B (10.7)	B (11.4)	B (13.1)	B (14.5)
3	<u>SR 53 (Winder Highway) @ Benefield Road</u>				
	-Eastbound Left	A (8.9)	A (8.6)	A (9.0)	A (8.9)
	-Southbound Approach	C (21.7)	D (32.3)	D (32.5)	F (53.3)
4	<u>Benefield Road @ Site Driveway 1</u>				
	-Eastbound Approach	-	-	A (9.4)	A (9.6)
	-Northbound Left			A (7.4)	A (7.5)
5	<u>Benefield Road @ Site Driveway 2</u>				
	-Eastbound Approach	-	-	A (9.4)	A (9.5)
	-Northbound Left			A (7.4)	A (7.5)

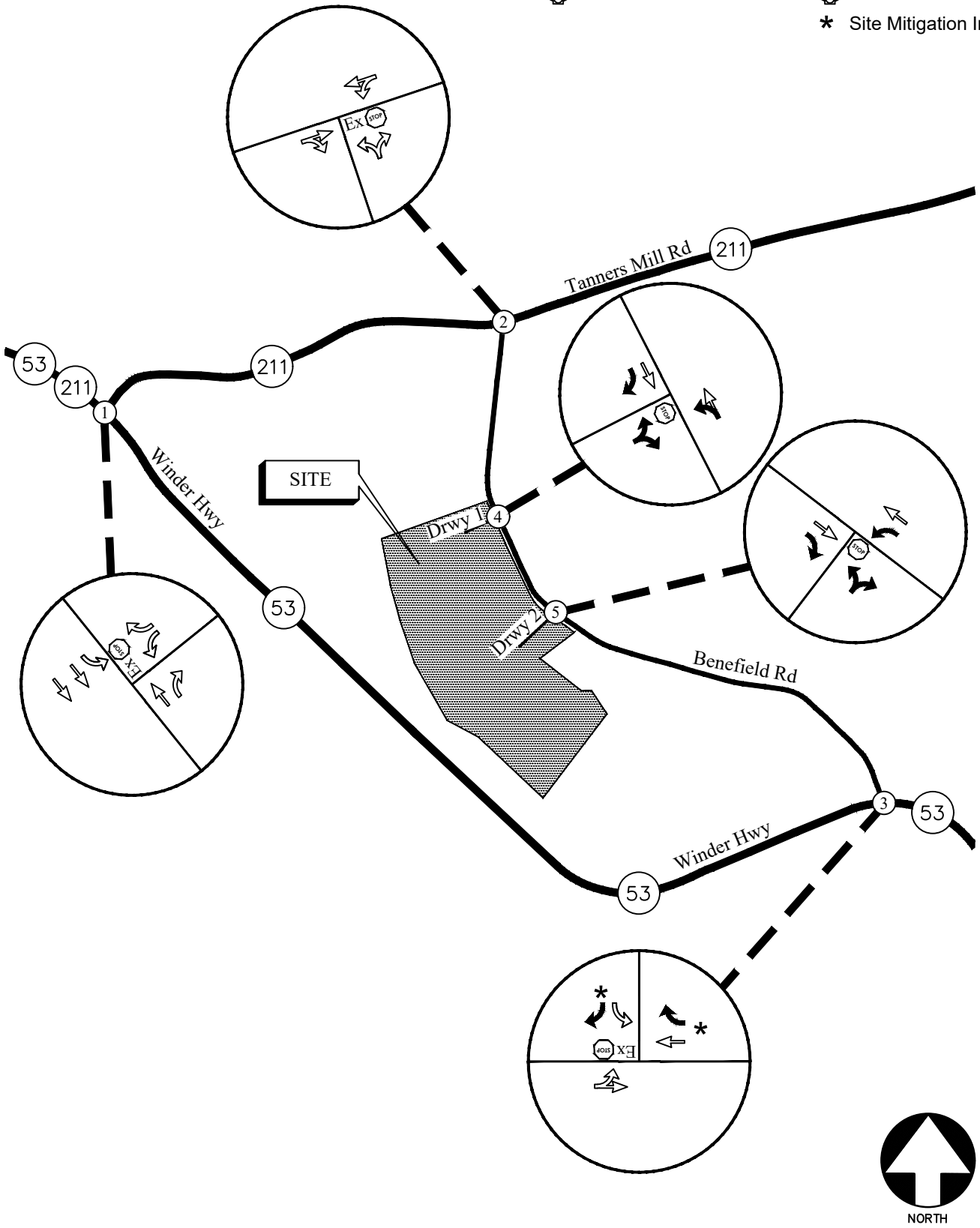
The results of the future “Build” conditions traffic analysis indicate that the stop-controlled approaches at the unsignalized study intersections will continue to operate at a level of service “D” or better with peak hour traffic, except for the southbound approach at the intersection of Benefield Road and SR 53, which will operate at a level of service “F” during the PM peak hour. It is not unusual for side streets that are stop sign controlled to experience higher delays due to the time gap required to make turning movements on busy arterial roadways. The projected increased delay at intersection 3 is addressed in the following section on page 19.

6.4.1 Site Mitigation Improvement (Intersection 3)

To address the projected increase in delays at the southbound approach of intersection 3 (SR 53 at Benfield Road), it is recommended that this approach be widened to have a separate right turn lane that will improve traffic flow. Additionally, it is also recommended that the westbound approach on SR 53 (Winder Highway) be given a separate turn lane for traffic entering Benfield Road. Table 8 below shows a comparison of traffic operations at intersection 3 with or without the recommended system improvements. As shown in Table 8, the projected delay at the southbound approach is lower in the PM peak hour with the turn lane additions, with it performing at a level of service “E” rather than “F”. Therefore, it is recommended that southbound and westbound right turn lanes be added to intersection 3 as site mitigation improvements.

TABLE 8 — FUTURE INTERSECTION OPERATIONS WITH & WITHOUT IMPROVEMENT					
Intersection		Future Build-Out Condition: LOS (Delay)			
		WITHOUT IMPROVEMENTS		WITH IMPROVEMENTS	
		AM Peak	PM Peak	AM Peak	PM Peak
3	SR 53 (Winder Highway) @ Benfield Road				
	-Eastbound Left	A (9.0)	A (8.9)	A (9.0)	A (8.9)
	-Southbound Approach	D (32.5)	F (53.3)	D (29.9)	E (44.9)

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



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 8

A&R Engineering Inc.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the proposed residential development that will be located at 4370 Benefield Road in Hall County, Georgia. The development will consist of 186 single-family houses and 116 townhomes, and proposes two full access driveways on Benefield Road.

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

- SR 211/SR 53 (Winder Highway) at SR 211 (Tanners Mill Road)
- SR 211 (Tanners Mill Road) at Benefield Road
- SR 53 (Winder Highway) at Benefield Road
- Benefield Road at Site Driveway 1 (North Access)
- Benefield Road at Site Driveway 2 (South Access)

The analysis included the evaluation of future operations for “No-Build” and “Build” conditions, with the differences between “No-Build” and “Build” accounting for the projected increase in traffic due to the proposed development. The results of the future “Build” conditions traffic analysis indicate that the stop-controlled approaches at the unsignalized study intersections will continue to operate at a level of service “D” or better with peak hour traffic, except for the southbound approach at the intersection of Benefield Road and SR 53, which will operate at a level of service “F” during the PM peak hour. It is not unusual for side streets that are stop sign controlled to experience higher delays due to the time gap required to make turning movements on busy arterial roadways. The projected increased delay at intersection 3 is addressed in section 6.4.1 on page 19.

7.1 Recommendations for Site Access Configuration

The following access configurations are recommended for the proposed site driveway intersections:

- Site Driveway 1 (North): Full access driveway on Benefield Road
 - One entering lane and one exiting lane
 - Stop-sign controlled on the driveway approach with Benefield Road remaining free flow
 - A right turn lane for entering traffic
 - Provide/confirm adequate sight distance per AASHTO standards
- Site Driveway 2 (South): Full access driveway on Benefield Road
 - One entering lane and one exiting lane
 - Stop-sign controlled on the driveway approach with Benefield Road remaining free flow
 - A right turn lane and a left turn lane for entering traffic
 - Provide/confirm adequate sight distance per AASHTO standards

7.2 Recommended Site Mitigation Improvements

To address the projected increase in delays at the southbound approach of intersection 3 (SR 53 at Benfield Road), it is recommended that this approach be widened to have a separate right turn lane that will improve traffic flow. Additionally, it is also recommended that the westbound approach on SR 53 (Winder Highway) be given a separate turn lane for traffic entering Benfield Road.

In summary, the following site mitigation improvements are recommended:

- Intersection 3: SR 53 (Winder Highway) at Benfield Road
 - A separate southbound right turn lane on Benfield Road
 - A separate westbound right turn lane on SR 53 (Winder Highway)

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 'O'
Marietta, GA 30067

TMC Data
SR 53 @ SR 211
7-9 am | 4-6 pm

File Name : 20240052
Site Code : 20240052
Start Date : 02-08-2024
Page No : 1

Groups Printed- Cars & Buses - Trucks

Start Time	SR 53 Northbound				SR 211 / SR 53 Southbound				Eastbound				SR 211 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	130	0	130	11	81	0	92	0	0	0	0	2	0	80	82	304
07:15 AM	0	137	0	137	26	86	0	112	0	0	0	0	1	0	106	107	356
07:30 AM	0	148	1	149	41	75	0	116	0	0	0	0	1	0	82	83	348
07:45 AM	0	132	0	132	36	118	0	154	0	0	0	0	2	0	69	71	357
Total	0	547	1	548	114	360	0	474	0	0	0	0	6	0	337	343	1365
08:00 AM	0	137	0	137	28	95	0	123	0	0	0	0	4	0	61	65	325
08:15 AM	0	141	0	141	29	92	0	121	0	0	0	0	0	0	49	49	311
08:30 AM	0	132	1	133	22	86	0	108	0	0	0	0	0	0	39	39	280
08:45 AM	0	127	1	128	27	76	0	103	0	0	0	0	2	0	48	50	281
Total	0	537	2	539	106	349	0	455	0	0	0	0	6	0	197	203	1197
*** BREAK ***																	
04:00 PM	0	109	1	110	70	147	0	217	0	0	0	0	1	0	42	43	370
04:15 PM	0	106	3	109	82	148	0	230	0	0	0	0	2	0	47	49	388
04:30 PM	0	99	2	101	68	162	0	230	0	0	0	0	0	0	49	49	380
04:45 PM	0	94	2	96	67	191	0	258	0	0	0	0	0	0	54	54	408
Total	0	408	8	416	287	648	0	935	0	0	0	0	3	0	192	195	1546
05:00 PM	0	119	1	120	85	154	0	239	0	0	0	0	0	0	50	50	409
05:15 PM	0	150	1	151	90	164	0	254	0	0	0	0	0	0	53	53	458
05:30 PM	0	113	3	116	90	156	0	246	0	0	0	0	2	0	43	45	407
05:45 PM	0	96	4	100	71	142	0	213	0	0	0	0	3	0	50	53	366
Total	0	478	9	487	336	616	0	952	0	0	0	0	5	0	196	201	1640
Grand Total	0	1970	20	1990	843	1973	0	2816	0	0	0	0	20	0	922	942	5748
Apprch %	0	99	1		29.9	70.1	0		0	0	0	0	2.1	0	97.9		
Total %	0	34.3	0.3	34.6	14.7	34.3	0	49	0	0	0	0	0.3	0	16	16.4	
Cars & Buses	0	1856	18	1874	820	1854	0	2674	0	0	0	0	17	0	905	922	5470
% Cars & Buses	0	94.2	90	94.2	97.3	94	0	95	0	0	0	0	85	0	98.2	97.9	95.2
Trucks	0	114	2	116	23	119	0	142	0	0	0	0	3	0	17	20	278
% Trucks	0	5.8	10	5.8	2.7	6	0	5	0	0	0	0	15	0	1.8	2.1	4.8

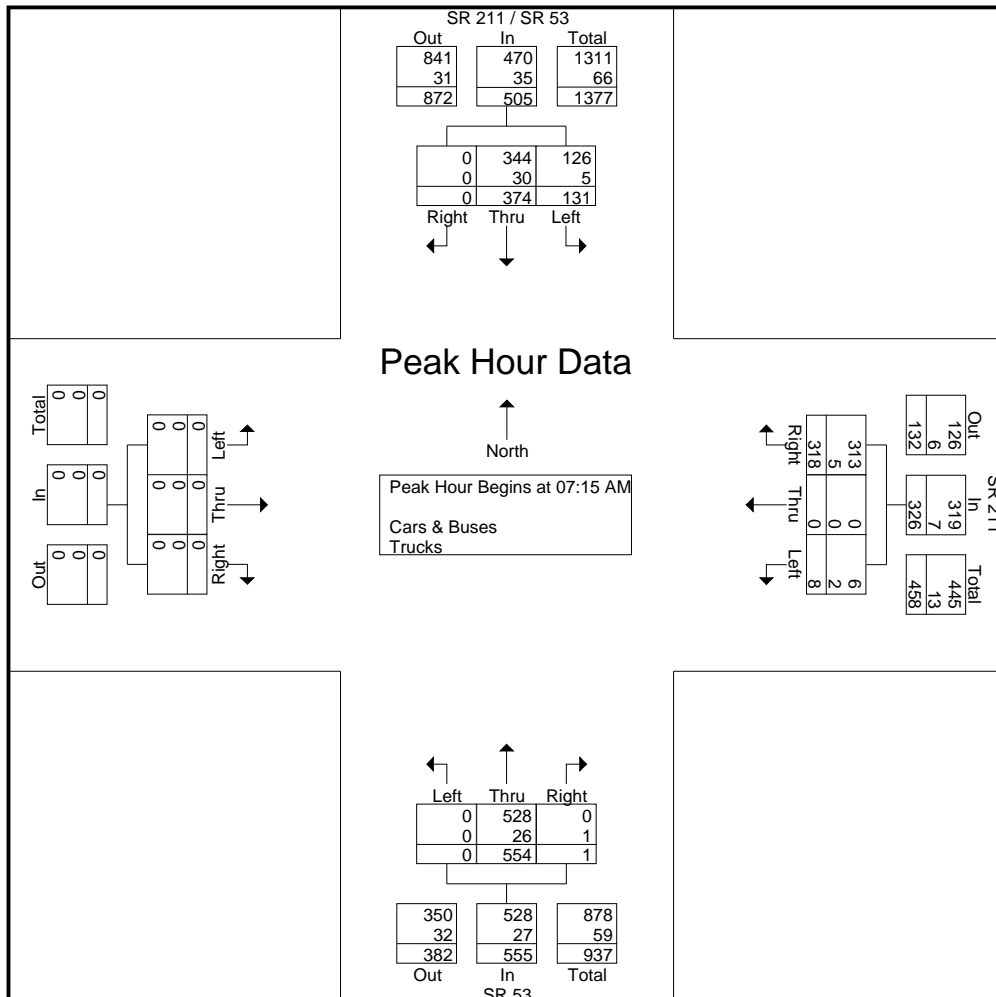
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC Data
SR 53 @ SR 211
7-9 am | 4-6 pm

File Name : 20240052
Site Code : 20240052
Start Date : 02-08-2024
Page No : 2

Start Time	SR 53 Northbound				SR 211 / SR 53 Southbound				Eastbound				SR 211 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 07:15 AM																	
07:15 AM	0	137	0	137	26	86	0	112	0	0	0	0	1	0	106	107	356
07:30 AM	0	148	1	149	41	75	0	116	0	0	0	0	1	0	82	83	348
07:45 AM	0	132	0	132	36	118	0	154	0	0	0	0	2	0	69	71	357
08:00 AM	0	137	0	137	28	95	0	123	0	0	0	0	4	0	61	65	325
Total Volume	0	554	1	555	131	374	0	505	0	0	0	0	8	0	318	326	1386
% App. Total	0	99.8	0.2	99.9	25.9	74.1	0	99.9	0	0	0	0	2.5	0	97.5	99.9	99.9
PHF	.000	.936	.250	.931	.799	.792	.000	.820	.000	.000	.000	.000	.500	.000	.750	.762	.971
Cars & Buses	0	528	0	528	126	344	0	470	0	0	0	0	6	0	313	319	1317
% Cars & Buses	0	95.3	0	95.1	96.2	92.0	0	93.1	0	0	0	0	75.0	0	98.4	97.9	95.0
Trucks	0	26	1	27	5	30	0	35	0	0	0	0	2	0	5	7	69
% Trucks	0	4.7	100	4.9	3.8	8.0	0	6.9	0	0	0	0	25.0	0	1.6	2.1	5.0



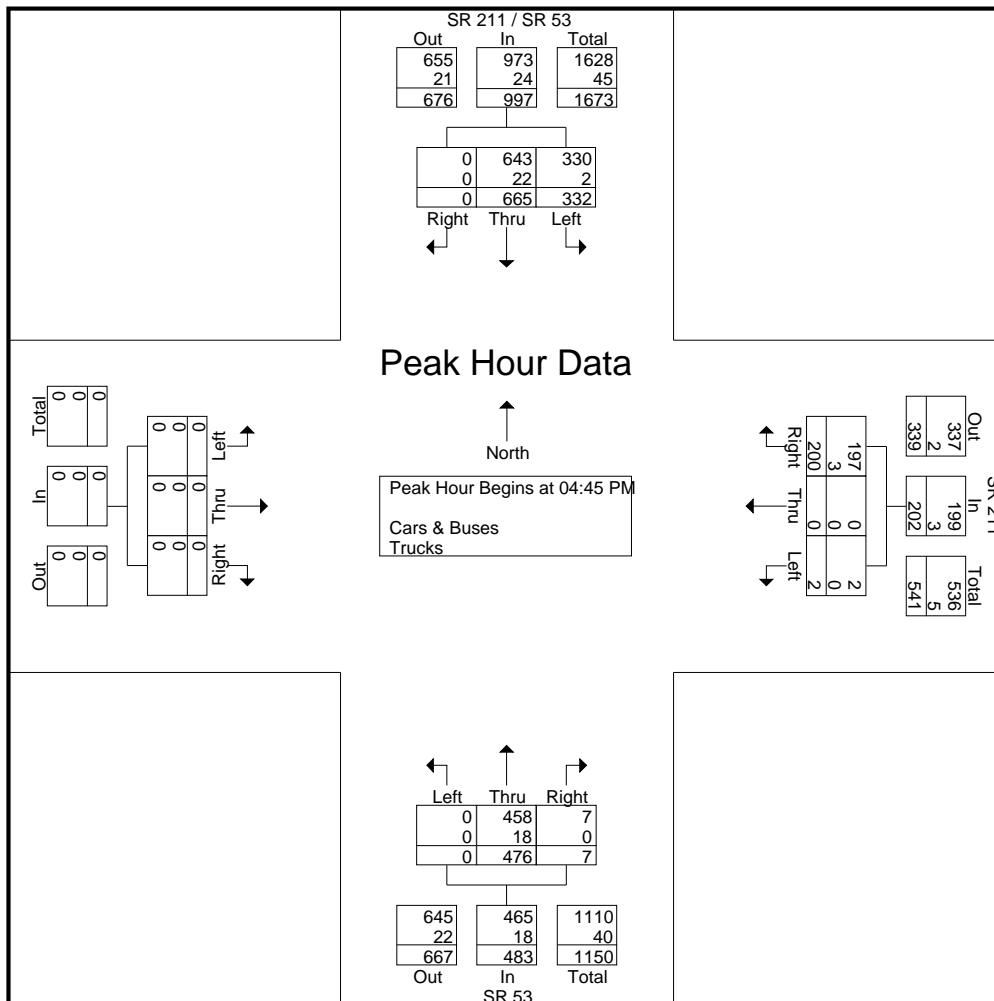
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC Data
SR 53 @ SR 211
7-9 am | 4-6 pm

File Name : 20240052
Site Code : 20240052
Start Date : 02-08-2024
Page No : 3

Start Time	SR 53 Northbound				SR 211 / SR 53 Southbound				Eastbound				SR 211 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 04:45 PM																	
04:45 PM	0	94	2	96	67	191	0	258	0	0	0	0	0	0	54	54	408
05:00 PM	0	119	1	120	85	154	0	239	0	0	0	0	0	0	50	50	409
05:15 PM	0	150	1	151	90	164	0	254	0	0	0	0	0	0	53	53	458
05:30 PM	0	113	3	116	90	156	0	246	0	0	0	0	2	0	43	45	407
Total Volume	0	476	7	483	332	665	0	997	0	0	0	0	2	0	200	202	1682
% App. Total	0	98.6	1.4		33.3	66.7	0		0	0	0		1	0	99		
PHF	.000	.793	.583	.800	.922	.870	.000	.966	.000	.000	.000	.000	.250	.000	.926	.935	.918
Cars & Buses	0	458	7	465	330	643	0	973	0	0	0	0	2	0	197	199	1637
% Cars & Buses	0	96.2	100	96.3	99.4	96.7	0	97.6	0	0	0	0	100	0	98.5	98.5	97.3
Trucks	0	18	0	18	2	22	0	24	0	0	0	0	0	0	3	3	45
% Trucks	0	3.8	0	3.7	0.6	3.3	0	2.4	0	0	0	0	0	0	1.5	1.5	2.7



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC Data
SR 211 @ Benefield Road
7-9 am | 4-6 pm

File Name : 20240051
Site Code : 20240051
Start Date : 02-08-2024
Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	Benefield Road Northbound				Southbound				SR 211 Eastbound				SR 211 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	4	0	5	9	0	0	0	0	0	16	3	19	9	96	0	105	133
07:15 AM	2	0	6	8	0	0	0	0	0	34	4	38	6	81	0	87	133
07:30 AM	0	0	5	5	0	0	0	0	0	39	0	39	7	60	0	67	111
07:45 AM	9	0	7	16	0	0	0	0	0	25	3	28	14	64	0	78	122
Total	15	0	23	38	0	0	0	0	0	114	10	124	36	301	0	337	499
08:00 AM	6	0	1	7	0	0	0	0	0	31	1	32	8	50	0	58	97
08:15 AM	3	0	5	8	0	0	0	0	0	21	3	24	5	35	0	40	72
08:30 AM	1	0	5	6	0	0	0	0	0	18	0	18	7	41	0	48	72
08:45 AM	5	0	4	9	0	0	0	0	0	23	2	25	5	42	0	47	81
Total	15	0	15	30	0	0	0	0	0	93	6	99	25	168	0	193	322
*** BREAK ***																	
04:00 PM	5	0	10	15	0	0	0	0	0	71	1	72	4	42	0	46	133
04:15 PM	2	0	7	9	0	0	0	0	0	72	1	73	4	48	0	52	134
04:30 PM	3	0	5	8	0	0	0	0	0	64	2	66	15	50	0	65	139
04:45 PM	1	0	10	11	0	0	0	0	0	72	3	75	6	52	0	58	144
Total	11	0	32	43	0	0	0	0	0	279	7	286	29	192	0	221	550
05:00 PM	3	0	11	14	0	0	0	0	0	87	2	89	6	49	0	55	158
05:15 PM	3	0	7	10	0	0	0	0	0	82	3	85	13	45	0	58	153
05:30 PM	5	0	6	11	0	0	0	0	0	64	3	67	9	45	0	54	132
05:45 PM	3	0	10	13	0	0	0	0	0	72	3	75	8	42	0	50	138
Total	14	0	34	48	0	0	0	0	0	305	11	316	36	181	0	217	581
Grand Total	55	0	104	159	0	0	0	0	0	791	34	825	126	842	0	968	1952
Apprch %	34.6	0	65.4		0	0	0		0	95.9	4.1		13	87	0		
Total %	2.8	0	5.3	8.1	0	0	0	0	0	40.5	1.7	42.3	6.5	43.1	0	49.6	

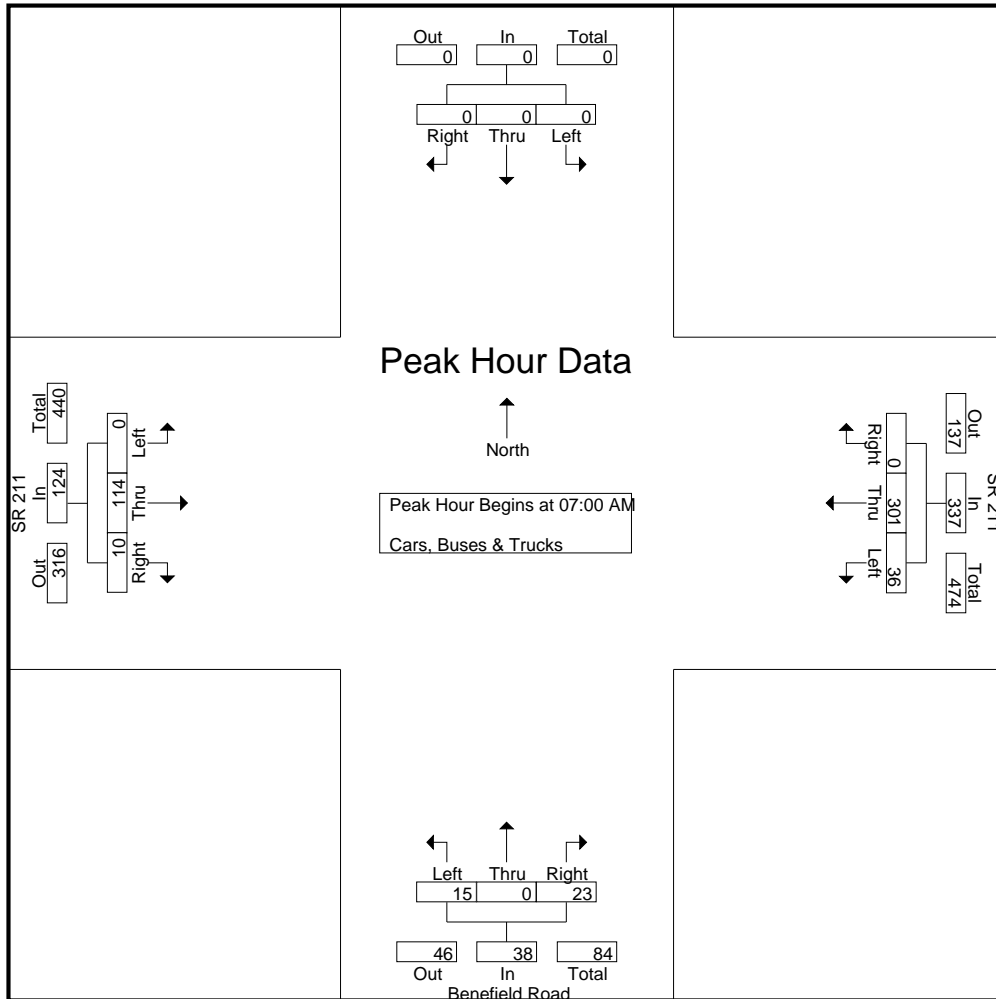
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC Data
SR 211 @ Benefield Road
7-9 am | 4-6 pm

File Name : 20240051
Site Code : 20240051
Start Date : 02-08-2024
Page No : 2

Start Time	Benefield Road Northbound				Southbound				SR 211 Eastbound				SR 211 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	4	0	5	9	0	0	0	0	0	16	3	19	9	96	0	105	133
07:15 AM	2	0	6	8	0	0	0	0	0	34	4	38	6	81	0	87	133
07:30 AM	0	0	5	5	0	0	0	0	0	39	0	39	7	60	0	67	111
07:45 AM	9	0	7	16	0	0	0	0	0	25	3	28	14	64	0	78	122
Total Volume	15	0	23	38	0	0	0	0	0	114	10	124	36	301	0	337	499
% App. Total	39.5	0	60.5		0	0	0		0	91.9	8.1		10.7	89.3	0		
PHF	.417	.000	.821	.594	.000	.000	.000	.000	.000	.731	.625	.795	.643	.784	.000	.802	.938



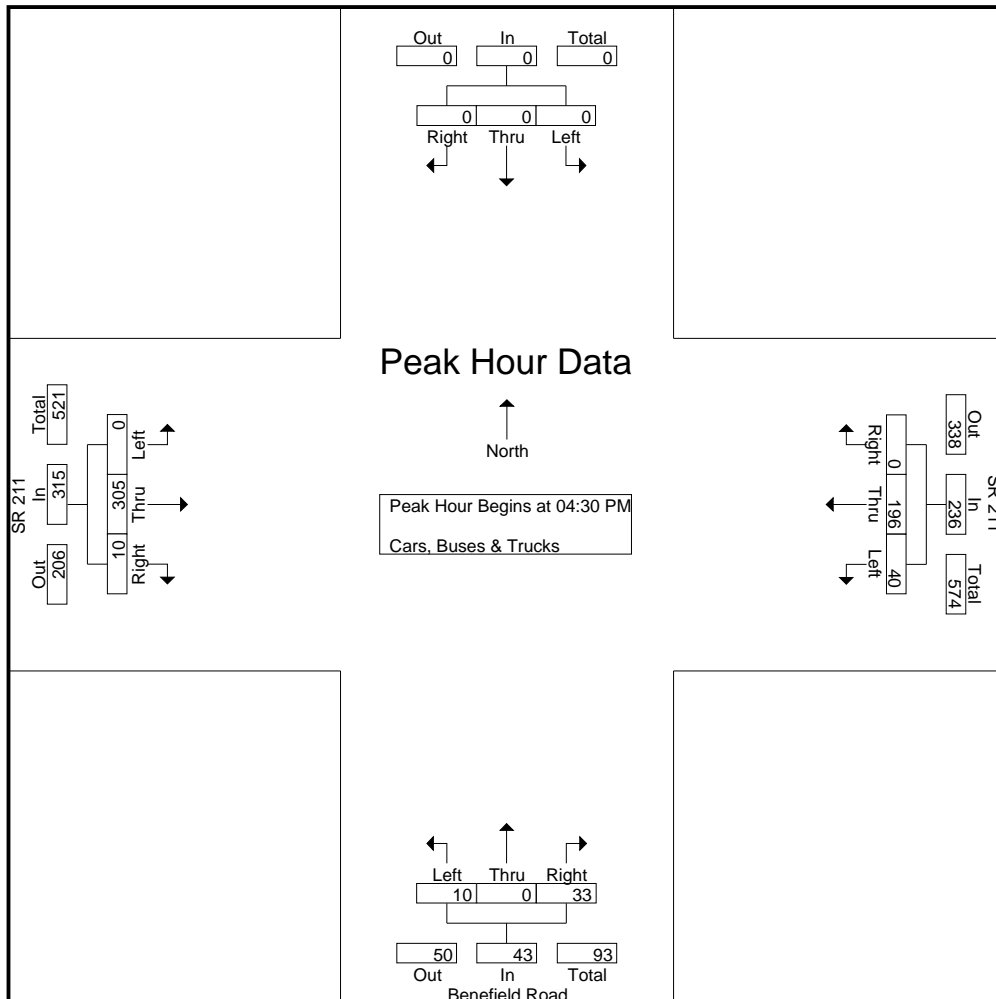
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC Data
SR 211 @ Benefield Road
7-9 am | 4-6 pm

File Name : 20240051
Site Code : 20240051
Start Date : 02-08-2024
Page No : 3

Start Time	Benefield Road Northbound				Southbound				SR 211 Eastbound				SR 211 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 04:30 PM																	
04:30 PM	3	0	5	8	0	0	0	0	0	64	2	66	15	50	0	65	139
04:45 PM	1	0	10	11	0	0	0	0	0	72	3	75	6	52	0	58	144
05:00 PM	3	0	11	14	0	0	0	0	0	87	2	89	6	49	0	55	158
05:15 PM	3	0	7	10	0	0	0	0	0	82	3	85	13	45	0	58	153
Total Volume	10	0	33	43	0	0	0	0	0	305	10	315	40	196	0	236	594
% App. Total	23.3	0	76.7		0	0	0		0	96.8	3.2		16.9	83.1	0		
PHF	.833	.000	.750	.768	.000	.000	.000	.000	.000	.876	.833	.885	.667	.942	.000	.908	.940



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC Data
SR 53 @ Benefield Road
7-9 am | 4-6 pm

File Name : 20240050
Site Code : 20240050
Start Date : 02-08-2024
Page No : 1

Groups Printed- Cars & Buses - Trucks

Start Time	Northbound				Benefield Road Southbound				SR 53 Eastbound				SR 53 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	0	0	0	10	0	5	15	0	79	0	79	0	146	6	152	246
07:15 AM	0	0	0	0	10	0	1	11	0	82	0	82	0	142	2	144	237
07:30 AM	0	0	0	0	11	0	0	11	0	78	0	78	0	154	4	158	247
07:45 AM	0	0	0	0	12	0	1	13	2	103	0	105	0	142	5	147	265
Total	0	0	0	0	43	0	7	50	2	342	0	344	0	584	17	601	995
08:00 AM	0	0	0	0	14	0	1	15	0	94	0	94	0	128	3	131	240
08:15 AM	0	0	0	0	4	0	1	5	0	82	0	82	0	134	7	141	228
08:30 AM	0	0	0	0	8	0	3	11	2	76	0	78	0	142	3	145	234
08:45 AM	0	0	0	0	4	0	2	6	0	76	0	76	0	125	4	129	211
Total	0	0	0	0	30	0	7	37	2	328	0	330	0	529	17	546	913
*** BREAK ***																	
04:00 PM	0	0	0	0	1	0	0	1	2	158	0	160	0	100	8	108	269
04:15 PM	0	0	0	0	4	0	1	5	2	151	0	153	0	94	9	103	261
04:30 PM	0	0	0	0	9	0	2	11	3	177	0	180	0	83	9	92	283
04:45 PM	0	0	0	0	12	0	1	13	1	175	0	176	0	95	10	105	294
Total	0	0	0	0	26	0	4	30	8	661	0	669	0	372	36	408	1107
05:00 PM	0	0	0	0	6	0	0	6	2	156	0	158	0	148	15	163	327
05:15 PM	0	0	0	0	3	0	0	3	4	179	0	183	0	110	10	120	306
05:30 PM	0	0	0	0	18	0	0	18	1	164	0	165	0	112	8	120	303
05:45 PM	0	0	0	0	10	0	0	10	0	145	0	145	0	87	16	103	258
Total	0	0	0	0	37	0	0	37	7	644	0	651	0	457	49	506	1194
Grand Total	0	0	0	0	136	0	18	154	19	1975	0	1994	0	1942	119	2061	4209
Apprch %	0	0	0	0	88.3	0	11.7		1	99	0		0	94.2	5.8		
Total %	0	0	0	0	3.2	0	0.4	3.7	0.5	46.9	0	47.4	0	46.1	2.8	49	
Cars & Buses	0	0	0	0	133	0	18	151	18	1866	0	1884	0	1836	118	1954	3989
% Cars & Buses	0	0	0	0	97.8	0	100	98.1	94.7	94.5	0	94.5	0	94.5	99.2	94.8	94.8
Trucks	0	0	0	0	3	0	0	3	1	109	0	110	0	106	1	107	220
% Trucks	0	0	0	0	2.2	0	0	1.9	5.3	5.5	0	5.5	0	5.5	0.8	5.2	5.2

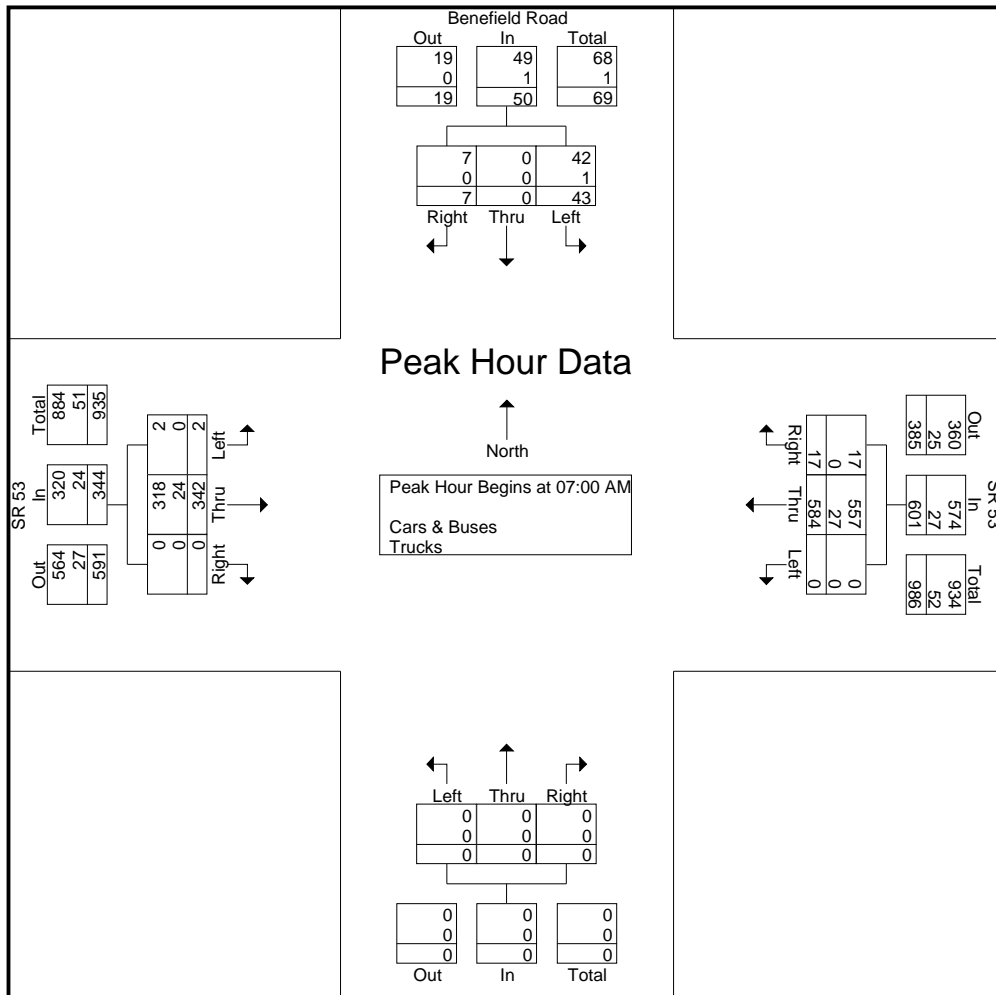
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC Data
SR 53 @ Benefield Road
7-9 am | 4-6 pm

File Name : 20240050
Site Code : 20240050
Start Date : 02-08-2024
Page No : 2

Start Time	Northbound				Benefield Road Southbound				SR 53 Eastbound				SR 53 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	0	0	0	10	0	5	15	0	79	0	79	0	146	6	152	246
07:15 AM	0	0	0	0	10	0	1	11	0	82	0	82	0	142	2	144	237
07:30 AM	0	0	0	0	11	0	0	11	0	78	0	78	0	154	4	158	247
07:45 AM	0	0	0	0	12	0	1	13	2	103	0	105	0	142	5	147	265
Total Volume	0	0	0	0	43	0	7	50	2	342	0	344	0	584	17	601	995
% App. Total	0	0	0	0	86	0	14	98.0	0.6	99.4	0	93.0	0	97.2	2.8	95.5	94.8
PHF	.000	.000	.000	.000	.896	.000	.350	.833	.250	.830	.000	.819	.000	.948	.708	.951	.939
Cars & Buses	0	0	0	0	42	0	7	49	2	318	0	320	0	557	17	574	943
% Cars & Buses	0	0	0	0	97.7	0	100	98.0	100	93.0	0	93.0	0	95.4	100	95.5	94.8
Trucks	0	0	0	0	1	0	0	1	0	24	0	24	0	27	0	27	52
% Trucks	0	0	0	0	2.3	0	0	2.0	0	7.0	0	7.0	0	4.6	0	4.5	5.2



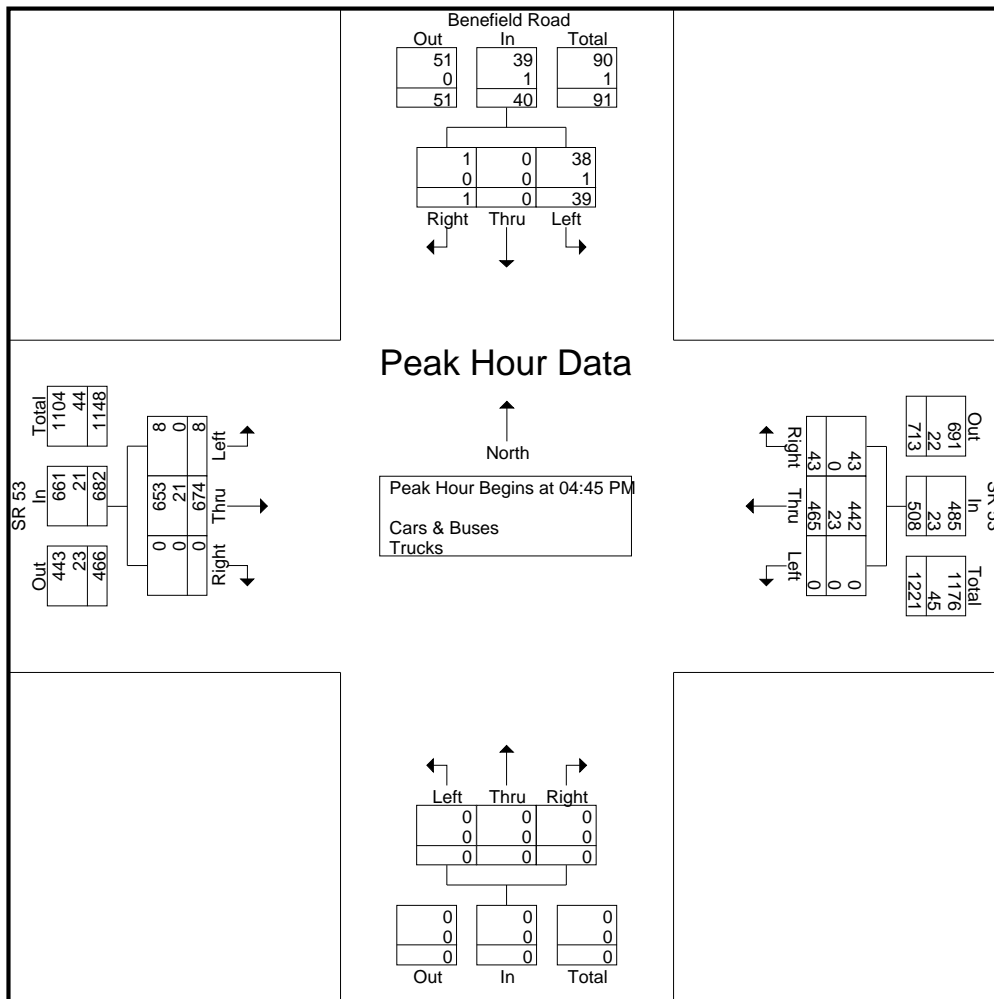
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC Data
SR 53 @ Benefield Road
7-9 am | 4-6 pm

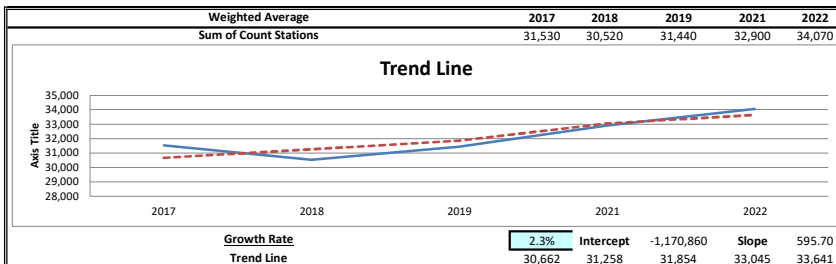
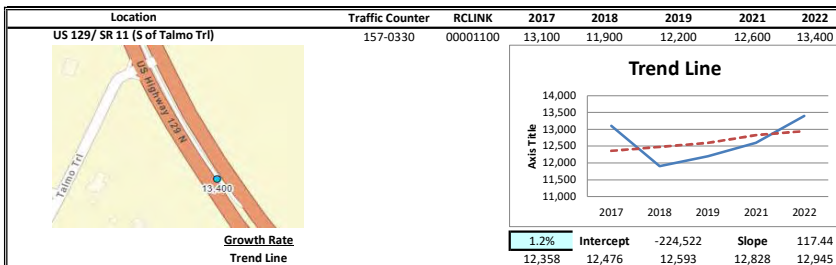
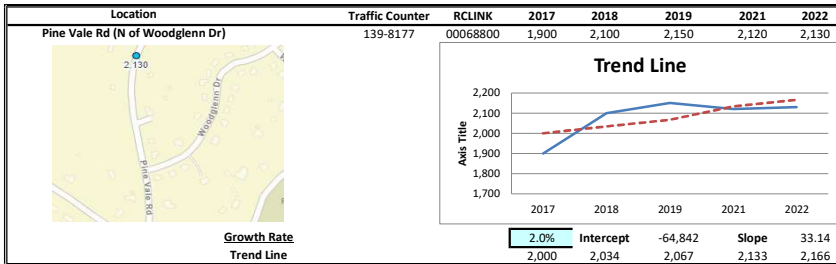
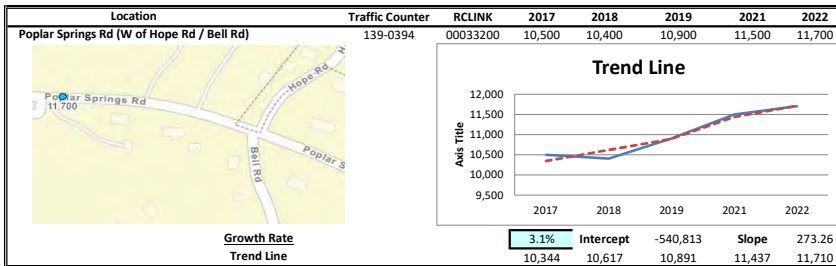
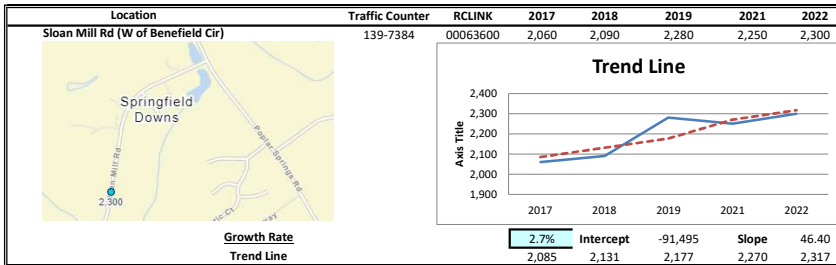
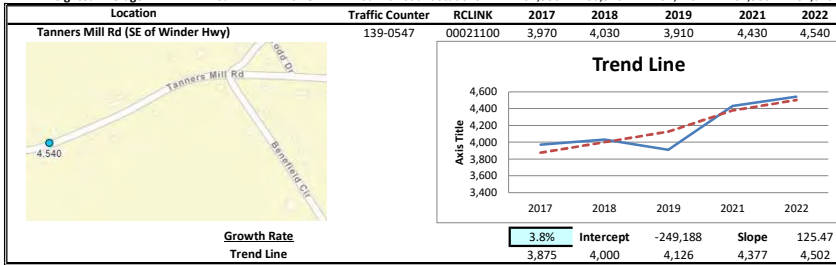
File Name : 20240050
Site Code : 20240050
Start Date : 02-08-2024
Page No : 3

Start Time	Northbound				Benefield Road Southbound				SR 53 Eastbound				SR 53 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 04:45 PM																	
04:45 PM	0	0	0	0	12	0	1	13	1	175	0	176	0	95	10	105	294
05:00 PM	0	0	0	0	6	0	0	6	2	156	0	158	0	148	15	163	327
05:15 PM	0	0	0	0	3	0	0	3	4	179	0	183	0	110	10	120	306
05:30 PM	0	0	0	0	18	0	0	18	1	164	0	165	0	112	8	120	303
Total Volume	0	0	0	0	39	0	1	40	8	674	0	682	0	465	43	508	1230
% App. Total	0	0	0	0	97.5	0	2.5		1.2	98.8	0		0	91.5	8.5		
PHF	.000	.000	.000	.000	.542	.000	.250	.556	.500	.941	.000	.932	.000	.785	.717	.779	.940
Cars & Buses	0	0	0	0	38	0	1	39	8	653	0	661	0	442	43	485	1185
% Cars & Buses	0	0	0	0	97.4	0	100	97.5	100	96.9	0	96.9	0	95.1	100	95.5	96.3
Trucks	0	0	0	0	1	0	0	1	0	21	0	21	0	23	0	23	45
% Trucks	0	0	0	0	2.6	0	0	2.5	0	3.1	0	3.1	0	4.9	0	4.5	3.7



LINEAR REGRESSION OF DAILY TRAFFIC

Location	Growth Rate	R Squared	Station ID	Route	2017	2018	2019	2021	2022
Tanners Mill Rd (SE of Winder H	3.8%	0.82	139-0547	00021100	3,970	4,030	3,910	4,430	4,540
Sloan Mill Rd (W of Benefield Ci	2.7%	0.73	139-7384	00063600	2,060	2,090	2,280	2,250	2,300
Poplar Springs Rd (W of Hope R	3.1%	0.94	139-0394	00033200	10,500	10,400	10,900	11,500	11,700
Pine Vale Rd (N of Woodglenn C	2.0%	0.46	139-8177	00068800	1,900	2,100	2,150	2,120	2,130
US 129/ SR 11 (S of Talmo Trl)	1.2%	0.15	157-0330	00001100	13,100	11,900	12,200	12,600	13,400
Weighted Average	2.3%	0.78	Sum of Count Stations =		31,530	30,520	31,440	32,900	34,070



EXISTING INTERSECTION ANALYSIS

HCM 6th TWSC

1a. Existing 2024 AM

1: SR 53 (Winder Hwy)/SR 53/ SR 211 (Winder Hwy) & SR 211 (Tanners Mill Rd)

03/15/2024

Intersection						
Int Delay, s/veh	6.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑↑
Traffic Vol, veh/h	8	318	554	1	131	374
Future Vol, veh/h	8	318	554	1	131	374
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	80	-	225	395	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	25	2	5	10	4	8
Mvmt Flow	8	328	571	1	135	386
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1034	571	0	0	571	0
Stage 1	571	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Critical Hdwy	6.975	6.23	-	-	4.16	-
Critical Hdwy Stg 1	5.775	-	-	-	-	-
Critical Hdwy Stg 2	6.175	-	-	-	-	-
Follow-up Hdwy	3.7375	3.319	-	-	2.238	-
Pot Cap-1 Maneuver	212	519	-	-	988	-
Stage 1	511	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	183	519	-	-	988	-
Mov Cap-2 Maneuver	183	-	-	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	23.2	0	2.4			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	183	519	988	-
HCM Lane V/C Ratio	-	-	0.045	0.632	0.137	-
HCM Control Delay (s)	-	-	25.6	23.1	9.2	-
HCM Lane LOS	-	-	D	C	A	-
HCM 95th %tile Q(veh)	-	-	0.1	4.4	0.5	-

HCM 6th TWSC
2: Benefield Rd & SR 211 (Tanners Mill Rd)

1a. Existing 2024 AM
03/15/2024

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	114	10	36	301	15	23
Future Vol, veh/h	114	10	36	301	15	23
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	121	11	38	320	16	24
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	132	0	523	127
Stage 1	-	-	-	-	127	-
Stage 2	-	-	-	-	396	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1453	-	514	923
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	680	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1453	-	498	923
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	658	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.8	10.5			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	690	-	-	1453	-	
HCM Lane V/C Ratio	0.059	-	-	0.026	-	
HCM Control Delay (s)	10.5	-	-	7.5	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

HCM 6th TWSC

3: SR 53 (Winder Hwy) & Benefield Rd

1a. Existing 2024 AM
03/15/2024

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	342	584	17	43	7
Future Vol, veh/h	2	342	584	17	43	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	7	5	2	2	2
Mvmt Flow	2	364	621	18	46	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	639	0	-	0	998 630
Stage 1	-	-	-	-	630 -
Stage 2	-	-	-	-	368 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	945	-	-	-	270 482
Stage 1	-	-	-	-	531 -
Stage 2	-	-	-	-	700 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	945	-	-	-	269 482
Mov Cap-2 Maneuver	-	-	-	-	269 -
Stage 1	-	-	-	-	529 -
Stage 2	-	-	-	-	700 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	945	-	-	-	287
HCM Lane V/C Ratio	0.002	-	-	-	0.185
HCM Control Delay (s)	8.8	0	-	-	20.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7

HCM 6th TWSC

1b. Exisitng 2024 PM

1: SR 53 (Winder Hwy)/SR 53/ SR 211 (Winder Hwy) & SR 211 (Tanners Mill Rd)

03/15/2024

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑↑
Traffic Vol, veh/h	2	200	476	7	332	665
Future Vol, veh/h	2	200	476	7	332	665
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	80	-	225	395	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	3
Mvmt Flow	2	217	517	8	361	723
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1601	517	0	0	517	0
Stage 1	517	-	-	-	-	-
Stage 2	1084	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	106	557	-	-	1047	-
Stage 1	598	-	-	-	-	-
Stage 2	287	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	69	557	-	-	1047	-
Mov Cap-2 Maneuver	69	-	-	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	188	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	15.9	0	3.4			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	69	557	1047	-
HCM Lane V/C Ratio	-	-	0.032	0.39	0.345	-
HCM Control Delay (s)	-	-	58.9	15.5	10.2	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	0.1	1.8	1.6	-

HCM 6th TWSC
2: Benefield Rd & SR 211 (Tanners Mill Rd)

1b. Exisitng 2024 PM
03/15/2024

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	305	10	40	196	10	33
Future Vol, veh/h	305	10	40	196	10	33
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	324	11	43	209	11	35
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	335	0	625	330
Stage 1	-	-	-	-	330	-
Stage 2	-	-	-	-	295	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1224	-	449	712
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	755	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1224	-	431	712
Mov Cap-2 Maneuver	-	-	-	-	431	-
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	725	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1.4	11.3			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	618	-	-	1224	-	
HCM Lane V/C Ratio	0.074	-	-	0.035	-	
HCM Control Delay (s)	11.3	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

HCM 6th TWSC

3: SR 53 (Winder Hwy) & Benefield Rd

1b. Existing 2024 PM
03/15/2024

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	8	674	465	43	39	1
Future Vol, veh/h	8	674	465	43	39	1
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	94	94	94	94	94	94
Heavy Vehicles, %	2	3	5	2	3	2
Mvmt Flow	9	717	495	46	41	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	541	0	-	0	1253 518
Stage 1	-	-	-	-	518 -
Stage 2	-	-	-	-	735 -
Critical Hdwy	4.12	-	-	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.218	-	-	-	3.527 3.318
Pot Cap-1 Maneuver	1028	-	-	-	189 558
Stage 1	-	-	-	-	596 -
Stage 2	-	-	-	-	473 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1028	-	-	-	186 558
Mov Cap-2 Maneuver	-	-	-	-	186 -
Stage 1	-	-	-	-	587 -
Stage 2	-	-	-	-	473 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	29.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1028	-	-	-	189
HCM Lane V/C Ratio	0.008	-	-	-	0.225
HCM Control Delay (s)	8.5	0	-	-	29.5
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.8

**FUTURE "NO-BUILD" INTERSECTION
ANALYSIS**

HCM 6th TWSC

2a. No Build 2026 AM

1: SR 53 (Winder Hwy)/SR 53/ SR 211 (Winder Hwy) & SR 211 (Tanners Mill Rd)

03/15/2024

Intersection						
Int Delay, s/veh	6.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑↑
Traffic Vol, veh/h	8	331	576	1	136	389
Future Vol, veh/h	8	331	576	1	136	389
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	80	-	225	395	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	25	2	5	10	4	8
Mvmt Flow	8	341	594	1	140	401
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1075	594	0	0	594	0
Stage 1	594	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Critical Hdwy	6.975	6.23	-	-	4.16	-
Critical Hdwy Stg 1	5.775	-	-	-	-	-
Critical Hdwy Stg 2	6.175	-	-	-	-	-
Follow-up Hdwy	3.7375	3.319	-	-	2.238	-
Pot Cap-1 Maneuver	199	504	-	-	968	-
Stage 1	498	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	170	504	-	-	968	-
Mov Cap-2 Maneuver	170	-	-	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	25.8	0	2.4			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	170	504	968	-
HCM Lane V/C Ratio	-	-	0.049	0.677	0.145	-
HCM Control Delay (s)	-	-	27.3	25.8	9.3	-
HCM Lane LOS	-	-	D	D	A	-
HCM 95th %tile Q(veh)	-	-	0.2	5	0.5	-

HCM 6th TWSC
2: Benefield Rd & SR 211 (Tanners Mill Rd)

2a. No Build 2026 AM
03/15/2024

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	119	10	37	313	16	24
Future Vol, veh/h	119	10	37	313	16	24
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	11	39	333	17	26

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	138	0	544	133
Stage 1	-	-	-	-	133	-
Stage 2	-	-	-	-	411	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1446	-	500	916
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	669	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1446	-	484	916
Mov Cap-2 Maneuver	-	-	-	-	484	-
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	647	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	675	-	-	1446	-
HCM Lane V/C Ratio	0.063	-	-	0.027	-
HCM Control Delay (s)	10.7	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 6th TWSC

3: SR 53 (Winder Hwy) & Benefield Rd

2a. No Build 2026 AM
03/15/2024

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	356	607	18	45	7
Future Vol, veh/h	2	356	607	18	45	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	7	5	2	2	2
Mvmt Flow	2	379	646	19	48	7
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	665	0	-	0	1039	656
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	383	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	924	-	-	-	255	465
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	924	-	-	-	254	465
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	514	-
Stage 2	-	-	-	-	689	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	21.7			
HCM LOS						C
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	924	-	-	-	271	
HCM Lane V/C Ratio	0.002	-	-	-	0.204	
HCM Control Delay (s)	8.9	0	-	-	21.7	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0	-	-	-	0.7	

HCM 6th TWSC

2b. No Build 2026 PM

1: SR 53 (Winder Hwy)/SR 53/ SR 211 (Winder Hwy) & SR 211 (Tanners Mill Rd)

03/15/2024

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑↑
Traffic Vol, veh/h	2	208	495	7	345	692
Future Vol, veh/h	2	208	495	7	345	692
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	80	-	225	395	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	3
Mvmt Flow	2	226	538	8	375	752
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1664	538	0	0	538	0
Stage 1	538	-	-	-	-	-
Stage 2	1126	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	97	542	-	-	1028	-
Stage 1	584	-	-	-	-	-
Stage 2	272	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	62	542	-	-	1028	-
Mov Cap-2 Maneuver	62	-	-	-	-	-
Stage 1	584	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	16.8	0	3.5			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	62	542	1028	-
HCM Lane V/C Ratio	-	-	0.035	0.417	0.365	-
HCM Control Delay (s)	-	-	65.2	16.3	10.5	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	0.1	2	1.7	-

HCM 6th TWSC
2: Benefield Rd & SR 211 (Tanners Mill Rd)

2b. No Build 2026 PM
03/15/2024

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	317	10	42	204	10	34
Future Vol, veh/h	317	10	42	204	10	34
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	337	11	45	217	11	36

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	348	0	650
Stage 1	-	-	-	-	343
Stage 2	-	-	-	-	307
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1211	-	434
Stage 1	-	-	-	-	719
Stage 2	-	-	-	-	746
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1211	-	416
Mov Cap-2 Maneuver	-	-	-	-	416
Stage 1	-	-	-	-	719
Stage 2	-	-	-	-	715

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	606	-	-	1211	-
HCM Lane V/C Ratio	0.077	-	-	0.037	-
HCM Control Delay (s)	11.4	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 6th TWSC
3: SR 53 (Winder Hwy) & Benefield Rd

2b. No Build 2026 PM
03/15/2024

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	8	701	484	45	41	1
Future Vol, veh/h	8	701	484	45	41	1
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	94	94	94	94	94	94
Heavy Vehicles, %	2	3	5	2	3	2
Mvmt Flow	9	746	515	48	44	1
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	563	0	-	0	1303	539
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	764	-
Critical Hdwy	4.12	-	-	-	6.43	6.22
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.218	-	-	-	3.527	3.318
Pot Cap-1 Maneuver	1008	-	-	-	176	542
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	458	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1008	-	-	-	173	542
Mov Cap-2 Maneuver	-	-	-	-	173	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	458	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	32.3			
HCM LOS			D			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1008	-	-	-	176	
HCM Lane V/C Ratio	0.008	-	-	-	0.254	
HCM Control Delay (s)	8.6	0	-	-	32.3	
HCM Lane LOS	A	A	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	1	

FUTURE "BUILD" INTERSECTION ANALYSIS

HCM 6th TWSC

3a. Future Build 2026 AM

1: SR 53 (Winder Hwy)/SR 53/ SR 211 (Winder Hwy) & SR 211 (Tanners Mill Rd)

03/15/2024

Intersection						
Int Delay, s/veh	9.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑↑
Traffic Vol, veh/h	8	387	576	1	155	389
Future Vol, veh/h	8	387	576	1	155	389
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	80	-	225	395	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	25	2	5	10	4	8
Mvmt Flow	8	399	594	1	160	401
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1115	594	0	0	594	0
Stage 1	594	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Critical Hdwy	6.975	6.23	-	-	4.16	-
Critical Hdwy Stg 1	5.775	-	-	-	-	-
Critical Hdwy Stg 2	6.175	-	-	-	-	-
Follow-up Hdwy	3.7375	3.319	-	-	2.238	-
Pot Cap-1 Maneuver	187	504	-	-	968	-
Stage 1	498	-	-	-	-	-
Stage 2	510	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	156	504	-	-	968	-
Mov Cap-2 Maneuver	156	-	-	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	34	0	2.7			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	156	504	968	-
HCM Lane V/C Ratio	-	-	0.053	0.792	0.165	-
HCM Control Delay (s)	-	-	29.4	34.1	9.5	-
HCM Lane LOS	-	-	D	D	A	-
HCM 95th %tile Q(veh)	-	-	0.2	7.3	0.6	-

HCM 6th TWSC
2: Benefield Rd & SR 211 (Tanners Mill Rd)

3a. Future Build 2026 AM
03/15/2024

Intersection						
Int Delay, s/veh	2.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	119	29	42	313	72	38
Future Vol, veh/h	119	29	42	313	72	38
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	31	45	333	77	40
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	158	0	566	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	423	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1422	-	486	905
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	661	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1422	-	467	905
Mov Cap-2 Maneuver	-	-	-	-	467	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	635	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.9	13.1			
HCM LOS						B
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	561	-	-	1422	-	
HCM Lane V/C Ratio	0.209	-	-	0.031	-	
HCM Control Delay (s)	13.1	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-	

HCM 6th TWSC
3: SR 53 (Winder Hwy) & Benefield Rd

3a. Future Build 2026 AM
03/15/2024

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	356	607	42	115	7
Future Vol, veh/h	2	356	607	42	115	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	7	5	2	2	2
Mvmt Flow	2	379	646	45	122	7
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	691	0	-	0	1052	669
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	383	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	904	-	-	-	251	458
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	904	-	-	-	250	458
Mov Cap-2 Maneuver	-	-	-	-	250	-
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	689	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	32.5			
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	904	-	-	-	257	
HCM Lane V/C Ratio	0.002	-	-	-	0.505	
HCM Control Delay (s)	9	0	-	-	32.5	
HCM Lane LOS	A	A	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	2.6	

HCM 6th TWSC

4: Benefield Rd & Site Drwy 1

3a. Future Build 2026 AM
03/15/2024

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	17	6	75	60	12
Future Vol, veh/h	35	17	6	75	60	12
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	-	-	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	18	7	82	65	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	161	65	78	0	0	
Stage 1	65	-	-	-	-	
Stage 2	96	-	-	-	-	
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	830	999	1520	-	-	
Stage 1	958	-	-	-	-	
Stage 2	928	-	-	-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	826	999	1520	-	-	
Mov Cap-2 Maneuver	826	-	-	-	-	
Stage 1	953	-	-	-	-	
Stage 2	928	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	0.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1520	-	876	-	-	
HCM Lane V/C Ratio	0.004	-	0.065	-	-	
HCM Control Delay (s)	7.4	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th TWSC

5: Benefield Rd & Site Drwy 2

3a. Future Build 2026 AM

03/15/2024

Intersection						
Int Delay, s/veh	4.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	52	18	26	69	12
Future Vol, veh/h	35	52	18	26	69	12
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	-	235	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	57	20	28	75	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	143	75	88	0	0	
Stage 1	75	-	-	-	-	
Stage 2	68	-	-	-	-	
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	850	986	1508	-	-	
Stage 1	948	-	-	-	-	
Stage 2	955	-	-	-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	839	986	1508	-	-	
Mov Cap-2 Maneuver	839	-	-	-	-	
Stage 1	936	-	-	-	-	
Stage 2	955	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1508	-	921	-	-	
HCM Lane V/C Ratio	0.013	-	0.103	-	-	
HCM Control Delay (s)	7.4	-	9.4	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.3	-	-	

HCM 6th TWSC

3b. Future Build 2026 PM

1: SR 53 (Winder Hwy)/SR 53/ SR 211 (Winder Hwy) & SR 211 (Tanners Mill Rd)

03/15/2024

Intersection						
Int Delay, s/veh	4.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑↑
Traffic Vol, veh/h	2	245	495	7	405	692
Future Vol, veh/h	2	245	495	7	405	692
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	80	-	225	395	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	3
Mvmt Flow	2	266	538	8	440	752
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1794	538	0	0	538	0
Stage 1	538	-	-	-	-	-
Stage 2	1256	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	80	542	-	-	1028	-
Stage 1	584	-	-	-	-	-
Stage 2	232	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	46	542	-	-	1028	-
Mov Cap-2 Maneuver	46	-	-	-	-	-
Stage 1	584	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	18.5	0	4.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	46	542	1028	-
HCM Lane V/C Ratio	-	-	0.047	0.491	0.428	-
HCM Control Delay (s)	-	-	87.1	17.9	11.1	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	0.1	2.7	2.2	-

HCM 6th TWSC
2: Benefield Rd & SR 211 (Tanners Mill Rd)

3b. Future Build 2026 PM
03/15/2024

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	317	70	57	204	47	43
Future Vol, veh/h	317	70	57	204	47	43
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	337	74	61	217	50	46
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	411	0	713	374
Stage 1	-	-	-	-	374	-
Stage 2	-	-	-	-	339	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1148	-	398	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1148	-	374	672
Mov Cap-2 Maneuver	-	-	-	-	374	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	679	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1.8	14.5			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	475	-	-	1148	-	
HCM Lane V/C Ratio	0.202	-	-	0.053	-	
HCM Control Delay (s)	14.5	-	-	8.3	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.7	-	-	0.2	-	

HCM 6th TWSC
3: SR 53 (Winder Hwy) & Benefield Rd

3b. Future Build 2026 PM
03/15/2024

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	8	701	484	121	88	1
Future Vol, veh/h	8	701	484	121	88	1
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	94	94	94	94	94	94
Heavy Vehicles, %	2	3	5	2	3	2
Mvmt Flow	9	746	515	129	94	1
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	644	0	-	0	1344	580
Stage 1	-	-	-	-	580	-
Stage 2	-	-	-	-	764	-
Critical Hdwy	4.12	-	-	-	6.43	6.22
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.218	-	-	-	3.527	3.318
Pot Cap-1 Maneuver	941	-	-	-	166	514
Stage 1	-	-	-	-	558	-
Stage 2	-	-	-	-	458	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	941	-	-	-	163	514
Mov Cap-2 Maneuver	-	-	-	-	163	-
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	458	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	53.3			
HCM LOS			F			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	941	-	-	-	164	
HCM Lane V/C Ratio	0.009	-	-	-	0.577	
HCM Control Delay (s)	8.9	0	-	-	53.3	
HCM Lane LOS	A	A	-	-	F	
HCM 95th %tile Q(veh)	0	-	-	-	3	

HCM 6th TWSC

4: Benefield Rd & Site Drwy 1

3b. Future Build 2026 PM
03/15/2024

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	12	19	68	90	38
Future Vol, veh/h	23	12	19	68	90	38
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	-	-	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	13	21	74	98	41

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	214	98	139	0	-	0
Stage 1	98	-	-	-	-	-
Stage 2	116	-	-	-	-	-
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	774	958	1445	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	909	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	762	958	1445	-	-	-
Mov Cap-2 Maneuver	762	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	909	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1445	-	819	-	-
HCM Lane V/C Ratio	0.014	-	0.046	-	-
HCM Control Delay (s)	7.5	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC

5: Benefield Rd & Site Drwy 2

3b. Future Build 2026 PM
03/15/2024

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	35	57	72	54	38
Future Vol, veh/h	23	35	57	72	54	38
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	-	235	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	38	62	78	59	41
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	261	59	100	0	0	
Stage 1	59	-	-	-	-	
Stage 2	202	-	-	-	-	
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	728	1007	1493	-	-	
Stage 1	964	-	-	-	-	
Stage 2	832	-	-	-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	697	1007	1493	-	-	
Mov Cap-2 Maneuver	697	-	-	-	-	
Stage 1	924	-	-	-	-	
Stage 2	832	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s	9.5	3.3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1493	-	856	-	-	
HCM Lane V/C Ratio	0.041	-	0.074	-	-	
HCM Control Delay (s)	7.5	-	9.5	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-	

HCM 6th TWSC
3: SR 53 (Winder Hwy) & Benefield Rd

4a. Future Build 2026 AM (Improved)
03/15/2024

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕	↕	↕	↕
Traffic Vol, veh/h	2	356	607	42	115	7
Future Vol, veh/h	2	356	607	42	115	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	250	0	175
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	7	5	2	2	2
Mvmt Flow	2	379	646	45	122	7
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	691	0	-	0	1029	646
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	383	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	904	-	-	-	259	472
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	904	-	-	-	258	472
Mov Cap-2 Maneuver	-	-	-	-	258	-
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	689	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	29.9			
HCM LOS			D			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	904	-	-	-	258	472
HCM Lane V/C Ratio	0.002	-	-	-	0.474	0.016
HCM Control Delay (s)	9	0	-	-	30.9	12.7
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0	-	-	-	2.4	0

HCM 6th TWSC
3: SR 53 (Winder Hwy) & Benefield Rd

4b. Future Build 2026 PM (Improved)
03/15/2024

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕	↕	↕	↕
Traffic Vol, veh/h	8	701	484	121	88	1
Future Vol, veh/h	8	701	484	121	88	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	250	0	175
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	3	5	2	3	2
Mvmt Flow	9	746	515	129	94	1
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	644	0	-	0	1279	515
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	764	-
Critical Hdwy	4.12	-	-	-	6.43	6.22
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.218	-	-	-	3.527	3.318
Pot Cap-1 Maneuver	941	-	-	-	182	560
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	458	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	941	-	-	-	179	560
Mov Cap-2 Maneuver	-	-	-	-	179	-
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	458	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	44.9			
HCM LOS			E			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	941	-	-	-	179	560
HCM Lane V/C Ratio	0.009	-	-	-	0.523	0.002
HCM Control Delay (s)	8.9	0	-	-	45.3	11.4
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	0	-	-	-	2.6	0

T R A F F I C V O L U M E W O R K S H E E T S

24-027 4370 Benefield Road Residential Development - Hall County, GA - TIS
Traffic Volumes

A&R Engineering
 March 2024

1. SR 53 @ SR 211
A.M. Peak Hour

Condition	SR 53 (Winder Highway)			SR 53/ SR 211 (Winder Highway)			-			SR 211 (Tanners Mill Road)						
	Northbound			Southbound			Eastbound			Westbound						
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot				
Existing 2024 Traffic Counts:	0	554	1	555	131	374	0	505	0	0	0	0	8	0	318	326
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2026 Volumes:	0	576	1	577	136	389	0	525	0	0	0	0	8	0	331	339
Total New Trips:	0	0	0	0	19	0	0	19	0	0	0	0	0	0	0	56
Future 2026 Traffic Volumes:	0	576	1	577	155	389	0	544	0	0	0	0	8	0	387	395

P.M. Peak Hour

Condition	SR 53 (Winder Highway)			SR 53/ SR 211 (Winder Highway)			-			SR 211 (Tanners Mill Road)						
	Northbound			Southbound			Eastbound			Westbound						
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot				
Existing 2024 Traffic Counts:	0	476	7	483	332	665	0	997	0	0	0	0	2	0	200	202
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2026 Volumes:	0	495	7	502	345	692	0	1037	0	0	0	0	2	0	208	210
Total New Trips:	0	0	0	0	60	0	0	60	0	0	0	0	0	0	37	37
Future 2026 Traffic Volumes:	0	495	7	502	405	692	0	1097	0	0	0	0	2	0	245	247

24-027 4370 Benefield Road Residential Development - Hall County, GA - TIS
Traffic Volumes

A&R Engineering
 March 2024

2. SR 211 @ Benefield Rd
A.M. Peak Hour

Condition	Benefield Road Northbound			-			Southbound			SR 211 (Tanners Mill Road) Eastbound			SR 211 (Tanners Mill Road) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
	Existing 2024 Traffic Counts:	15	0	23	38	0	0	0	0	0	114	10	124	36	301	0
Growth Factor (%):	2	2	2	40	2	2	2	0	0	2	2	129	2	2	2	5
No-Build 2026 Volumes:	16	0	24	40	0	0	0	0	0	119	10	129	37	313	0	350
Total New Trips:	56	0	14	70	0	0	0	0	0	0	19	19	5	0	0	5
Future 2026 Traffic Volumes:	72	0	38	110	0	0	0	0	0	119	29	148	42	313	0	355

P.M. Peak Hour

Condition	Benefield Road Northbound			-			Southbound			SR 211 (Tanners Mill Road) Eastbound			SR 211 (Tanners Mill Road) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
	Existing 2024 Traffic Counts:	10	0	33	43	0	0	0	0	0	305	10	315	40	196	0
Growth Factor (%):	2	2	2	44	2	2	2	0	0	2	2	327	2	2	2	246
No-Build 2026 Volumes:	10	0	34	44	0	0	0	0	0	317	10	327	42	204	0	246
Total New Trips:	37	0	9	46	0	0	0	0	0	0	60	60	15	0	0	15
Future 2026 Traffic Volumes:	47	0	43	90	0	0	0	0	0	317	70	387	57	204	0	261

24-027 4370 Benefield Road Residential Development - Hall County, GA - TIS
Traffic Volumes

A&R Engineering
 March 2024

3. SR 53 @ Benefield Rd
A.M. Peak Hour

Condition	Northbound			Benefield Road Southbound			SR 53 (Winder Highway) Eastbound			SR 53 (Winder Highway) Westbound					
	L	T	R	L	T	R	L	T	R	L	T	R	Tot		
	Tot			Tot			Tot			Tot					
Existing 2024 Traffic Counts:	0	0	0	43	0	7	2	342	0	344	0	584	17	601	
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
No-Build 2026 Volumes:	0	0	0	45	0	7	2	356	0	358	0	607	18	625	
Total New Trips:	0	0	0	70	0	0	70	0	0	0	0	0	0	24	
Future 2026 Traffic Volumes:	0	0	0	115	0	7	122	2	356	0	358	0	607	42	649

P.M. Peak Hour

Condition	Northbound			Benefield Road Southbound			SR 53 (Winder Highway) Eastbound			SR 53 (Winder Highway) Westbound				
	L	T	R	L	T	R	L	T	R	L	T	R	Tot	
	Tot			Tot			Tot			Tot				
Existing 2024 Traffic Counts:	0	0	0	39	0	1	8	674	0	682	0	465	43	508
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2026 Volumes:	0	0	0	41	0	1	8	701	0	709	0	484	45	529
Total New Trips:	0	0	0	47	0	0	47	0	0	0	0	0	0	76
Future 2026 Traffic Volumes:	0	0	0	88	0	1	8	701	0	709	0	484	121	605

24-027 4370 Benefield Road Residential Development - Hall County, GA - TIS
Traffic Volumes

A&R Engineering
 March 2024

4. Benefield Rd @ Site Drwy 1

A.M. Peak Hour

Condition	Benefield Road Northbound			Benefield Road Southbound			Site Driveway 1 Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
	Tot			Tot			Tot			Tot		
Existing 2024 Traffic Counts:	0	38	0	0	46	0	0	0	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2026 Volumes:	0	40	0	0	48	0	0	0	0	0	0	0
Total New Trips:	6	35	0	0	12	12	24	35	0	17	52	0
Future 2026 Traffic Volumes:	6	75	0	0	60	12	72	35	0	17	52	0

P.M. Peak Hour

Condition	Benefield Road Northbound			Benefield Road Southbound			Site Driveway 1 Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
	Tot			Tot			Tot			Tot		
Existing 2024 Traffic Counts:	0	43	0	0	50	0	0	0	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2026 Volumes:	0	45	0	0	52	0	52	0	0	0	0	0
Total New Trips:	19	23	0	0	38	38	76	23	0	12	35	0
Future 2026 Traffic Volumes:	19	68	0	0	90	38	128	23	0	12	35	0

24-027 4370 Benefield Road Residential Development - Hall County, GA - TIS
 Traffic Volumes

A&R Engineering
 March 2024

5. Benefield Rd @ Site Drwy 2

A.M. Peak Hour

Condition	Benefield Road Northbound			Benefield Road Southbound			Site Driveway 2 Eastbound			Westbound			
	L	T	R	L	T	R	L	T	R	L	T	R	
	Tot			Tot			Tot			Tot			
Existing 2024 Traffic Counts:	0	19	0	19	0	0	0	50	0	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2026 Volumes:	0	20	0	20	0	0	0	52	0	0	0	0	0
Total New Trips:	18	6	0	24	0	17	12	29	35	0	52	87	0
Future 2026 Traffic Volumes:	18	26	0	44	0	69	12	81	35	0	52	87	0

P.M. Peak Hour

Condition	Benefield Road Northbound			Benefield Road Southbound			Site Driveway 2 Eastbound			Westbound			
	L	T	R	L	T	R	L	T	R	L	T	R	
	Tot			Tot			Tot			Tot			
Existing 2024 Traffic Counts:	0	51	0	51	0	40	0	40	0	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2	2
No-Build 2026 Volumes:	0	53	0	53	0	42	0	42	0	0	0	0	0
Total New Trips:	57	19	0	76	0	12	38	50	23	0	35	58	0
Future 2026 Traffic Volumes:	57	72	0	129	0	54	38	92	23	0	35	58	0