

**TRAFFIC IMPACT STUDY
FOR
THE MANOR AT SPRING HILLS RESIDENTIAL
DEVELOPMENT
AT UNION CHURCH ROAD
HALL COUNTY, GEORGIA**



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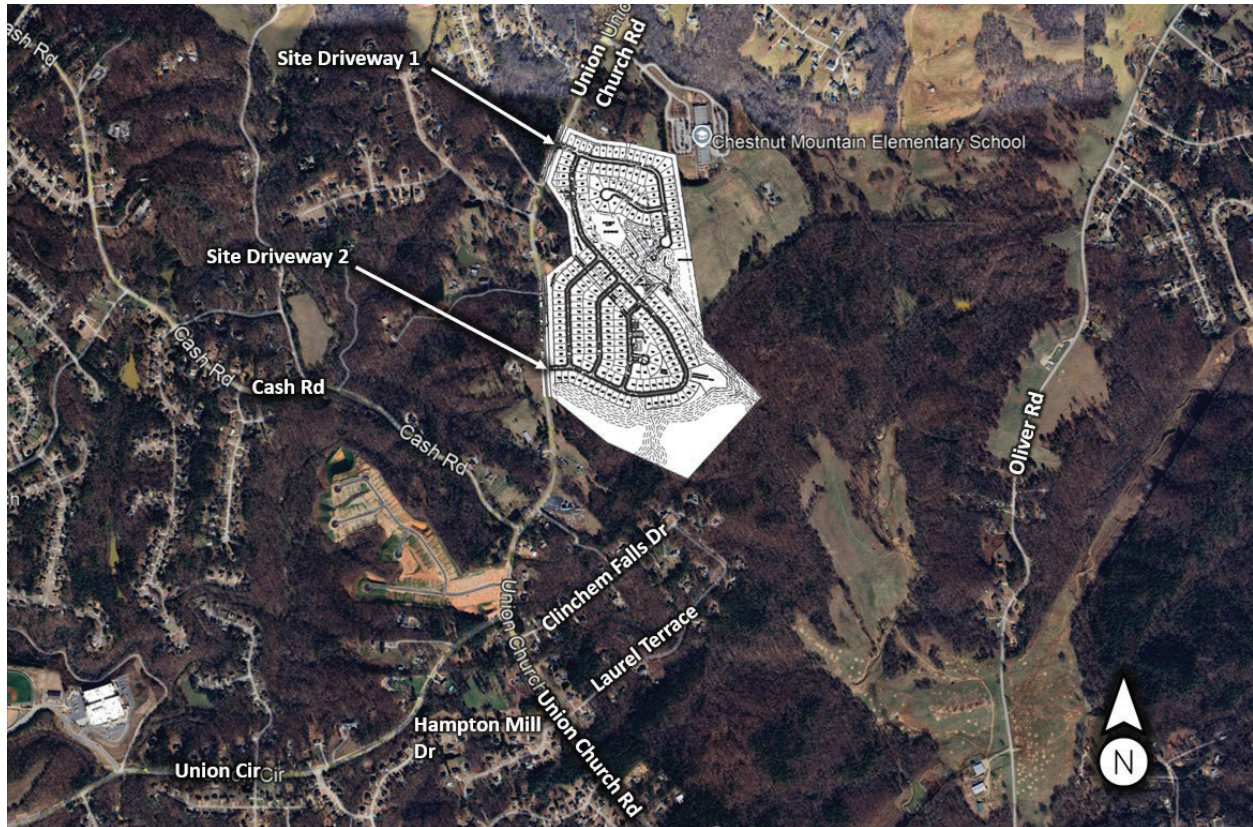
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1.0 INTRODUCTION

The purpose of this study is to determine the traffic impact from the proposed The Manor at Springs Hills residential development that will be located on Union Church Road, Hall County, Georgia. The traffic analysis evaluates the current operations and future conditions with the traffic generated by the development. The development will consist of 206 single-family detached residential homes.

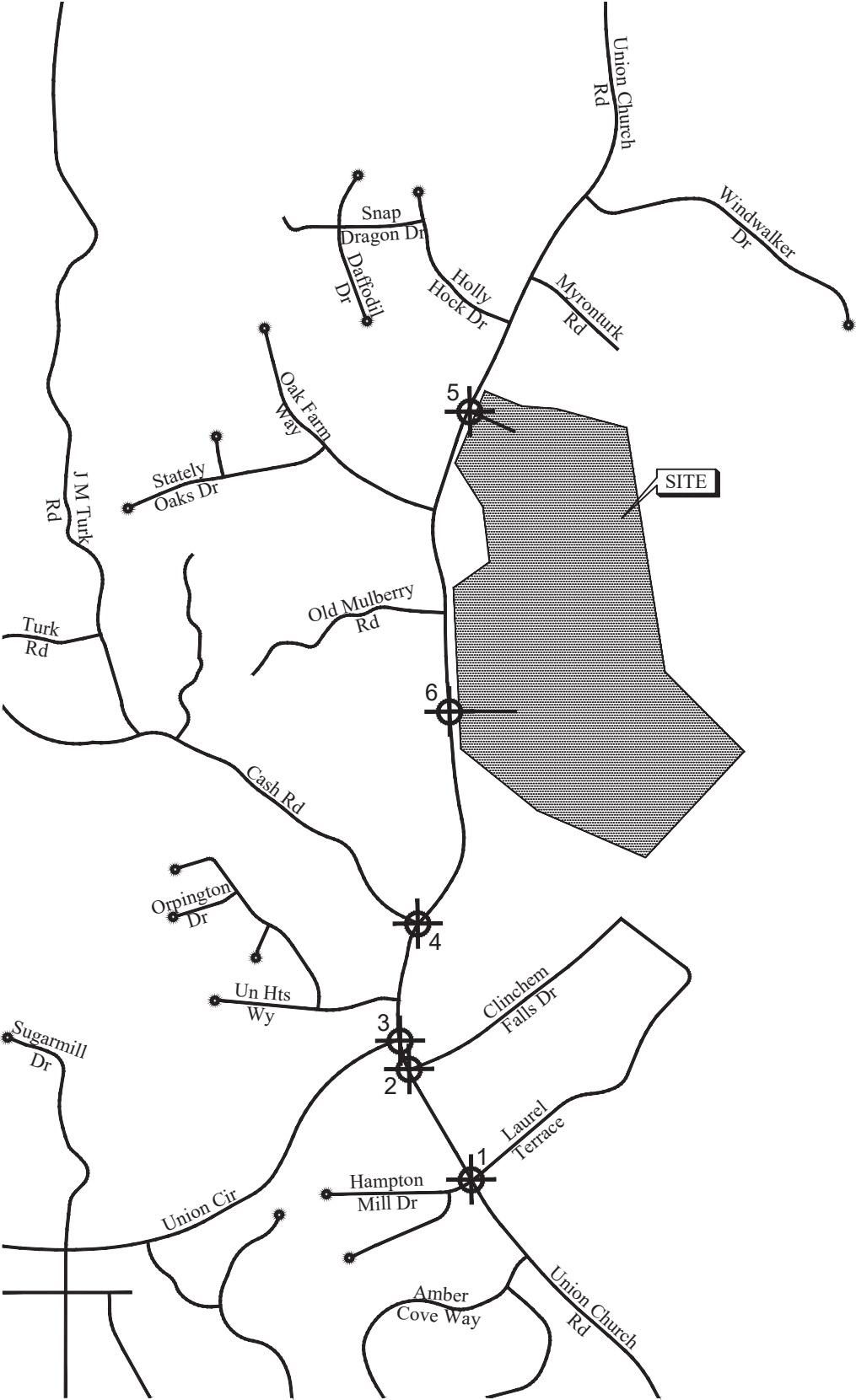
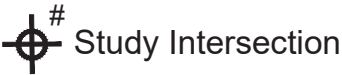


The development proposes access at the following locations:

- Site Driveway 1: Full access driveway on Union Church Road north of Oak Farm Way
- Site Driveway 2: Full access driveway on Union Church Road south of Old Mulberry Road

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

- Union Church Road at Hampton Mill Drive/Laurel Terrace
- Union Church Road at Clinchem Falls Drive
- Union Church Road at Union Circle
- Union Church Road at Cash Road



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 *Union Church Road*

Union Church Road is a north-south, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station ID: 139-7386) indicate that the daily traffic volume on Union Church Road in 2023 was 4,220 vehicles per day north of Windwalker Drive. Union Church Road is classified as an urban major collector roadway.

2.1.2 *Hampton Mill Drive*

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

2.1.3 *Laurel Terrace*

Laurel Terrace is an east-west, two-lane, un-divided roadway with a posted speed limit of 30 mph in the vicinity of the site.

2.1.4 *Clinchem Falls Drive*

Clinchem Falls Drive is an east-west, two-lane, un-divided roadway with a posted speed limit of 30 mph in the vicinity of the site.

2.1.5 *Union Circle*

Union Circle is an east-west, two-lane, un-divided roadway with a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station ID: 139-8206) indicate that the daily traffic volume on Union Circle in 2023 was 4,590 vehicles per day west of Sugar Mill Drive. Union Circle is classified as an urban minor collector roadway.

2.1.6 *Cash Road*

Cash Road is an east-west, two-lane, un-divided roadway with a posted speed limit of 40 mph in the vicinity of the site. GDOT traffic counts (Station ID: 139-0779) indicate that the daily traffic volume on Cash Road in 2023 was 3,200 vehicles per day southeast of Sunny Ridge Court. Cash Road is classified as an urban major collector roadway.

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 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, 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.

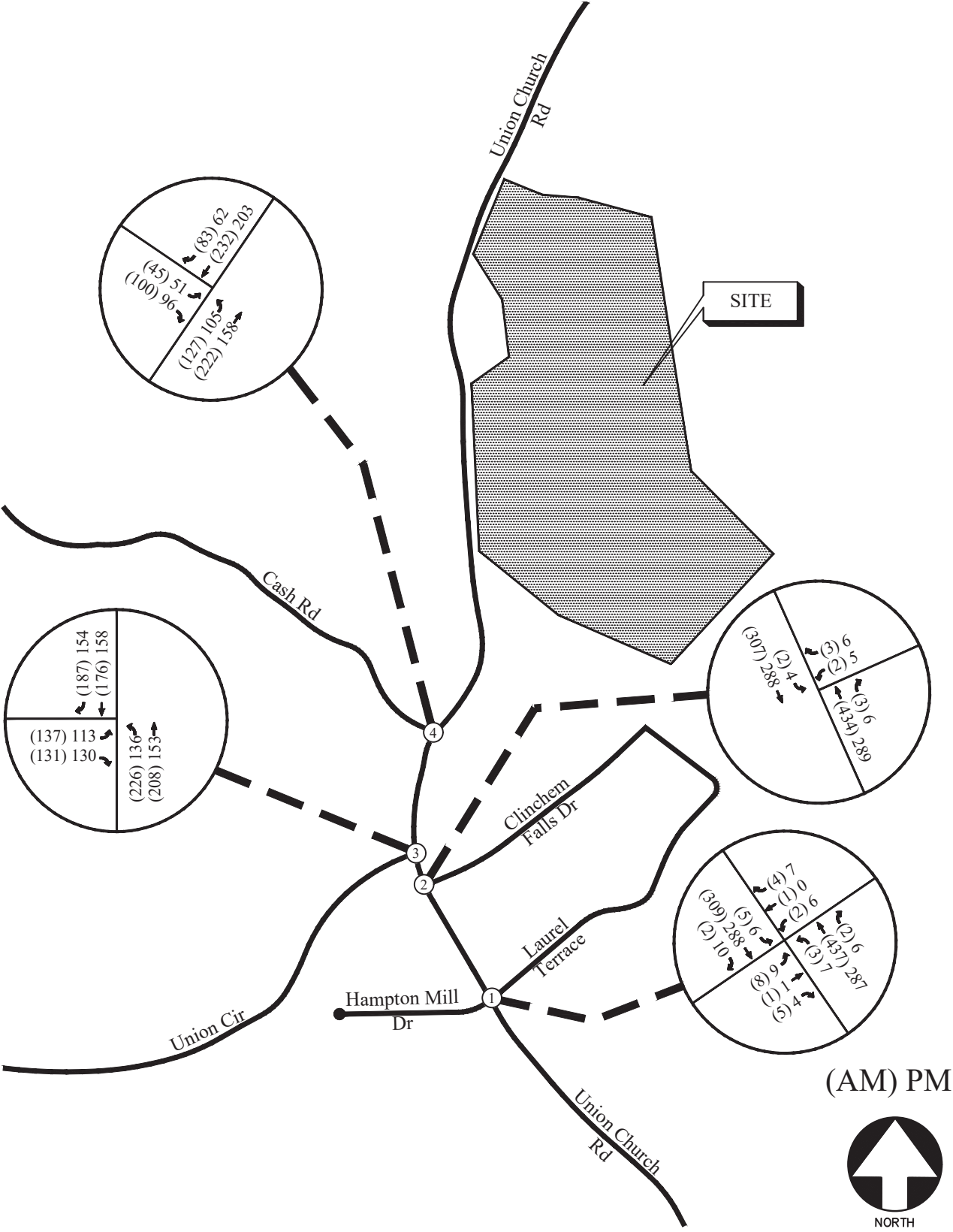
4.0 EXISTING 2024 TRAFFIC ANALYSIS

4.1 Existing Traffic Volumes

Existing traffic counts were obtained at the following study intersections:

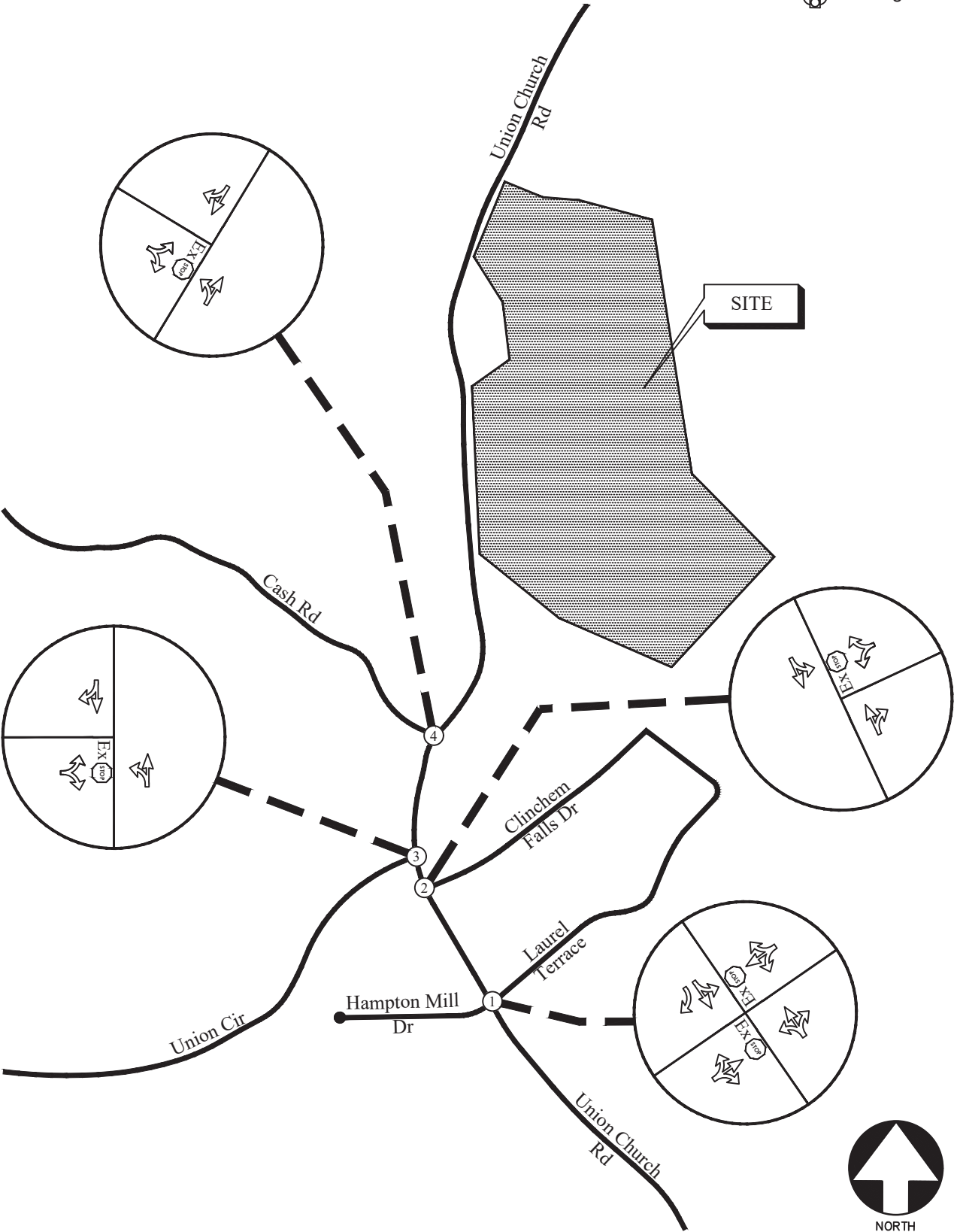
- Union Church Road at Hampton Mill Drive/Laurel Terrace
- Union Church Road at Clinchem Falls Drive
- Union Church Road at Union Circle
- Union Church Road at Cash Road

Turning movement counts were collected on Tuesday, November 12, 2024. All turning movement counts were recorded during the AM and PM peak hours between 7:00am to 9:00am and 4:00pm to 6:00pm, 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
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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 Hour	PM Peak Hour
1	<u>Union Church Rd @ Hampton Mill Dr/ Laurel Terrace</u> -Eastbound Approach -Westbound Approach -Northbound Left -Southbound Left	Stop Controlled on EB and WB Approaches	C (15.1) B (13.8) A (7.9) A (8.3)	B (13.5) B (12.3) A (7.9) A (7.9)
2	<u>Union Church Rd @ Clinchem Falls Dr</u> - Westbound Approach - Southbound Left	Stop Controlled on WB Approach	B (12.7) A (8.3)	B (11.7) A (7.9)
3	<u>Union Church Rd @ Union Cir</u> -Eastbound Approach -Northbound Left	Stop Controlled on EB Approach	F (72.0) A (8.9)	C (18.5) A (8.3)
4	<u>Union Church Rd @ Cash Rd</u> -Eastbound Approach -Northbound Left	Stop Controlled on EB Approach	C (15.6) A (8.4)	B (13.1) A (8.1)

The results of the existing traffic operations analysis indicate that the stop-controlled approaches at all the unsignalized study intersection are operating at a level of service “C” in both the AM and PM peak hours except the Union Circle eastbound stop-controlled approach at Union Church Road which is operating at level of service “F” in Am peak hour.

5.0 PROPOSED DEVELOPMENT

The Manor at Springs Hills residential development that will be located to the east of Union Church Road north of Cash Road, Hall County, Georgia. The development will consist of 206 single-family detached residential homes.



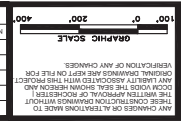
The development proposes access at the following locations:

- Site Driveway 1: Full access driveway on Union Church Road north of Oak Farm Way
- Site Driveway 2: Full access driveway on Union Church Road south of Old Mulberry Road

A site plan is shown in Figure 4.

RE-ZONING PLAN
FOR
THE MANOR AT SPRING HILLS
PHASE 1 & 2
HALL COUNTY, GEORGIA
G.M.D. 392
LOCATED IN

NO.	DATE	DESCRIPTION



OWNER:
THE ESTATE OF BRYSON TURK
5031 UNION CHURCH ROAD
FLOWERY BRANCH, GA 30542

DEVELOPER:
CRAWFORD CREEK COMMUNITIES, INC.
400 NORTHDRIDGE ROAD
SUITE 235
ATLANTA, GA 30350
(404) 623-7272

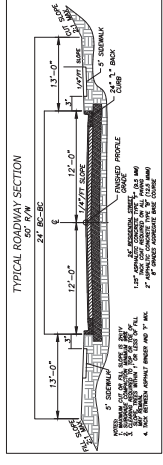
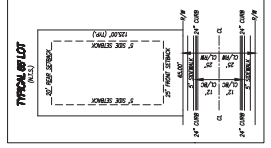
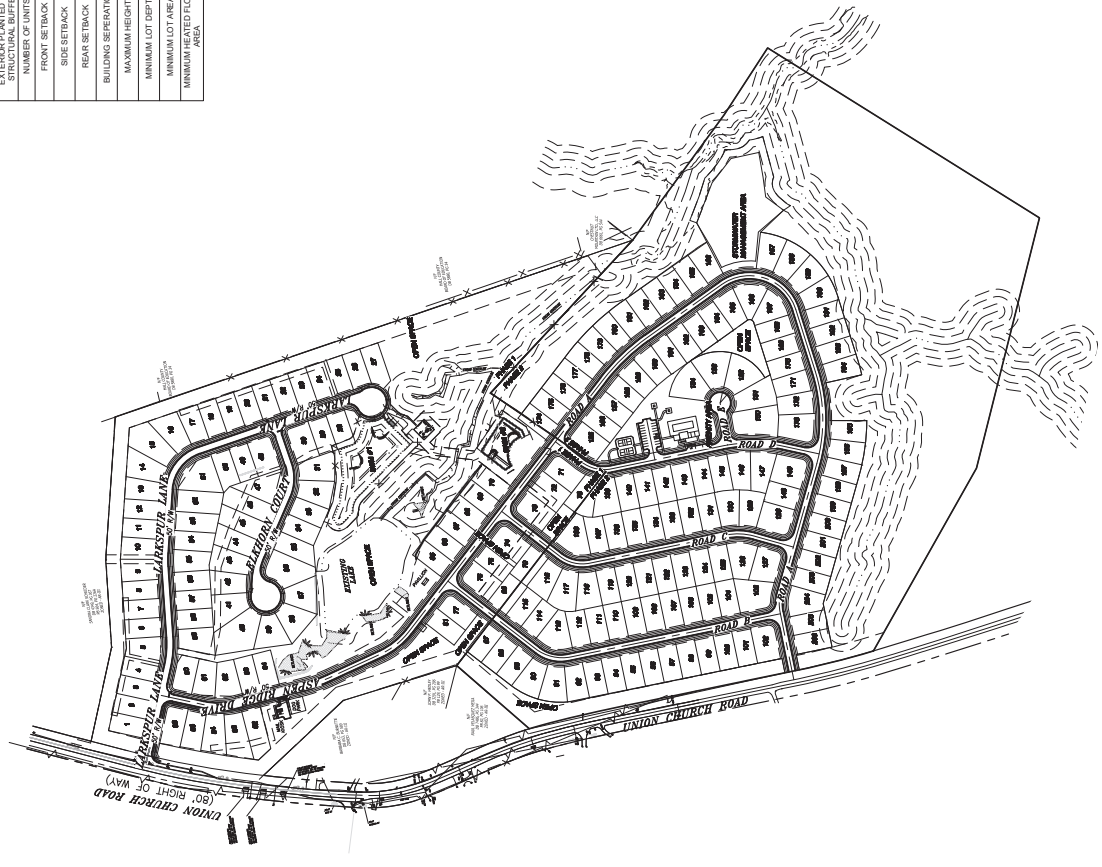
SURVEY CONTACT:
ROCHESTER & ASSOCIATES, LLC.
JEREMY HRYDRYCH, P.E.
JHRYDRYCH@DCCM.COM
(770) 716-0600

SURVEY CONTACT:
ROCHESTER & ASSOCIATES, LLC.
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24 HR CONTACT:
MR. TYLER SHOUP
(302) 540-5998

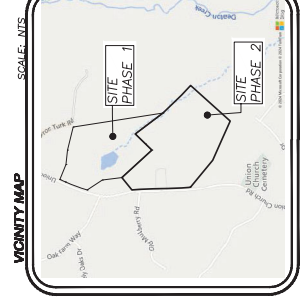
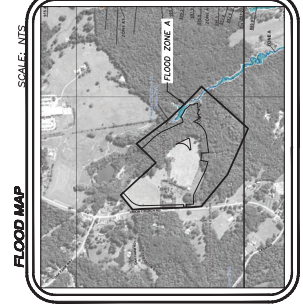
SITE DATA	
EXISTING ZONING	AR-30
PROPOSED ZONING	PHD (PLANNED RESIDENTIAL DEVELOPMENT)
PARCEL NUMBER	15038 00029
SITE AREA	61.79 ACRES
OPEN SPACE	2737 ACRES +/-
EXTENSION PLANTED OR STOCKED PLANTER	507
NUMBER OF UNITS	128
FRONT SETBACK	25'
SIDE SETBACK	5'
REAR SETBACK	20'
BUILDING SEPARATION	10' FOUNDATION TO FOUNDATION
MAXIMUM HEIGHT	35'
MINIMUM LOT DEPTH	125'
MINIMUM LOT AREA	8,125'
MINIMUM HEATED FLOOR AREA	1,800'

LOT COUNT	
PHASE 1 ORIGINAL COUNT	86 LOTS (148)
PHASE 1 NEW COUNT	83 LOTS (147, 8148)
PHASE 2 COUNT	123 LOTS (1640, 87211)
TOTAL	209 LOTS



NOTE: THIS RE-ZONING IS A REQUEST OF THE CONTINUATION OF, THE MANOR AT SPRINGHILLS RESIDENTIAL SUBDIVISION. THIS PARCEL 15038 00029 IS IS THE ADJOINING SOUTHERN PROPERTY TO PARCEL 15038 000162 THAT WAS RE-ZONED ON JANUARY 6TH, 2009 AND IS OWNED BY THE SAME GROUP, THE ESTATE OF BRYSON TURK.

PHASE 2 OF THIS PROPERTY IS LOCATED IN A FLOOD HAZARD ZONE PER F.E.M.A FLOOD INSURANCE RATE MAP OF HALL COUNTY, GEORGIA, COMMUNITY PANEL NO.1313900311G, EFFECTIVE 12/01/2022.



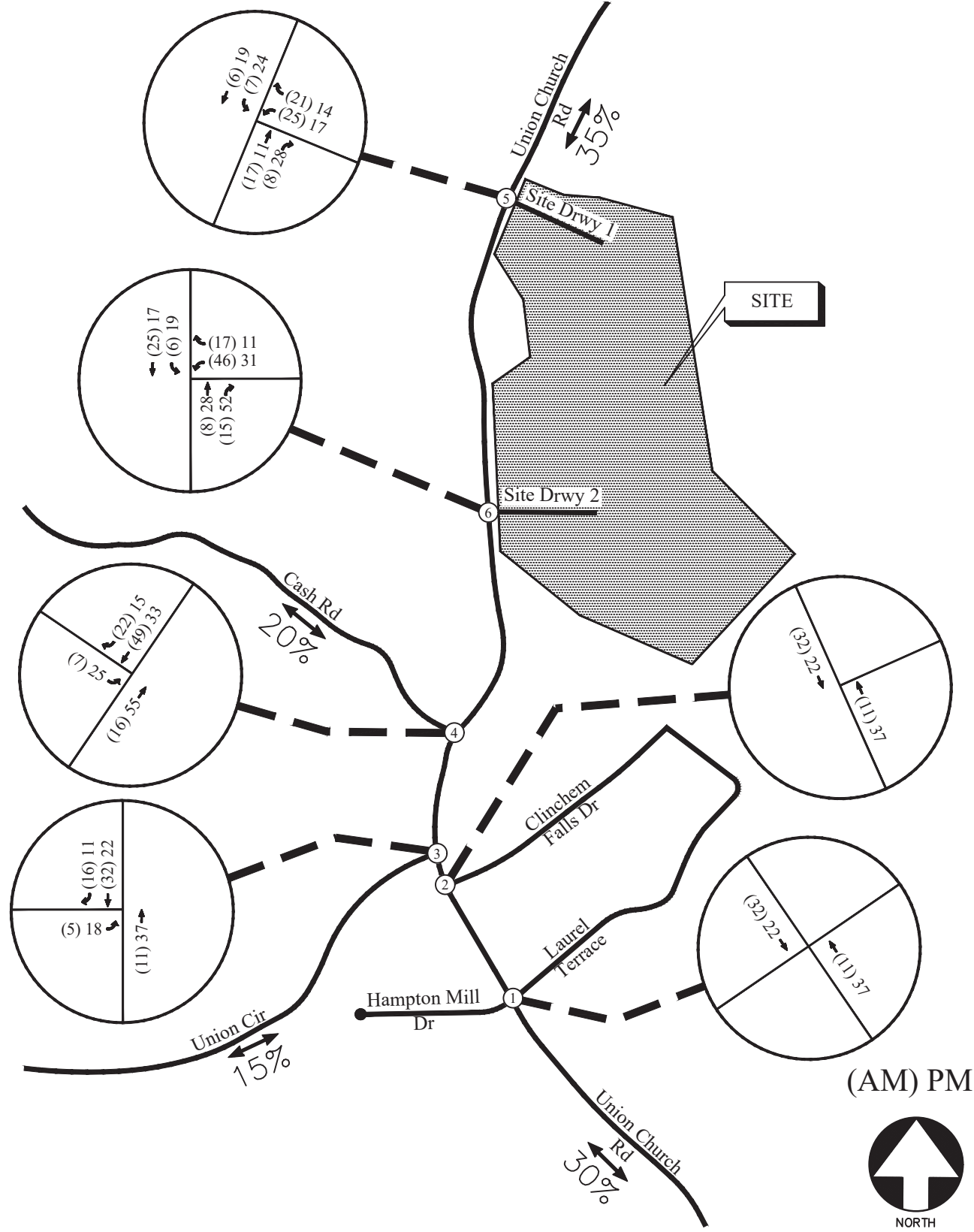
5.1 Trip Generation

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 following ITE land use: *210 – Single-Family Detached 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	206 units	36	108	144	123	73	196	1,962

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 NEW SITE-GENERATED
WEEKDAY PEAK HOUR VOLUMES

FIGURE 5
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6.0 FUTURE 2027 TRAFFIC ANALYSIS

The future 2027 traffic operations are analyzed for the “Build” and “No-Build” conditions.

6.1 Future “No-Build” Conditions

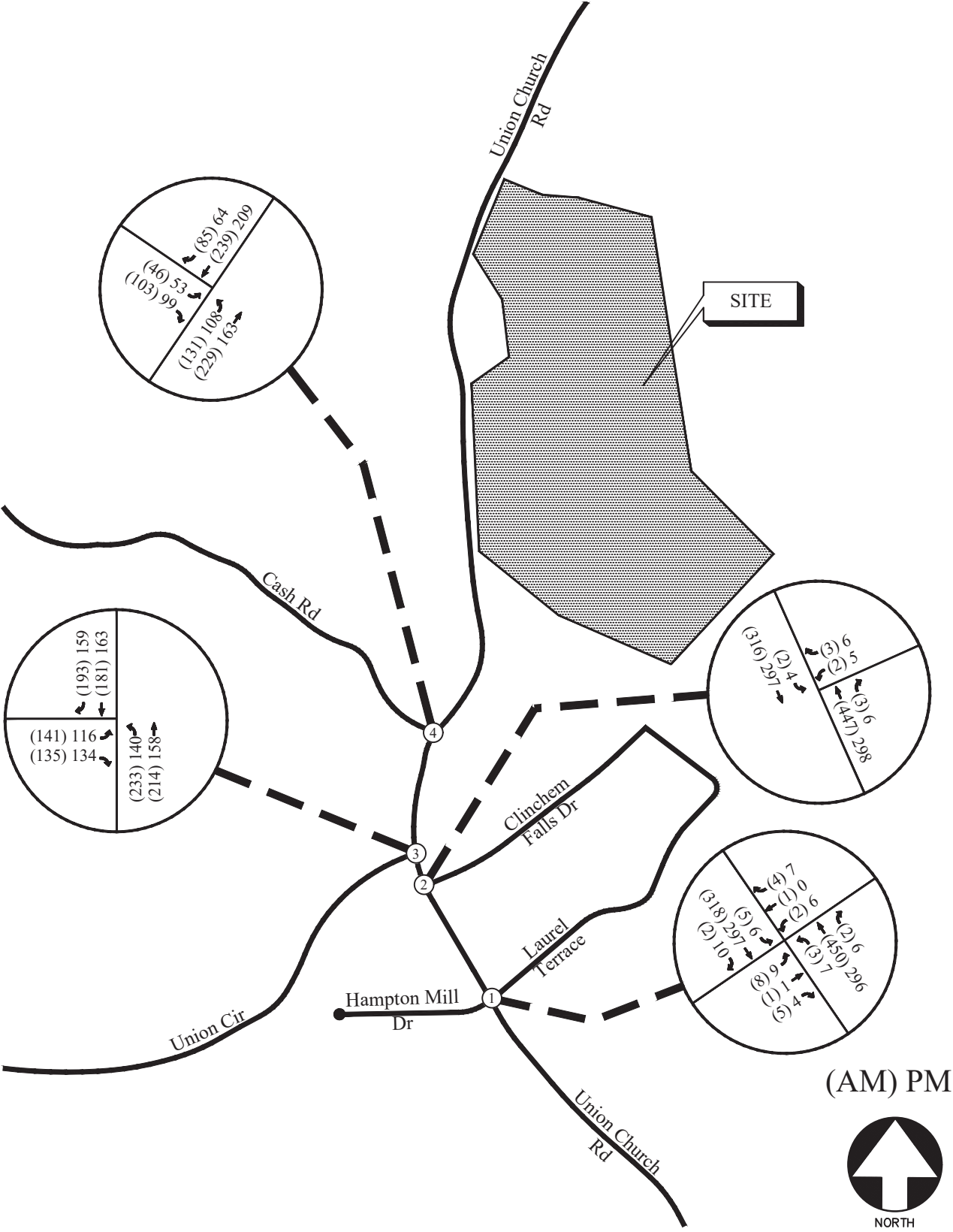
The “No-Build” (or background) conditions provide an assessment of how traffic will operate in the study horizon year without the study site being developed as proposed, with projected increases in through traffic volumes due to normal annual growth. The future “No-Build” volumes consist of the existing 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 (2018-2019 & 2021-2023) revealed a traffic volume increase 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 6.

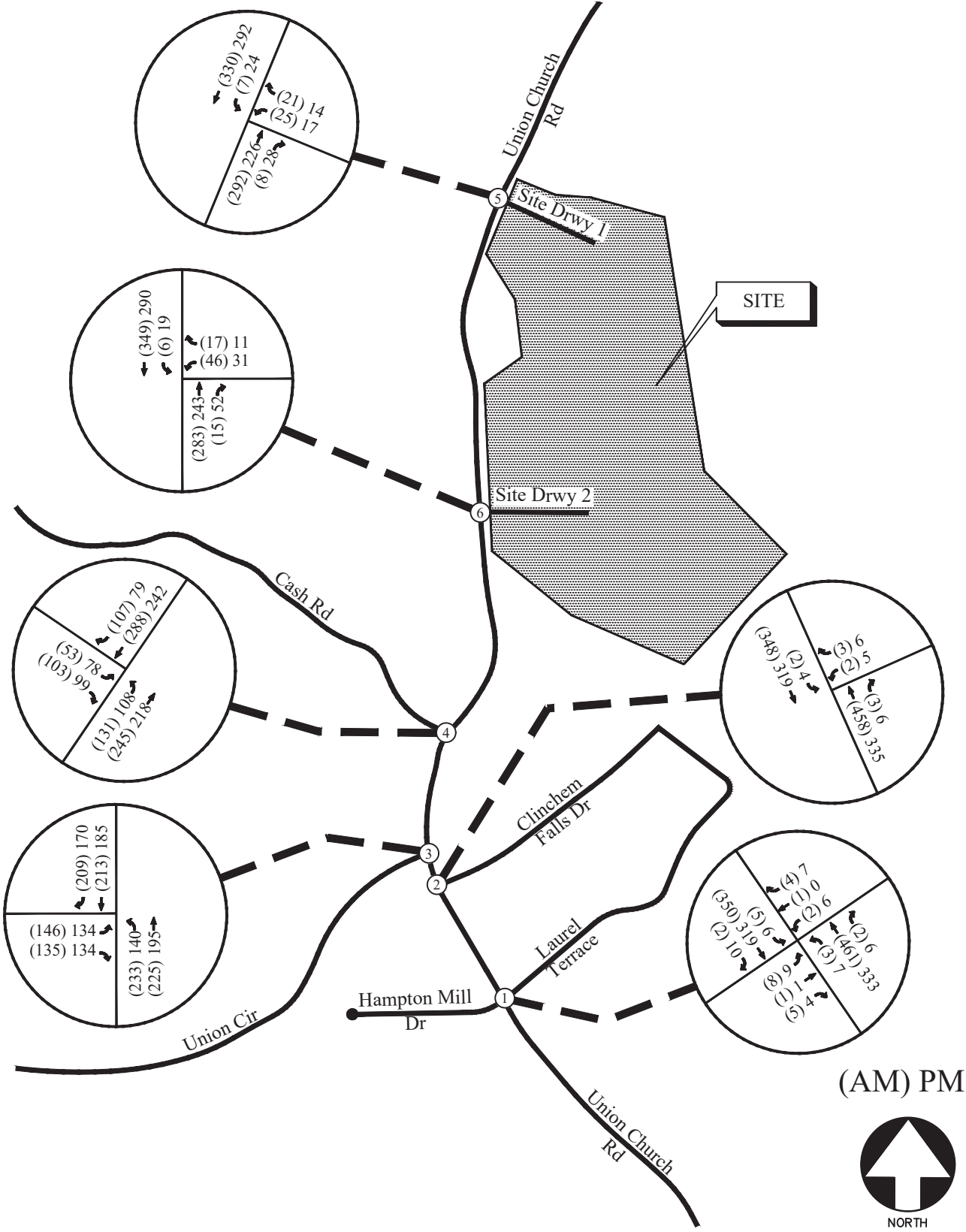
6.2 Future “Build” Conditions

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
A&R Engineering Inc.



FUTURE (BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 7
A&R Engineering Inc.

6.3 Auxiliary Lane Analysis

Included below are analyses for turn lanes at the proposed site driveway per GDOT standards. According to the projected ITE site trip generation, the 24-hour two-way volume for traffic entering and exiting the site is 1,962 vehicles.

6.3.1 Left Turn Lane Analysis

For a two-lane roadway with an AADT lesser than 6,000 vehicles with 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. The projected left turn volumes per day at the site driveways are shown in Table 5 below.

Intersection	Left Turn Traffic (% total entering)	Left Turn Volume (vehicles/day)	Roadway Speed / # Lanes / ADT	GDOT Threshold (vehicles/ day)	Warrants Met?
Union Church Road @ Site Driveway 1	19% (southbound)	186 $(\text{Total Trips}) \div 2 \times 0.19 =$ $(1,962) \div 2 \times 0.19 = 186$	45 mph / 2-Lane / < 6,000	250	No
Union Church Road @ Site Driveway 2	16% (southbound)	157 $(\text{Total Trips}) \div 2 \times 0.16 =$ $(1,962) \div 2 \times 0.16 = 157$	45 mph / 2-Lane / < 6,000	250	No

A left turn lane is not warranted at both the site driveways on Union Church Road as per GDOT standards.

6.3.2 Deceleration Turn Lane Analysis

For two-lane roadways with an AADT lesser than 6,000 vehicles with 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. The projected right turn volumes per day for each driveway is included in Table 6.

Intersection	Right Turn Traffic (% total entering)	Right Turn Volume (vehicles/day)	Roadway Speed / # Lanes / ADT	GDOT Threshold (vehicles/day)	Warrants Met?
Union Church Road @ Site Driveway 1	23% (northbound)	226 $(\text{Total Trips}) \div 2 \times 0.23 =$ $(1,962) \div 2 \times 0.23 = 226$	45 mph / 2-Lane / < 6,000	150	Yes
Union Church Road @ Site Driveway 2	42% (northbound)	412 $(\text{Total Trips}) \div 2 \times 0.42 =$ $(1,962) \div 2 \times 0.42 = 412$	45 mph / 2-Lane / < 6,000	150	Yes

A right turn lane is warranted at both the site driveways on Union Church Road as per GDOT standards.

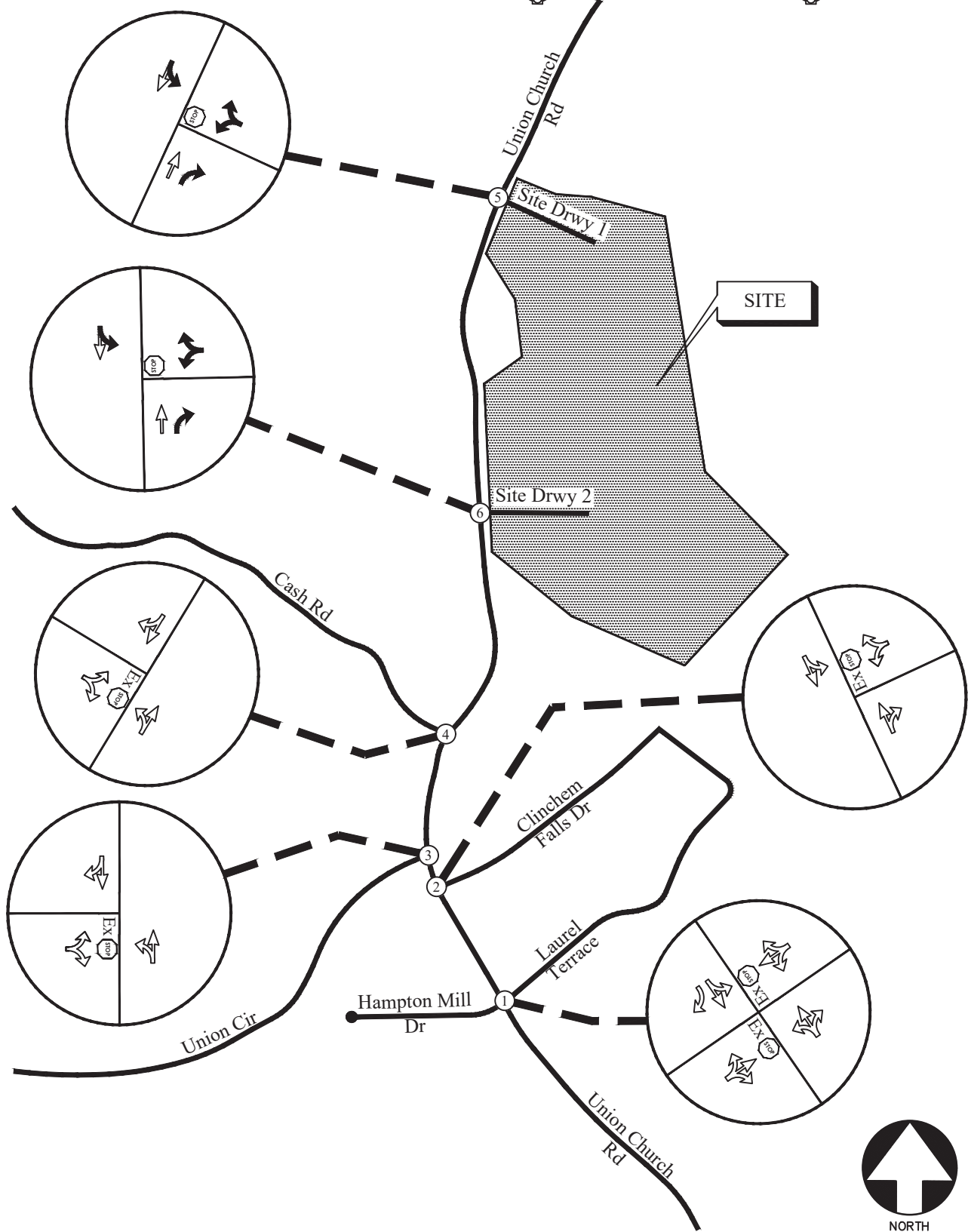
6.4 Future Traffic Operations

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	
		AM Peak	PM Peak	AM Peak	PM Peak
1	<u>Union Church Rd @ Hampton Mill Dr/ Laurel Terrace</u>				
	-Eastbound Approach	C (15.4)	B (13.7)	C (16.2)	B (14.5)
	-Westbound Approach	B (14.1)	B (12.4)	B (14.5)	B (13.1)
	-Northbound Left	A (8.0)	A (7.9)	A (8.0)	A (8.0)
	-Southbound Left	A (8.3)	A (7.9)	A (8.4)	A (8.0)
2	<u>Union Church Rd @ Clinchem Falls Dr</u>				
	- Westbound Approach	B (12.9)	B (11.8)	B (13.2)	B (12.4)
	- Southbound Left	A (8.3)	A (8.0)	A (8.3)	A (8.1)
3	<u>Union Church Rd @ Union Cir</u>				
	-Eastbound Approach	F (90.5)	C (19.5)	F (101.0)	C (24.9)
	-Northbound Left	A (9.0)	A (8.3)	A (9.1)	A (8.4)
4	<u>Union Church Rd @ Cash Rd</u>				
	-Eastbound Approach	C (16.1)	B (13.5)	C (19.4)	C (16.7)
	-Northbound Left	A (8.4)	A (8.1)	A (8.7)	A (8.2)
5	<u>Union Church Rd @ Site Driveway 1</u>				
	- Westbound Approach	-	-	B (12.8)	B (11.9)
	- Southbound Left			A (7.9)	A (7.9)
6	<u>Union Church Rd @ Site Driveway 2</u>				
	- Westbound Approach	-	-	B (14.2)	B (13.0)
	- Southbound Left			A (7.9)	A (8.0)

The results of the future “No-Build” and “Build” conditions traffic analysis indicate that all stop-controlled approaches at unsignalized study intersections will continue to operate at a level of service “C” in both the AM and PM peak hours except the eastbound Union Circle approach at Union Church Road which will continue to operate at a level of service “F” in AM peak hour as in “Existing” conditions with minor increase in delays. It is not uncommon for stop-controlled side-streets on arterial roadways to experience delays during peak hours as delays are caused by side-street wait times to turn left onto the mainline.

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



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 8

A&R Engineering Inc.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for The Manor at Springs Hills proposed residential development that will be located to the east of Union Church Road north of Cash Road in Hall County, Georgia. The development will consist of 206 detached homes.

The development proposes access at the following locations:

- Site Driveway 1: Full access driveway on Union Church Road north of Oak Farm Way
- Site Driveway 2: Full access driveway on Union Church Road south of Old Mulberry Road

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

- Union Church Road at Hampton Mill Drive/Laurel Terrace
- Union Church Road at Clinchem Falls Drive
- Union Church Road at Union Circle
- Union Church Road at Cash Road
- Union Church Road at Site Driveway 1
- Union Church Road at Site driveway 2

The analysis included the evaluation of future operations for “No-Build” and “Build” conditions, both of which account for increases due to the annual growth of through traffic.

The results of the future “No-Build” and “Build” conditions traffic analysis indicate that all stop-controlled approaches at unsignalized study intersections will continue to operate at a level of service “C” in both the AM and PM peak hours except the eastbound Union Circle approach at Union Church Road which will continue to operate at a level of service “F” in AM peak hour as in “Existing” conditions with minor increase in delays. It is not uncommon for stop-controlled side-streets on arterial roadways to experience delays during peak hours as delays are caused by side-street wait times to turn left onto the mainline.

7.1 Recommendations for Site Access Configuration

The following access configuration is recommended for the proposed site driveway intersection:

- Site Driveway 1: Full access driveway on Union Church Rd
 - One entering and one exiting lane
 - Stop-sign controlled on driveway approach with Union Church Rd remaining free flow
 - Right turn lane for entering traffic
 - Provide adequate sight distance per AASHTO standards
- Site Driveway - 2: Full access driveway on Union Church Rd
 - One entering and one exiting lane
 - Stop-sign controlled on driveway approach with Union Church Rd remaining free flow
 - Right turn lane for entering traffic
 - Provide adequate sight distance per AASHTO standards

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 Suit 'O'
Marietta, GA 30067

TMC Data
Union Church Road @ Cash Road
7-9 am | 4-6 pm

File Name : 20240434
Site Code : 20240434
Start Date : 11-12-2024
Page No : 1

Groups Printed- Cars, Buses & Trucks

	Union Church Road Northbound				Union Church Road Southbound				Cash Road Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	20	83	0	103	0	42	7	49	10	0	24	34	0	0	0	0	186
07:15 AM	38	51	0	89	0	78	31	109	9	0	19	28	0	0	0	0	226
07:30 AM	39	52	0	91	0	71	19	90	11	0	27	38	0	0	0	0	219
07:45 AM	30	36	0	66	0	41	26	67	15	0	30	45	0	0	0	0	178
Total	127	222	0	349	0	232	83	315	45	0	100	145	0	0	0	0	809
08:00 AM	26	57	0	83	0	41	22	63	15	0	24	39	0	0	0	0	185
08:15 AM	12	29	0	41	0	21	9	30	13	0	15	28	0	0	0	0	99
08:30 AM	8	37	0	45	0	28	1	29	3	0	15	18	0	0	0	0	92
08:45 AM	6	33	0	39	0	26	6	32	4	0	16	20	0	0	0	0	91
Total	52	156	0	208	0	116	38	154	35	0	70	105	0	0	0	0	467
*** BREAK ***																	
04:00 PM	19	38	0	57	0	59	14	73	14	0	21	35	0	0	0	0	165
04:15 PM	18	27	0	45	0	40	6	46	12	0	30	42	0	0	0	0	133
04:30 PM	28	29	0	57	0	50	13	63	19	0	27	46	0	0	0	0	166
04:45 PM	23	50	0	73	0	48	15	63	7	0	23	30	0	0	0	0	166
Total	88	144	0	232	0	197	48	245	52	0	101	153	0	0	0	0	630
05:00 PM	25	36	0	61	0	51	14	65	12	0	30	42	0	0	0	0	168
05:15 PM	29	43	0	72	0	54	20	74	13	0	16	29	0	0	0	0	175
05:30 PM	16	26	0	42	0	52	17	69	9	0	15	24	0	0	0	0	135
05:45 PM	17	39	0	56	0	55	8	63	7	0	20	27	0	0	0	0	146
Total	87	144	0	231	0	212	59	271	41	0	81	122	0	0	0	0	624
Grand Total	354	666	0	1020	0	757	228	985	173	0	352	525	0	0	0	0	2530
Apprch %	34.7	65.3	0		0	76.9	23.1		33	0	67		0	0	0		
Total %	14	26.3	0	40.3	0	29.9	9	38.9	6.8	0	13.9	20.8	0	0	0	0	

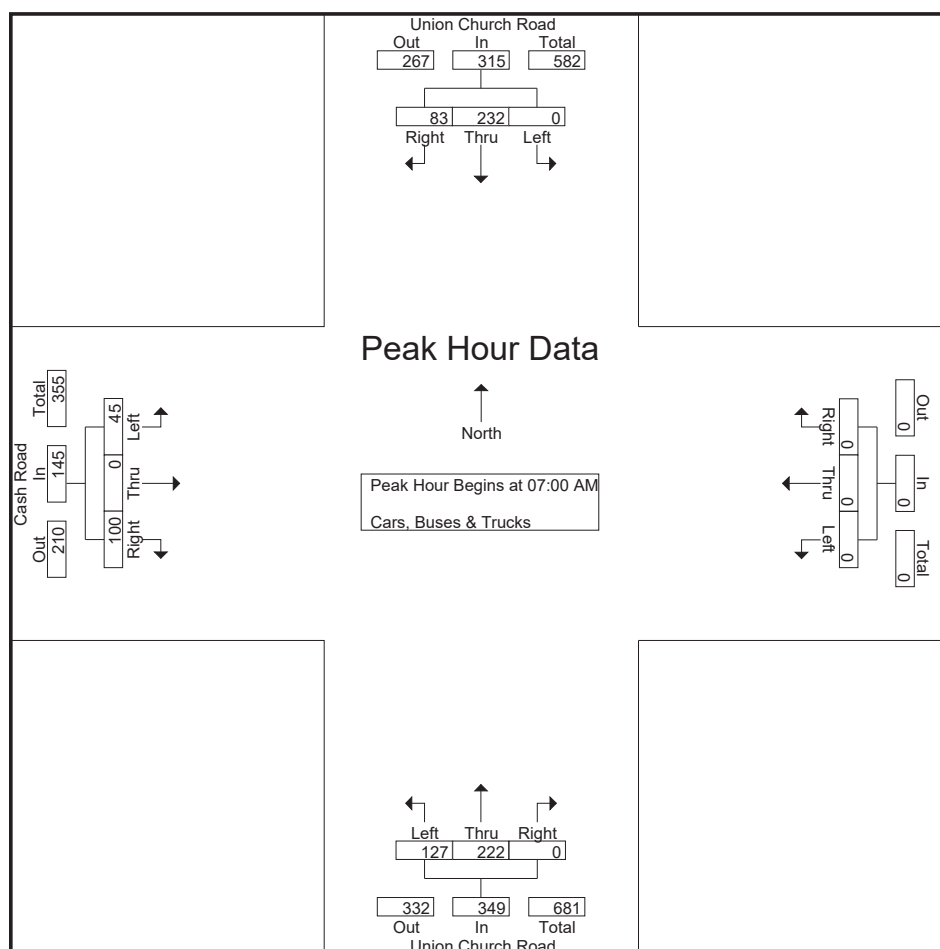
A & R Engineering, Inc.

2160 Kingston Court Suit 'O'
Marietta, GA 30067

TMC Data
Union Church Road @ Cash Road
7-9 am | 4-6 pm

File Name : 20240434
Site Code : 20240434
Start Date : 11-12-2024
Page No : 2

	Union Church Road Northbound				Union Church Road Southbound				Cash Road Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	20	83	0	103	0	42	7	49	10	0	24	34	0	0	0	0	186
07:15 AM	38	51	0	89	0	78	31	109	9	0	19	28	0	0	0	0	226
07:30 AM	39	52	0	91	0	71	19	90	11	0	27	38	0	0	0	0	219
07:45 AM	30	36	0	66	0	41	26	67	15	0	30	45	0	0	0	0	178
Total Volume	127	222	0	349	0	232	83	315	45	0	100	145	0	0	0	0	809
% App. Total	36.4	63.6	0		0	73.7	26.3		31	0	69		0	0	0		
PHF	.814	.669	.000	.847	.000	.744	.669	.722	.750	.000	.833	.806	.000	.000	.000	.000	.895



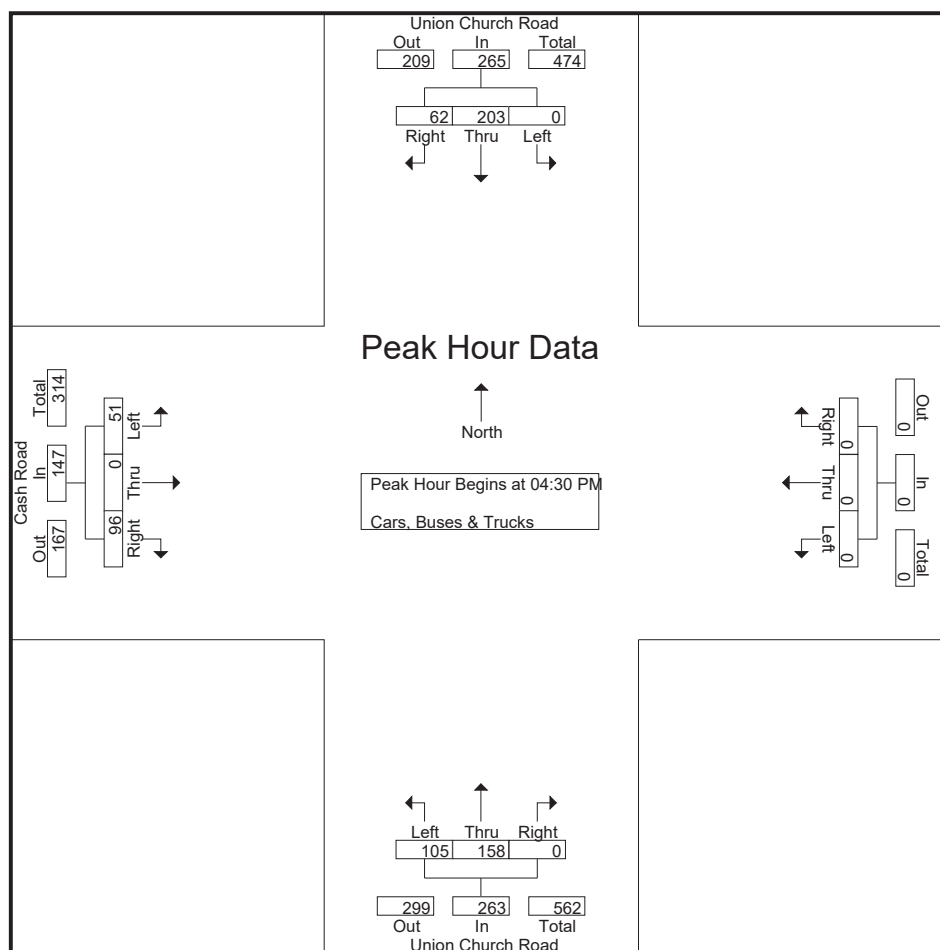
A & R Engineering, Inc.

2160 Kingston Court Suit 'O'
Marietta, GA 30067

TMC Data
 Union Church Road @ Cash Road
 7-9 am | 4-6 pm

File Name : 20240434
 Site Code : 20240434
 Start Date : 11-12-2024
 Page No : 3

	Union Church Road Northbound				Union Church Road Southbound				Cash Road Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	28	29	0	57	0	50	13	63	19	0	27	46	0	0	0	0	166
04:45 PM	23	50	0	73	0	48	15	63	7	0	23	30	0	0	0	0	166
05:00 PM	25	36	0	61	0	51	14	65	12	0	30	42	0	0	0	0	168
05:15 PM	29	43	0	72	0	54	20	74	13	0	16	29	0	0	0	0	175
Total Volume	105	158	0	263	0	203	62	265	51	0	96	147	0	0	0	0	675
% App. Total	39.9	60.1	0		0	76.6	23.4		34.7	0	65.3		0	0	0		
PHF	.905	.790	.000	.901	.000	.940	.775	.895	.671	.000	.800	.799	.000	.000	.000	.000	.964



A & R Engineering, Inc.

2160 Kingston Court Suit 'O'
Marietta, GA 30067

TMC Data
 Union Church Road @ Union Circle
 7-9 am | 4-6 pm

File Name : 20240435
 Site Code : 20240435
 Start Date : 11-12-2024
 Page No : 1

Groups Printed- Cars, Buses & Trucks

	Union Church Road Northbound				Union Church Road Southbound				Union Circle Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	17	56	0	73	0	28	16	44	54	0	15	69	0	0	0	0	186
07:15 AM	31	67	0	98	0	56	38	94	26	0	37	63	0	0	0	0	255
07:30 AM	51	60	0	111	0	50	59	109	36	0	33	69	0	0	0	0	289
07:45 AM	65	49	0	114	0	34	49	83	30	0	21	51	0	0	0	0	248
Total	164	232	0	396	0	168	162	330	146	0	106	252	0	0	0	0	978
08:00 AM	79	32	0	111	0	36	41	77	45	0	40	85	0	0	0	0	273
08:15 AM	21	24	0	45	0	23	14	37	29	0	33	62	0	0	0	0	144
08:30 AM	28	23	0	51	0	23	19	42	28	0	13	41	0	0	0	0	134
08:45 AM	17	20	0	37	0	32	17	49	15	0	15	30	0	0	0	0	116
Total	145	99	0	244	0	114	91	205	117	0	101	218	0	0	0	0	667
*** BREAK ***																	
04:00 PM	28	35	0	63	0	39	42	81	30	0	31	61	0	0	0	0	205
04:15 PM	33	24	0	57	0	34	34	68	15	0	32	47	0	0	0	0	172
04:30 PM	42	44	0	86	0	44	41	85	18	0	29	47	0	0	0	0	218
04:45 PM	30	36	0	66	0	38	40	78	31	0	42	73	0	0	0	0	217
Total	133	139	0	272	0	155	157	312	94	0	134	228	0	0	0	0	812
05:00 PM	32	37	0	69	0	36	37	73	35	0	38	73	0	0	0	0	215
05:15 PM	32	36	0	68	0	40	36	76	29	0	21	50	0	0	0	0	194
05:30 PM	27	31	0	58	0	40	35	75	20	0	33	53	0	0	0	0	186
05:45 PM	28	34	0	62	0	28	44	72	21	0	33	54	0	0	0	0	188
Total	119	138	0	257	0	144	152	296	105	0	125	230	0	0	0	0	783
Grand Total	561	608	0	1169	0	581	562	1143	462	0	466	928	0	0	0	0	3240
Apprch %	48	52	0		0	50.8	49.2		49.8	0	50.2		0	0	0		
Total %	17.3	18.8	0	36.1	0	17.9	17.3	35.3	14.3	0	14.4	28.6	0	0	0	0	

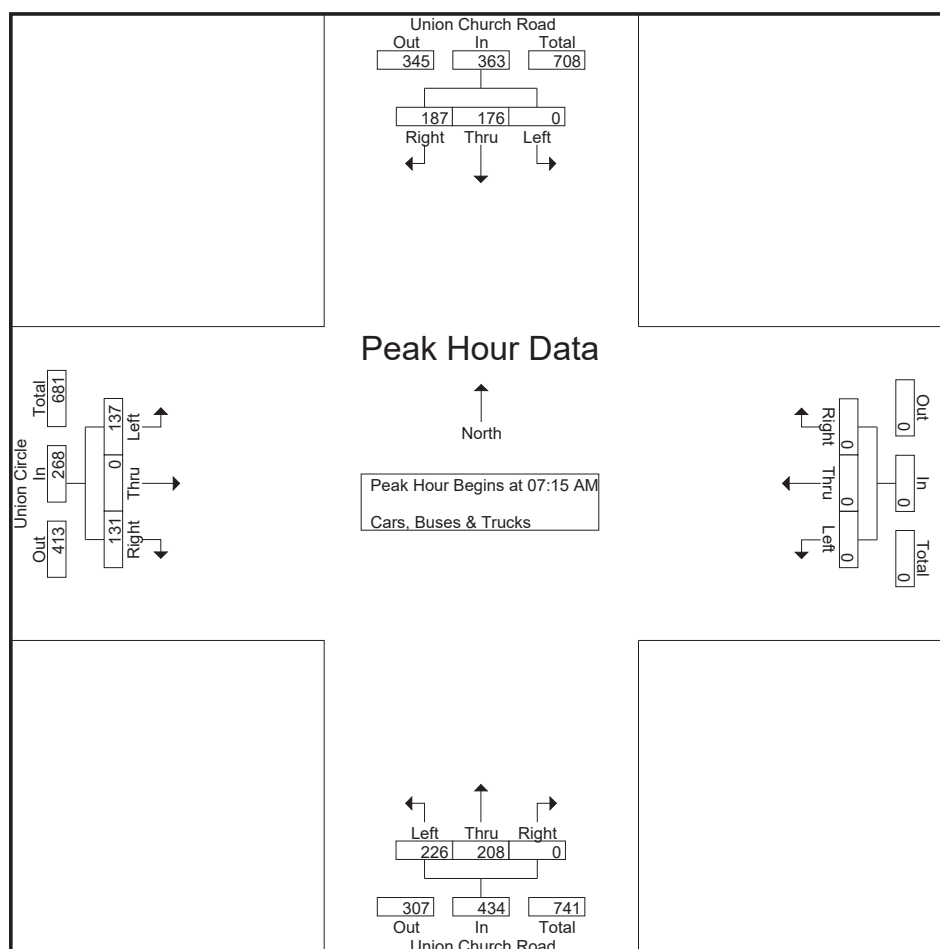
A & R Engineering, Inc.

2160 Kingston Court Suit 'O'
Marietta, GA 30067

TMC Data
 Union Church Road @ Union Circle
 7-9 am | 4-6 pm

File Name : 20240435
 Site Code : 20240435
 Start Date : 11-12-2024
 Page No : 2

	Union Church Road Northbound				Union Church Road Southbound				Union Circle Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	31	67	0	98	0	56	38	94	26	0	37	63	0	0	0	0	255
07:30 AM	51	60	0	111	0	50	59	109	36	0	33	69	0	0	0	0	289
07:45 AM	65	49	0	114	0	34	49	83	30	0	21	51	0	0	0	0	248
08:00 AM	79	32	0	111	0	36	41	77	45	0	40	85	0	0	0	0	273
Total Volume	226	208	0	434	0	176	187	363	137	0	131	268	0	0	0	0	1065
% App. Total	52.1	47.9	0		0	48.5	51.5		51.1	0	48.9		0	0	0		
PHF	.715	.776	.000	.952	.000	.786	.792	.833	.761	.000	.819	.788	.000	.000	.000	.000	.921



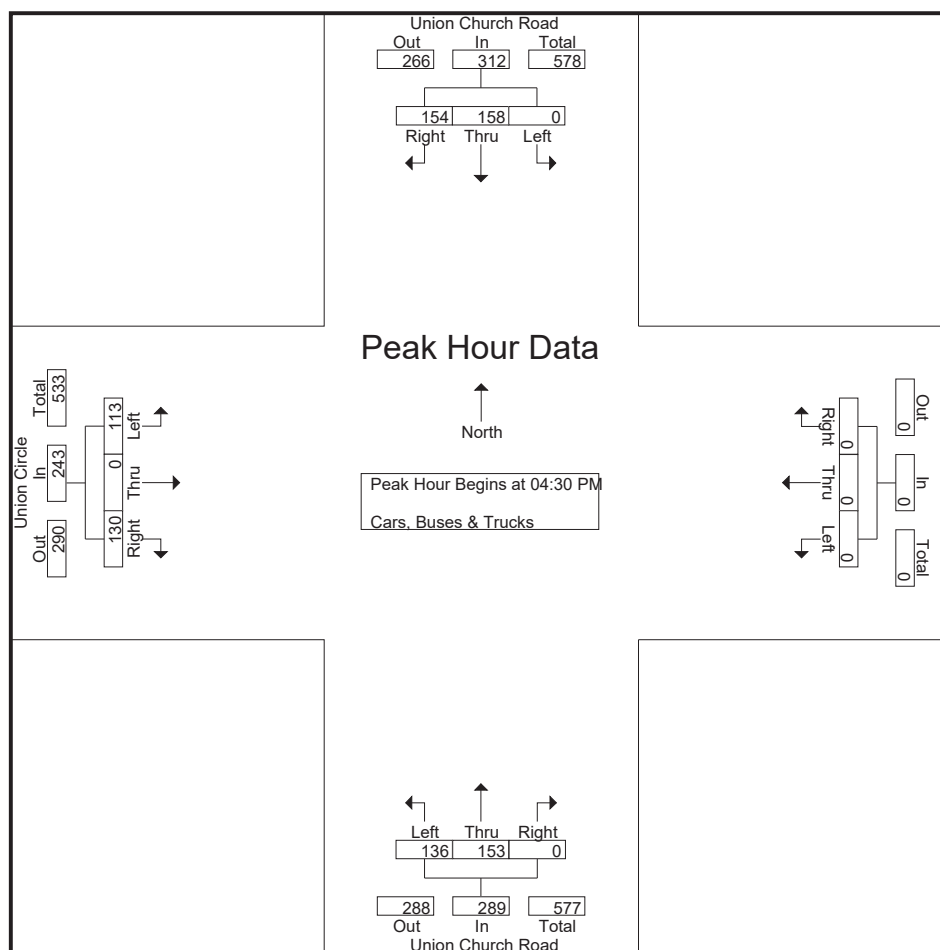
A & R Engineering, Inc.

2160 Kingston Court Suit 'O'
Marietta, GA 30067

TMC Data
 Union Church Road @ Union Circle
 7-9 am | 4-6 pm

File Name : 20240435
 Site Code : 20240435
 Start Date : 11-12-2024
 Page No : 3

	Union Church Road Northbound				Union Church Road Southbound				Union Circle Eastbound				Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	42	44	0	86	0	44	41	85	18	0	29	47	0	0	0	0	218
04:45 PM	30	36	0	66	0	38	40	78	31	0	42	73	0	0	0	0	217
05:00 PM	32	37	0	69	0	36	37	73	35	0	38	73	0	0	0	0	215
05:15 PM	32	36	0	68	0	40	36	76	29	0	21	50	0	0	0	0	194
Total Volume	136	153	0	289	0	158	154	312	113	0	130	243	0	0	0	0	844
% App. Total	47.1	52.9	0		0	50.6	49.4		46.5	0	53.5		0	0	0		
PHF	.810	.869	.000	.840	.000	.898	.939	.918	.807	.000	.774	.832	.000	.000	.000	.000	.968



A & R Engineering, Inc.

2160 Kingston Court Suit 'O'

Marietta, GA 30067

TMC Data

Union Church Road @ Clinchem Falls Dr

7-9 am | 4-6 pm

File Name : 20240436

Site Code : 20240436

Start Date : 11-12-2024

Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	Union Church Road Northbound				Union Church Road Southbound				Eastbound				Clinchem Falls Dr 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	73	0	73	1	43	0	44	0	0	0	0	1	0	1	2	119
07:15 AM	0	98	1	99	0	93	0	93	0	0	0	0	0	0	1	1	193
07:30 AM	0	111	1	112	1	83	0	84	0	0	0	0	1	0	0	1	197
07:45 AM	0	114	0	114	0	55	0	55	0	0	0	0	1	0	1	2	171
Total	0	396	2	398	2	274	0	276	0	0	0	0	3	0	3	6	680
08:00 AM	0	111	1	112	1	76	0	77	0	0	0	0	0	0	1	1	190
08:15 AM	0	45	2	47	1	56	0	57	0	0	0	0	1	0	1	2	106
08:30 AM	0	51	1	52	1	36	0	37	0	0	0	0	1	0	1	2	91
08:45 AM	0	37	0	37	0	47	0	47	0	0	0	0	1	0	1	2	86
Total	0	244	4	248	3	215	0	218	0	0	0	0	3	0	4	7	473
*** BREAK ***																	
04:00 PM	0	63	1	64	1	70	0	71	0	0	0	0	2	0	1	3	138
04:15 PM	0	57	1	58	2	66	0	68	0	0	0	0	1	0	1	2	128
04:30 PM	0	86	2	88	1	73	0	74	0	0	0	0	2	0	2	4	166
04:45 PM	0	66	1	67	1	80	0	81	0	0	0	0	1	0	1	2	150
Total	0	272	5	277	5	289	0	294	0	0	0	0	6	0	5	11	582
05:00 PM	0	69	2	71	0	74	0	74	0	0	0	0	0	0	2	2	147
05:15 PM	0	68	1	69	2	61	0	63	0	0	0	0	2	0	1	3	135
05:30 PM	0	58	2	60	1	73	0	74	0	0	0	0	1	0	0	1	135
05:45 PM	0	62	1	63	1	61	0	62	0	0	0	0	1	0	1	2	127
Total	0	257	6	263	4	269	0	273	0	0	0	0	4	0	4	8	544
Grand Total	0	1169	17	1186	14	1047	0	1061	0	0	0	0	16	0	16	32	2279
Apprch %	0	98.6	1.4		1.3	98.7	0		0	0	0		50	0	50		
Total %	0	51.3	0.7	52	0.6	45.9	0	46.6	0	0	0	0	0.7	0	0.7	1.4	

A & R Engineering, Inc.

2160 Kingston Court Suit 'O'

Marietta, GA 30067

TMC Data

Union Church Road @ Clinchem Falls Dr

7-9 am | 4-6 pm

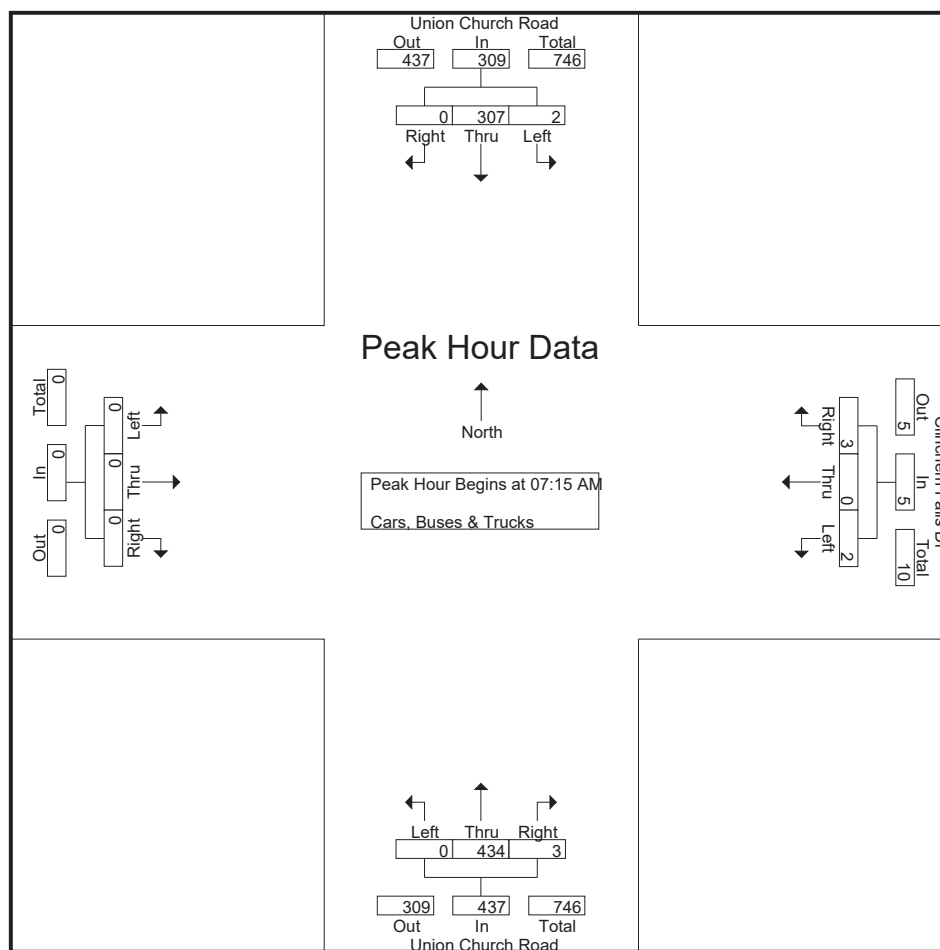
File Name : 20240436

Site Code : 20240436

Start Date : 11-12-2024

Page No : 2

	Union Church Road Northbound				Union Church Road Southbound				Eastbound				Clinchem Falls Dr Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	98	1	99	0	93	0	93	0	0	0	0	0	0	1	1	193
07:30 AM	0	111	1	112	1	83	0	84	0	0	0	0	1	0	0	1	197
07:45 AM	0	114	0	114	0	55	0	55	0	0	0	0	1	0	1	2	171
08:00 AM	0	111	1	112	1	76	0	77	0	0	0	0	0	0	1	1	190
Total Volume	0	434	3	437	2	307	0	309	0	0	0	0	2	0	3	5	751
% App. Total	0	99.3	0.7		0.6	99.4	0		0	0	0		40	0	60		
PHF	.000	.952	.750	.958	.500	.825	.000	.831	.000	.000	.000	.000	.500	.000	.750	.625	.953



A & R Engineering, Inc.

2160 Kingston Court Suit 'O'

Marietta, GA 30067

TMC Data

Union Church Road @ Clinchem Falls Dr

7-9 am | 4-6 pm

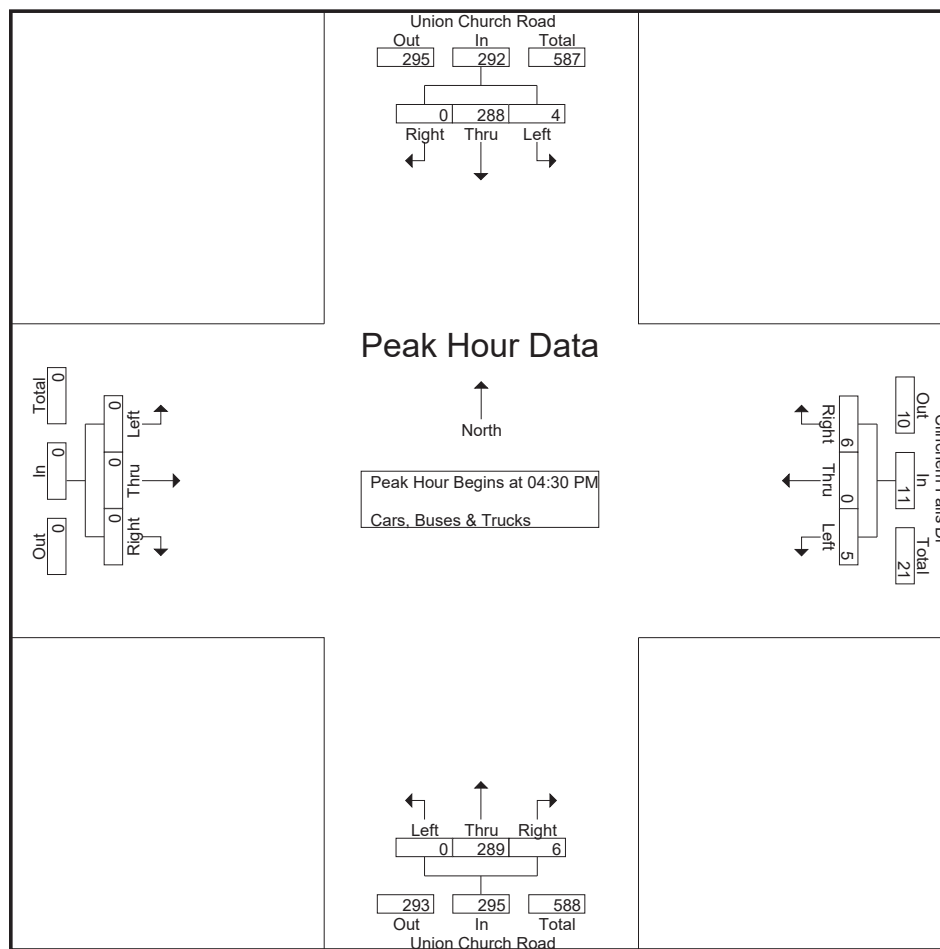
File Name : 20240436

Site Code : 20240436

Start Date : 11-12-2024

Page No : 3

	Union Church Road Northbound				Union Church Road Southbound				Eastbound				Clinchem Falls Dr Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	0	86	2	88	1	73	0	74	0	0	0	0	2	0	2	4	166
04:45 PM	0	66	1	67	1	80	0	81	0	0	0	0	1	0	1	2	150
05:00 PM	0	69	2	71	0	74	0	74	0	0	0	0	0	0	2	2	147
05:15 PM	0	68	1	69	2	61	0	63	0	0	0	0	2	0	1	3	135
Total Volume	0	289	6	295	4	288	0	292	0	0	0	0	5	0	6	11	598
% App. Total	0	98	2		1.4	98.6	0		0	0	0		45.5	0	54.5		
PHF	.000	.840	.750	.838	.500	.900	.000	.901	.000	.000	.000	.000	.625	.000	.750	.688	.901



A & R Engineering, Inc.

2160 Kingston Court Suit 'O'
Marietta, GA 30067

TMC Data
Union Church Road @ Hampton Mill Dr
7-9 am | 4-6 pm

File Name : 20240437
Site Code : 20240437
Start Date : 11-12-2024
Page No : 1

Groups Printed- Cars, Buses & Trucks

	Union Church Road Northbound				Union Church Road Southbound				Hampton Mill Dr Eastbound				Laurel Terrace Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	73	1	76	1	44	2	47	2	0	1	3	1	0	1	2	128
07:15 AM	1	99	0	100	1	93	1	95	1	0	2	3	0	0	1	1	199
07:30 AM	1	112	1	114	1	84	0	85	3	1	0	4	1	0	2	3	206
07:45 AM	0	114	0	114	2	56	1	59	2	0	1	3	1	1	1	3	179
Total	4	398	2	404	5	277	4	286	8	1	4	13	3	1	5	9	712
08:00 AM	1	112	1	114	1	76	0	77	2	0	2	4	0	0	0	0	195
08:15 AM	3	47	1	51	0	57	1	58	3	0	1	4	1	1	2	4	117
08:30 AM	2	52	1	55	1	37	2	40	1	1	0	2	0	0	2	2	99
08:45 AM	1	37	2	40	1	48	3	52	2	0	1	3	1	0	1	2	97
Total	7	248	5	260	3	218	6	227	8	1	4	13	2	1	5	8	508
*** BREAK ***																	
04:00 PM	2	64	2	68	1	72	2	75	2	1	1	4	1	0	2	3	150
04:15 PM	2	58	1	61	2	67	3	72	1	0	2	3	1	1	3	5	141
04:30 PM	1	81	1	83	1	75	2	78	2	0	1	3	2	0	2	4	168
04:45 PM	3	67	2	72	1	76	3	80	2	0	0	2	1	0	1	2	156
Total	8	270	6	284	5	290	10	305	7	1	4	12	5	1	8	14	615
05:00 PM	2	71	1	74	2	74	3	79	3	0	1	4	2	0	2	4	161
05:15 PM	1	68	2	71	2	63	2	67	2	1	2	5	1	0	2	3	146
05:30 PM	2	60	3	65	3	69	4	76	2	0	1	3	1	1	3	5	149
05:45 PM	4	63	2	69	1	62	3	66	1	0	1	2	2	0	1	3	140
Total	9	262	8	279	8	268	12	288	8	1	5	14	6	1	8	15	596
Grand Total	28	1178	21	1227	21	1053	32	1106	31	4	17	52	16	4	26	46	2431
Apprch %	2.3	96	1.7		1.9	95.2	2.9		59.6	7.7	32.7		34.8	8.7	56.5		
Total %	1.2	48.5	0.9	50.5	0.9	43.3	1.3	45.5	1.3	0.2	0.7	2.1	0.7	0.2	1.1	1.9	

A & R Engineering, Inc.

2160 Kingston Court Suit 'O'

Marietta, GA 30067

TMC Data

Union Church Road @ Hampton Mill Dr

7-9 am | 4-6 pm

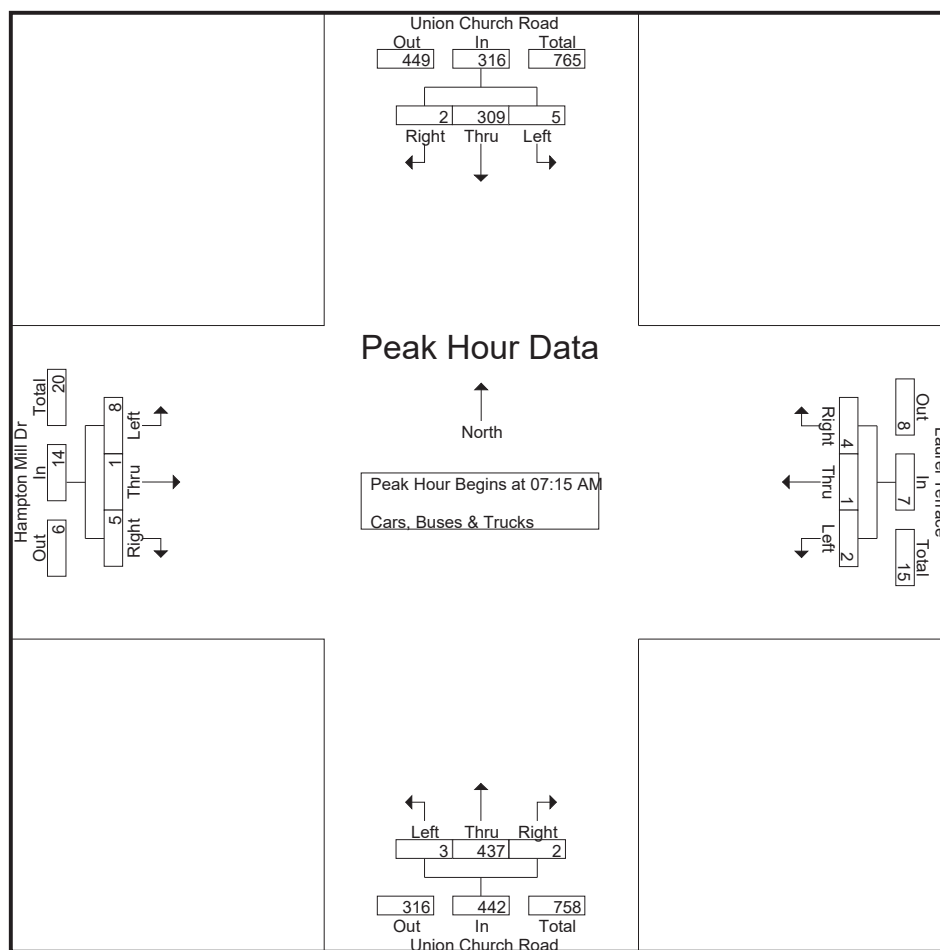
File Name : 20240437

Site Code : 20240437

Start Date : 11-12-2024

Page No : 2

	Union Church Road Northbound				Union Church Road Southbound				Hampton Mill Dr Eastbound				Laurel Terrace Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	1	99	0	100	1	93	1	95	1	0	2	3	0	0	1	1	199
07:30 AM	1	112	1	114	1	84	0	85	3	1	0	4	1	0	2	3	206
07:45 AM	0	114	0	114	2	56	1	59	2	0	1	3	1	1	1	3	179
08:00 AM	1	112	1	114	1	76	0	77	2	0	2	4	0	0	0	0	195
Total Volume	3	437	2	442	5	309	2	316	8	1	5	14	2	1	4	7	779
% App. Total	0.7	98.9	0.5		1.6	97.8	0.6		57.1	7.1	35.7		28.6	14.3	57.1		
PHF	.750	.958	.500	.969	.625	.831	.500	.832	.667	.250	.625	.875	.500	.250	.500	.583	.945



A & R Engineering, Inc.

2160 Kingston Court Suit 'O'

Marietta, GA 30067

TMC Data

Union Church Road @ Hampton Mill Dr

7-9 am | 4-6 pm

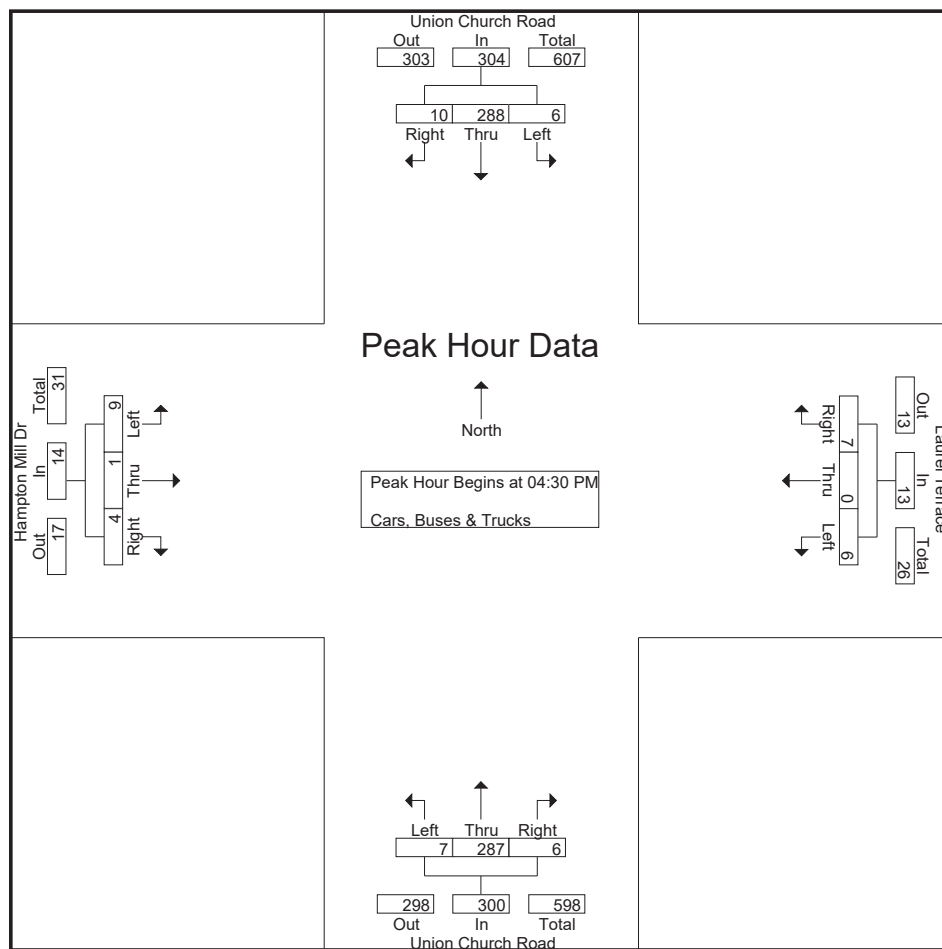
File Name : 20240437

Site Code : 20240437

Start Date : 11-12-2024

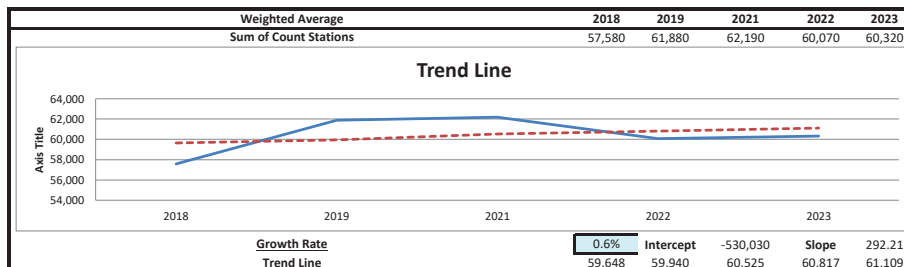
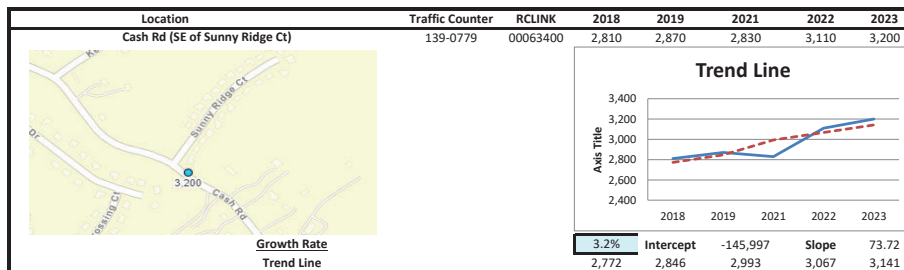
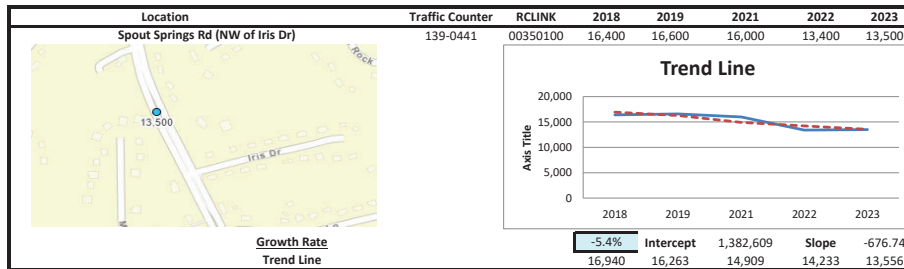
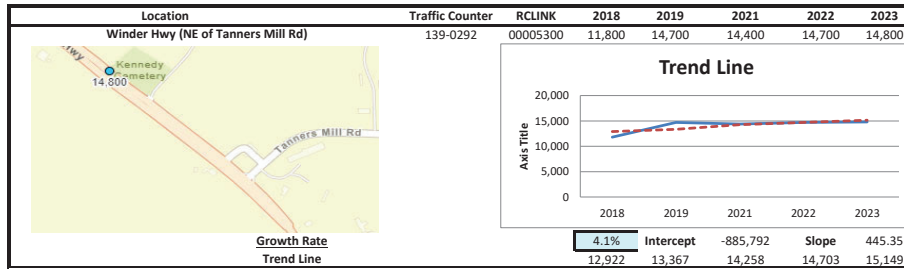
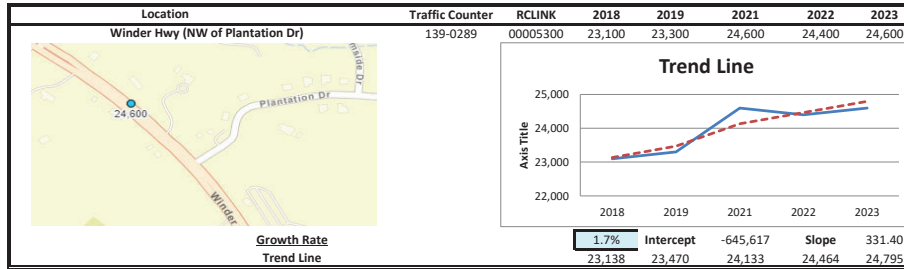
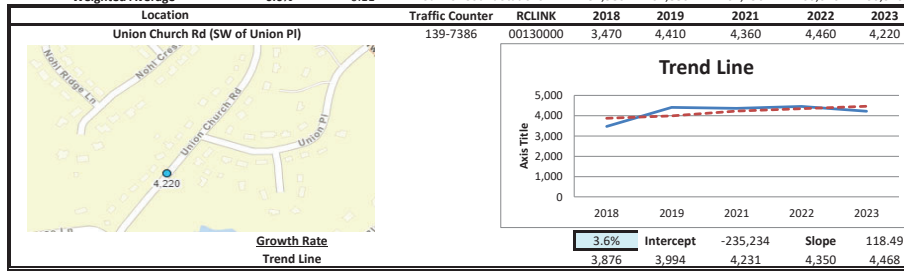
Page No : 3

	Union Church Road Northbound				Union Church Road Southbound				Hampton Mill Dr Eastbound				Laurel Terrace Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	1	81	1	83	1	75	2	78	2	0	1	3	2	0	2	4	168
04:45 PM	3	67	2	72	1	76	3	80	2	0	0	2	1	0	1	2	156
05:00 PM	2	71	1	74	2	74	3	79	3	0	1	4	2	0	2	4	161
05:15 PM	1	68	2	71	2	63	2	67	2	1	2	5	1	0	2	3	146
Total Volume	7	287	6	300	6	288	10	304	9	1	4	14	6	0	7	13	631
% App. Total	2.3	95.7	2		2	94.7	3.3		64.3	7.1	28.6		46.2	0	53.8		
PHF	.583	.886	.750	.904	.750	.947	.833	.950	.750	.250	.500	.700	.750	.000	.875	.813	.939



LINEAR REGRESSION OF DAILY TRAFFIC

Location	Growth Rate	R Squared	Station ID	Route	2018	2019	2021	2022	2023
Union Church Rd (SW of Union Pl)	3.6%	0.36	139-7386	00130000	3,470	4,410	4,360	4,460	4,220
Winder Hwy (NW of Plantation Dr)	1.7%	0.87	139-0289	00005300	23,100	23,300	24,600	24,400	24,600
Winder Hwy (NE of Tanners Mill Rd)	4.1%	0.52	139-0292	00005300	11,800	14,700	14,400	14,700	14,800
Spout Springs Rd (NW of Iris Dr)	-5.4%	0.77	139-0441	00350100	16,400	16,600	16,000	13,400	13,500
Cash Rd (SE of Sunny Ridge Ct)	3.2%	0.73	139-0779	00063400	2,810	2,870	2,830	3,110	3,200
Weighted Average	0.6%	0.11	Sum of Count Stations =		57,580	61,880	62,190	60,070	60,320



EXISTING INTERSECTION ANALYSIS

HCM 6th TWSC
1: Union Church Rd & Hampton Mill Dr/Laurel Terrace

1a. Existing 2024 AM
12/03/2024

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	1	5	2	1	4	3	437	2	5	309	2
Future Vol, veh/h	8	1	5	2	1	4	3	437	2	5	309	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	1	5	2	1	4	3	465	2	5	329	2
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	814	812	329	815	813	466	331	0	0	467	0	0
Stage 1	339	339	-	472	472	-	-	-	-	-	-	-
Stage 2	475	473	-	343	341	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	297	313	712	296	313	597	1228	-	-	1094	-	-
Stage 1	676	640	-	573	559	-	-	-	-	-	-	-
Stage 2	570	558	-	672	639	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	292	310	712	291	310	597	1228	-	-	1094	-	-
Mov Cap-2 Maneuver	292	310	-	291	310	-	-	-	-	-	-	-
Stage 1	674	636	-	571	557	-	-	-	-	-	-	-
Stage 2	563	556	-	662	635	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	15.1		13.8			0.1			0.1			
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1228	-	-	372	417	1094	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.04	0.018	0.005	-	-				
HCM Control Delay (s)	7.9	0	-	15.1	13.8	8.3	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

HCM 6th TWSC 2: Union Church Rd & Clinchem Falls Dr

1a. Existing 2024 AM
12/03/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	3	434	3	2	307
Future Vol, veh/h	2	3	434	3	2	307
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	3	457	3	2	323
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	786	459	0	0	460	0
Stage 1	459	-	-	-	-	-
Stage 2	327	-	-	-	-	-
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	361	602	-	-	1101	-
Stage 1	636	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	360	602	-	-	1101	-
Mov Cap-2 Maneuver	360	-	-	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	730	-	-	-	-	-
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)	-	-	474	1101	-	
HCM Lane V/C Ratio	-	-	0.011	0.002	-	
HCM Control Delay (s)	-	-	12.7	8.3	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

HCM 6th TWSC

3: Union Church Rd & Union Cir

1a. Existing 2024 AM

12/03/2024

Intersection						
Int Delay, s/veh	20					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	137	131	226	208	176	187
Future Vol, veh/h	137	131	226	208	176	187
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	149	142	246	226	191	203
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1011	293	394	0	-	0
Stage 1	293	-	-	-	-	-
Stage 2	718	-	-	-	-	-
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	265	746	1165	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	483	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	201	746	1165	-	-	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	575	-	-	-	-	-
Stage 2	483	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	72	4.6		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1165	-	313	-	-	
HCM Lane V/C Ratio	0.211	-	0.931	-	-	
HCM Control Delay (s)	8.9	0	72	-	-	
HCM Lane LOS	A	A	F	-	-	
HCM 95th %tile Q(veh)	0.8	-	9.2	-	-	

HCM 6th TWSC

4: Union Church Rd & Cash Rd

1a. Existing 2024 AM

12/03/2024

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	100	127	222	232	83
Future Vol, veh/h	45	100	127	222	232	83
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	111	141	247	258	92
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	833	304	350	0	-	0
Stage 1	304	-	-	-	-	-
Stage 2	529	-	-	-	-	-
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	339	736	1209	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	591	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	293	736	1209	-	-	-
Mov Cap-2 Maneuver	293	-	-	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	591	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	15.6	3		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1209	-	501	-	-	
HCM Lane V/C Ratio	0.117	-	0.322	-	-	
HCM Control Delay (s)	8.4	0	15.6	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.4	-	1.4	-	-	

HCM 6th TWSC

1: Union Church Rd & Hampton Mill Dr/Laurel Terrace

1b. Existing 2024 PM

12/03/2024

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	9	1	4	6	0	7	7	287	6	6	288	10
Future Vol, veh/h	9	1	4	6	0	7	7	287	6	6	288	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	1	4	6	0	7	7	305	6	6	306	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	644	643	306	648	651	308	317	0	0	311	0	0
Stage 1	318	318	-	322	322	-	-	-	-	-	-	-
Stage 2	326	325	-	326	329	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	386	392	734	383	388	732	1243	-	-	1249	-	-
Stage 1	693	654	-	690	651	-	-	-	-	-	-	-
Stage 2	687	649	-	687	646	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	378	387	734	376	383	732	1243	-	-	1249	-	-
Mov Cap-2 Maneuver	378	387	-	376	383	-	-	-	-	-	-	-
Stage 1	688	650	-	685	646	-	-	-	-	-	-	-
Stage 2	675	644	-	678	642	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	13.5		12.3		0.2		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1243	-	-	440	509	1249	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.034	0.027	0.005	-	-				
HCM Control Delay (s)	7.9	0	-	13.5	12.3	7.9	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

HCM 6th TWSC 2: Union Church Rd & Clinchem Falls Dr

1b. Existing 2024 PM
12/03/2024

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	6	289	6	4	288
Future Vol, veh/h	5	6	289	6	4	288
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	7	321	7	4	320
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	653	325	0	0	328	0
Stage 1	325	-	-	-	-	-
Stage 2	328	-	-	-	-	-
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	432	716	-	-	1232	-
Stage 1	732	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	430	716	-	-	1232	-
Mov Cap-2 Maneuver	430	-	-	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.7	0	0.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	550	1232	-	
HCM Lane V/C Ratio	-	-	0.022	0.004	-	
HCM Control Delay (s)	-	-	11.7	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

HCM 6th TWSC

3: Union Church Rd & Union Cir

1b. Existing 2024 PM

12/03/2024

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	113	130	136	153	158	154
Future Vol, veh/h	113	130	136	153	158	154
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	116	134	140	158	163	159
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	681	243	322	0	-	0
Stage 1	243	-	-	-	-	-
Stage 2	438	-	-	-	-	-
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	416	796	1238	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	651	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	364	796	1238	-	-	-
Mov Cap-2 Maneuver	364	-	-	-	-	-
Stage 1	698	-	-	-	-	-
Stage 2	651	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	18.5	3.9		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1238	-	513	-	-	
HCM Lane V/C Ratio	0.113	-	0.488	-	-	
HCM Control Delay (s)	8.3	0	18.5	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.4	-	2.6	-	-	

HCM 6th TWSC

4: Union Church Rd & Cash Rd

1b. Existing 2024 PM

12/03/2024

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	96	105	158	203	62
Future Vol, veh/h	51	96	105	158	203	62
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	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	100	109	165	211	65
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	627	244	276	0	-	0
Stage 1	244	-	-	-	-	-
Stage 2	383	-	-	-	-	-
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	447	795	1287	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	405	795	1287	-	-	-
Mov Cap-2 Maneuver	405	-	-	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13.1	3.2		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1287	-	596	-	-	
HCM Lane V/C Ratio	0.085	-	0.257	-	-	
HCM Control Delay (s)	8.1	0	13.1	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	1	-	-	

FUTURE “NO-BUILD” INTERSECTION ANALYSIS

HCM 6th TWSC
1: Union Church Rd & Hampton Mill Dr/Laurel Terrace

2a. No Build 2027 AM
12/03/2024

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↗
Traffic Vol, veh/h	8	1	5	2	1	4	3	450	2	5	318	2
Future Vol, veh/h	8	1	5	2	1	4	3	450	2	5	318	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	1	5	2	1	4	3	479	2	5	338	2
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	837	835	338	838	836	480	340	0	0	481	0	0
Stage 1	348	348	-	486	486	-	-	-	-	-	-	-
Stage 2	489	487	-	352	350	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	286	304	704	286	303	586	1219	-	-	1082	-	-
Stage 1	668	634	-	563	551	-	-	-	-	-	-	-
Stage 2	561	550	-	665	633	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	281	301	704	281	300	586	1219	-	-	1082	-	-
Mov Cap-2 Maneuver	281	301	-	281	300	-	-	-	-	-	-	-
Stage 1	666	630	-	561	549	-	-	-	-	-	-	-
Stage 2	554	548	-	655	629	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.4		14.1		0.1		0.1					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1219	-	-	360	405	1082	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.041	0.018	0.005	-	-				
HCM Control Delay (s)	8	0	-	15.4	14.1	8.3	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

HCM 6th TWSC
2: Union Church Rd & Clinchem Falls Dr

2a. No Build 2027 AM
12/03/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	3	447	3	2	316
Future Vol, veh/h	2	3	447	3	2	316
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	3	471	3	2	333
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	810	473	0	0	474	0
Stage 1	473	-	-	-	-	-
Stage 2	337	-	-	-	-	-
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	349	591	-	-	1088	-
Stage 1	627	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	348	591	-	-	1088	-
Mov Cap-2 Maneuver	348	-	-	-	-	-
Stage 1	627	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.9	0	0.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	462	1088	-	
HCM Lane V/C Ratio	-	-	0.011	0.002	-	
HCM Control Delay (s)	-	-	12.9	8.3	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

HCM 6th TWSC

3: Union Church Rd & Union Cir

2a. No Build 2027 AM
12/03/2024

Intersection						
Int Delay, s/veh	24.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	141	135	233	214	181	193
Future Vol, veh/h	141	135	233	214	181	193
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	153	147	253	233	197	210
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1041	302	407	0	-	0
Stage 1	302	-	-	-	-	-
Stage 2	739	-	-	-	-	-
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	255	738	1152	-	-	-
Stage 1	750	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	191	738	1152	-	-	-
Mov Cap-2 Maneuver	191	-	-	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	90.5	4.7		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1152	-	300	-	-	
HCM Lane V/C Ratio	0.22	-	1	-	-	
HCM Control Delay (s)	9	0	90.5	-	-	
HCM Lane LOS	A	A	F	-	-	
HCM 95th %tile Q(veh)	0.8	-	10.6	-	-	

HCM 6th TWSC
4: Union Church Rd & Cash Rd

2a. No Build 2027 AM
12/03/2024

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	103	131	229	239	85
Future Vol, veh/h	46	103	131	229	239	85
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	114	146	254	266	94
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	859	313	360	0	-	0
Stage 1	313	-	-	-	-	-
Stage 2	546	-	-	-	-	-
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	327	727	1199	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	281	727	1199	-	-	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.1	3.1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1199	-	488	-	-	
HCM Lane V/C Ratio	0.121	-	0.339	-	-	
HCM Control Delay (s)	8.4	0	16.1	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.4	-	1.5	-	-	

HCM 6th TWSC
1: Union Church Rd & Hampton Mill Dr/Laurel Terrace

2b. No Build 2027 PM
12/03/2024

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	9	1	4	6	0	7	7	296	6	6	297	10
Future Vol, veh/h	9	1	4	6	0	7	7	296	6	6	297	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	1	4	6	0	7	7	315	6	6	316	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	664	663	316	668	671	318	327	0	0	321	0	0
Stage 1	328	328	-	332	332	-	-	-	-	-	-	-
Stage 2	336	335	-	336	339	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	374	382	724	372	378	723	1233	-	-	1239	-	-
Stage 1	685	647	-	681	644	-	-	-	-	-	-	-
Stage 2	678	643	-	678	640	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	367	377	724	365	373	723	1233	-	-	1239	-	-
Mov Cap-2 Maneuver	367	377	-	365	373	-	-	-	-	-	-	-
Stage 1	680	643	-	676	639	-	-	-	-	-	-	-
Stage 2	666	638	-	669	636	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	13.7		12.4		0.2		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1233	-	-	428	498	1239	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.035	0.028	0.005	-	-				
HCM Control Delay (s)	7.9	0	-	13.7	12.4	7.9	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

HCM 6th TWSC
2: Union Church Rd & Clinchem Falls Dr

2b. No Build 2027 PM
12/03/2024

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	6	298	6	4	297
Future Vol, veh/h	5	6	298	6	4	297
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	7	331	7	4	330
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	673	335	0	0	338	0
Stage 1	335	-	-	-	-	-
Stage 2	338	-	-	-	-	-
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	707	-	-	1221	-
Stage 1	725	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	419	707	-	-	1221	-
Mov Cap-2 Maneuver	419	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.8	0	0.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	539	1221	-	
HCM Lane V/C Ratio	-	-	0.023	0.004	-	
HCM Control Delay (s)	-	-	11.8	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

HCM 6th TWSC 3: Union Church Rd & Union Cir

2b. No Build 2027 PM
12/03/2024

Intersection						
Int Delay, s/veh	6.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	116	134	140	158	163	159
Future Vol, veh/h	116	134	140	158	163	159
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	120	138	144	163	168	164
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	701	250	332	0	-	0
Stage 1	250	-	-	-	-	-
Stage 2	451	-	-	-	-	-
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	405	789	1227	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	353	789	1227	-	-	-
Mov Cap-2 Maneuver	353	-	-	-	-	-
Stage 1	690	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	19.5	3.9		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1227	-	502	-	-	
HCM Lane V/C Ratio	0.118	-	0.513	-	-	
HCM Control Delay (s)	8.3	0	19.5	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.4	-	2.9	-	-	

HCM 6th TWSC 4: Union Church Rd & Cash Rd

2b. No Build 2027 PM
12/03/2024

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	53	99	108	163	209	64
Future Vol, veh/h	53	99	108	163	209	64
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	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	103	113	170	218	67
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	648	252	285	0	-	0
Stage 1	252	-	-	-	-	-
Stage 2	396	-	-	-	-	-
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	435	787	1277	-	-	-
Stage 1	790	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	392	787	1277	-	-	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13.5	3.2		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1277	-	582	-	-	
HCM Lane V/C Ratio	0.088	-	0.272	-	-	
HCM Control Delay (s)	8.1	0	13.5	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	1.1	-	-	

FUTURE “BUILD” INTERSECTION ANALYSIS

HCM 6th TWSC

1: Union Church Rd & Hampton Mill Dr/Laurel Terrace

3a.Build 2027 AM

12/10/2024

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↗
Traffic Vol, veh/h	8	1	5	2	1	4	3	461	2	5	350	2
Future Vol, veh/h	8	1	5	2	1	4	3	461	2	5	350	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	1	5	2	1	4	3	490	2	5	372	2
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	882	880	372	883	881	491	374	0	0	492	0	0
Stage 1	382	382	-	497	497	-	-	-	-	-	-	-
Stage 2	500	498	-	386	384	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	267	286	674	266	285	578	1184	-	-	1071	-	-
Stage 1	640	613	-	555	545	-	-	-	-	-	-	-
Stage 2	553	544	-	637	611	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	262	283	674	261	282	578	1184	-	-	1071	-	-
Mov Cap-2 Maneuver	262	283	-	261	282	-	-	-	-	-	-	-
Stage 1	638	609	-	553	543	-	-	-	-	-	-	-
Stage 2	546	542	-	627	607	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	16.2		14.5		0.1		0.1					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1184	-	-	337	386	1071	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.044	0.019	0.005	-	-				
HCM Control Delay (s)	8	0	-	16.2	14.5	8.4	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

HCM 6th TWSC

2: Union Church Rd & Clinchem Falls Dr

3a.Build 2027 AM

12/10/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	3	458	3	2	348
Future Vol, veh/h	2	3	458	3	2	348
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	3	482	3	2	366
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	854	484	0	0	485	0
Stage 1	484	-	-	-	-	-
Stage 2	370	-	-	-	-	-
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	329	583	-	-	1078	-
Stage 1	620	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	328	583	-	-	1078	-
Mov Cap-2 Maneuver	328	-	-	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13.2	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	445	1078	-	
HCM Lane V/C Ratio	-	-	0.012	0.002	-	
HCM Control Delay (s)	-	-	13.2	8.3	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

HCM 6th TWSC

3: Union Church Rd & Union Cir

3a.Build 2027 AM

12/10/2024

Intersection						
Int Delay, s/veh	26.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	146	135	233	225	213	209
Future Vol, veh/h	146	135	233	225	213	209
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	142	245	237	224	220
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1061	334	444	0	-	0
Stage 1	334	-	-	-	-	-
Stage 2	727	-	-	-	-	-
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	248	708	1116	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	185	708	1116	-	-	-
Mov Cap-2 Maneuver	185	-	-	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	101	4.6		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1116	-	287	-	-	
HCM Lane V/C Ratio	0.22	-	1.031	-	-	
HCM Control Delay (s)	9.1	0	101	-	-	
HCM Lane LOS	A	A	F	-	-	
HCM 95th %tile Q(veh)	0.8	-	11.1	-	-	

HCM 6th TWSC 4: Union Church Rd & Cash Rd

3a.Build 2027 AM
12/10/2024

Intersection						
Int Delay, s/veh	4.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	53	103	131	245	288	107
Future Vol, veh/h	53	103	131	245	288	107
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	114	146	272	320	119
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	944	380	439	0	-	0
Stage 1	380	-	-	-	-	-
Stage 2	564	-	-	-	-	-
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	291	667	1121	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	246	667	1121	-	-	-
Mov Cap-2 Maneuver	246	-	-	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	19.4	3		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1121	-	422	-	-	
HCM Lane V/C Ratio	0.13	-	0.411	-	-	
HCM Control Delay (s)	8.7	0	19.4	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.4	-	2	-	-	

HCM 6th TWSC 5: Union Church Rd & Site Driveway 1

3a.Build 2027 AM
12/10/2024

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	21	292	8	7	330
Future Vol, veh/h	25	21	292	8	7	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	-	-	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	27	23	317	9	8	359
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	692	317	0	0	326	0
Stage 1	317	-	-	-	-	-
Stage 2	375	-	-	-	-	-
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	724	-	-	1234	-
Stage 1	738	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	407	724	-	-	1234	-
Mov Cap-2 Maneuver	407	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.8	0	0.2			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	509	1234	-	
HCM Lane V/C Ratio	-	-	0.098	0.006	-	
HCM Control Delay (s)	-	-	12.8	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

HCM 6th TWSC 6: Union Church Rd & Site Driveway 2

3a.Build 2027 AM
12/10/2024

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	17	283	15	6	349
Future Vol, veh/h	46	17	283	15	6	349
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	50	18	308	16	7	379
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	701	308	0	0	324	0
Stage 1	308	-	-	-	-	-
Stage 2	393	-	-	-	-	-
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	405	732	-	-	1236	-
Stage 1	745	-	-	-	-	-
Stage 2	682	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	402	732	-	-	1236	-
Mov Cap-2 Maneuver	402	-	-	-	-	-
Stage 1	745	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	14.2	0	0.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	458	1236	-	
HCM Lane V/C Ratio	-	-	0.15	0.005	-	
HCM Control Delay (s)	-	-	14.2	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0	-	

HCM 6th TWSC

1: Union Church Rd & Hampton Mill Dr/Laurel Terrace

3b.Build 2027 PM
12/10/2024

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	9	1	4	6	0	7	7	333	6	6	319	10
Future Vol, veh/h	9	1	4	6	0	7	7	333	6	6	319	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	110
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	1	4	6	0	7	7	354	6	6	339	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	726	725	339	730	733	357	350	0	0	360	0	0
Stage 1	351	351	-	371	371	-	-	-	-	-	-	-
Stage 2	375	374	-	359	362	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	340	352	703	338	348	687	1209	-	-	1199	-	-
Stage 1	666	632	-	649	620	-	-	-	-	-	-	-
Stage 2	646	618	-	659	625	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	333	347	703	332	343	687	1209	-	-	1199	-	-
Mov Cap-2 Maneuver	333	347	-	332	343	-	-	-	-	-	-	-
Stage 1	661	628	-	644	616	-	-	-	-	-	-	-
Stage 2	635	614	-	650	621	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.5		13.1		0.2		0.1	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1209	-	-	393	460	1199	-
HCM Lane V/C Ratio	0.006	-	-	0.038	0.03	0.005	-
HCM Control Delay (s)	8	0	-	14.5	13.1	8	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

HCM 6th TWSC 2: Union Church Rd & Clinchem Falls Dr

3b.Build 2027 PM
12/10/2024

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	6	335	6	4	319
Future Vol, veh/h	5	6	335	6	4	319
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	7	372	7	4	354
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	738	376	0	0	379	0
Stage 1	376	-	-	-	-	-
Stage 2	362	-	-	-	-	-
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	385	670	-	-	1179	-
Stage 1	694	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	383	670	-	-	1179	-
Mov Cap-2 Maneuver	383	-	-	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	701	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.4	0	0.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	500	1179	-	
HCM Lane V/C Ratio	-	-	0.024	0.004	-	
HCM Control Delay (s)	-	-	12.4	8.1	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

HCM 6th TWSC 3: Union Church Rd & Union Cir

3b.Build 2027 PM
12/10/2024

Intersection						
Int Delay, s/veh	8.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	134	134	140	195	185	170
Future Vol, veh/h	134	134	140	195	185	170
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	138	138	144	201	191	175
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	768	279	366	0	-	0
Stage 1	279	-	-	-	-	-
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	370	760	1193	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	320	760	1193	-	-	-
Mov Cap-2 Maneuver	320	-	-	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	24.9	3.5		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1193	-	450	-	-	
HCM Lane V/C Ratio	0.121	-	0.614	-	-	
HCM Control Delay (s)	8.4	0	24.9	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.4	-	4	-	-	

HCM 6th TWSC

4: Union Church Rd & Cash Rd

3b.Build 2027 PM
12/10/2024

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	78	99	108	218	242	79
Future Vol, veh/h	78	99	108	218	242	79
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	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	103	113	227	252	82
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	746	293	334	0	-	0
Stage 1	293	-	-	-	-	-
Stage 2	453	-	-	-	-	-
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	381	746	1225	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	341	746	1225	-	-	-
Mov Cap-2 Maneuver	341	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.7	2.7		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1225	-	490	-	-	
HCM Lane V/C Ratio	0.092	-	0.376	-	-	
HCM Control Delay (s)	8.2	0	16.7	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0.3	-	1.7	-	-	

HCM 6th TWSC

5: Union Church Rd & Site Driveway 1

3b.Build 2027 PM
12/10/2024

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	14	226	28	24	292
Future Vol, veh/h	17	14	226	28	24	292
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	18	15	246	30	26	317
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	615	246	0	0	276	0
Stage 1	246	-	-	-	-	-
Stage 2	369	-	-	-	-	-
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	455	793	-	-	1287	-
Stage 1	795	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	444	793	-	-	1287	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	682	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.9	0	0.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	554	1287	-	
HCM Lane V/C Ratio	-	-	0.061	0.02	-	
HCM Control Delay (s)	-	-	11.9	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

HCM 6th TWSC 6: Union Church Rd & Site Driveway 2

3b.Build 2027 PM
12/10/2024

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	11	243	52	19	290
Future Vol, veh/h	31	11	243	52	19	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	-	-	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	34	12	264	57	21	315
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	621	264	0	0	321	0
Stage 1	264	-	-	-	-	-
Stage 2	357	-	-	-	-	-
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	451	775	-	-	1239	-
Stage 1	780	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	442	775	-	-	1239	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13	0	0.5			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	498	1239	-	
HCM Lane V/C Ratio	-	-	0.092	0.017	-	
HCM Control Delay (s)	-	-	13	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-	

TRAFFIC VOLUME WORKSHEETS

24-221 - Residential Development on Union Church Road, Hall County - TIS
Traffic Volumes

A&R Engineering
December 2024

1. UnionChurchRd@Laurel Terrace

A.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				Hampton Mill Dr Eastbound				Laurel Terrace Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	3	437	2	442	5	309	2	316	8	1	5	14	2	1	4	7
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	3	450	2	455	5	318	2	325	8	1	5	14	2	1	4	7
Total New Trips:	0	11	0	11	0	32	0	32	0	0	0	0	0	0	0	0
Future 2027 Traffic Volumes:	3	461	2	466	5	350	2	357	8	1	5	14	2	1	4	7

P.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				Hampton Mill Dr Eastbound				Laurel Terrace Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	7	287	6	300	6	288	10	304	9	1	4	14	6	0	7	13
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	7	296	6	309	6	297	10	313	9	1	4	14	6	0	7	13
Total New Trips:	0	37	0	37	0	22	0	22	0	0	0	0	0	0	0	0
Future 2027 Traffic Volumes:	7	333	6	346	6	319	10	335	9	1	4	14	6	0	7	13

24-221 - Residential Development on Union Church Road, Hall County - TIS
Traffic Volumes

A&R Engineering
December 2024

2. UnionChurchRd@ClinchemFalls

A.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				- Eastbound				Clinchem Falls Drive Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	0	434	3	437	2	307	0	309	0	0	0	0	2	0	3	5
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	0	447	3	450	2	316	0	318	0	0	0	0	2	0	3	5
Total New Trips:	0	11	0	11	0	32	0	32	0	0	0	0	0	0	0	0
Future 2027 Traffic Volumes:	0	458	3	461	2	348	0	350	0	0	0	0	2	0	3	5

P.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				- Eastbound				Clinchem Falls Drive Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	0	289	6	295	4	288	0	292	0	0	0	0	5	0	6	11
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	0	298	6	304	4	297	0	301	0	0	0	0	5	0	6	11
Total New Trips:	0	37	0	37	0	22	0	22	0	0	0	0	0	0	0	0
Future 2027 Traffic Volumes:	0	335	6	341	4	319	0	323	0	0	0	0	5	0	6	11

24-221 - Residential Development on Union Church Road, Hall County - TIS
Traffic Volumes

A&R Engineering
December 2024

3. Union Church Rd @ Union Cir

A.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				Union Circle Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	226	208	0	434	0	176	187	363	137	0	131	268	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	233	214	0	447	0	181	193	374	141	0	135	276	0	0	0	0
Total New Trips:	0	11	0	11	0	32	16	48	5	0	0	5	0	0	0	0
Future 2027 Traffic Volumes:	233	225	0	458	0	213	209	422	146	0	135	281	0	0	0	0

P.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				Union Circle Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	136	153	0	289	0	158	154	312	113	0	130	243	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	140	158	0	298	0	163	159	322	116	0	134	250	0	0	0	0
Total New Trips:	0	37	0	37	0	22	11	33	18	0	0	18	0	0	0	0
Future 2027 Traffic Volumes:	140	195	0	335	0	185	170	355	134	0	134	268	0	0	0	0

24-221 - Residential Development on Union Church Road, Hall County - TIS
Traffic Volumes

A&R Engineering
December 2024

4. Union Church Rd @ Cash Rd

A.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				Cash Road Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	127	222	0	349	0	232	83	315	45	0	100	145	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	131	229	0	360	0	239	85	324	46	0	103	149	0	0	0	0
Total New Trips:	0	16	0	16	0	49	22	71	7	0	0	7	0	0	0	0
Future 2027 Traffic Volumes:	131	245	0	376	0	288	107	395	53	0	103	156	0	0	0	0

P.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				Cash Road Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	105	158	0	263	0	203	62	265	51	0	96	147	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	108	163	0	271	0	209	64	273	53	0	99	152	0	0	0	0
Total New Trips:	0	55	0	55	0	33	15	48	25	0	0	25	0	0	0	0
Future 2027 Traffic Volumes:	108	218	0	326	0	242	79	321	78	0	99	177	0	0	0	0

24-221 - Residential Development on Union Church Road, Hall County - TIS
Traffic Volumes

A&R Engineering
December 2024

5. UnionChurchRd @ Site Drwy 1

A.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				- Eastbound				Site Driveway 1 Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	0	267	0	267	0	315	0	315	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	0	275	0	275	0	324	0	324	0	0	0	0	0	0	0	0
Total New Trips:	0	17	8	25	7	6	0	13	0	0	0	0	25	0	21	46
Future 2027 Traffic Volumes:	0	292	8	300	7	330	0	337	0	0	0	0	25	0	21	46

P.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				- Eastbound				Site Driveway 1 Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	0	209	0	209	0	265	0	265	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	0	215	0	215	0	273	0	273	0	0	0	0	0	0	0	0
Total New Trips:	0	11	28	39	24	19	0	43	0	0	0	0	17	0	14	31
Future 2027 Traffic Volumes:	0	226	28	254	24	292	0	316	0	0	0	0	17	0	14	31

24-221 - Residential Development on Union Church Road, Hall County - TIS
Traffic Volumes

A&R Engineering
December 2024

6. UnionChurchRd @ Site Drwy 2

A.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				- Eastbound				Site Driveway 2 Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	0	267	0	267	0	315	0	315	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	0	275	0	275	0	324	0	324	0	0	0	0	0	0	0	0
Total New Trips:	0	8	15	23	6	25	0	31	0	0	0	0	46	0	17	63
Future 2027 Traffic Volumes:	0	283	15	298	6	349	0	355	0	0	0	0	46	0	17	63

P.M. Peak Hour

Condition	Union Church Road Northbound				Union Church Road Southbound				- Eastbound				Site Driveway 2 Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2024 Traffic Counts:	0	209	0	209	0	265	0	265	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
No-Build 2027 Volumes:	0	215	0	215	0	273	0	273	0	0	0	0	0	0	0	0
Total New Trips:	0	28	52	80	19	17	0	36	0	0	0	0	31	0	11	42
Future 2027 Traffic Volumes:	0	243	52	295	19	290	0	309	0	0	0	0	31	0	11	42