Z2020-34
(20200890)

TRAFFIC IMPACT STUDY
FOR
NEXUS GARDENS SENIOR & MATURE ADULT CAMPUS
ON POWERS FERRY ROAD/SOUTH MARIETTA PARKWAY

MARIETTA, GEORGIA

Prepared for:

Macauley Investments
2870 Peachtree Road, Suite 331
Atlanta, GA 30305

Prepared By:

A&R Engineering Inc.
2160 Kingston Court, Suite O
Marietta, GA 30067
Tel: (770) 690-9255 Fax: (770) 690-9210
www.areng.com

January 12, 2021
A & R Project # 20-116

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1.0 INTRODUCTION

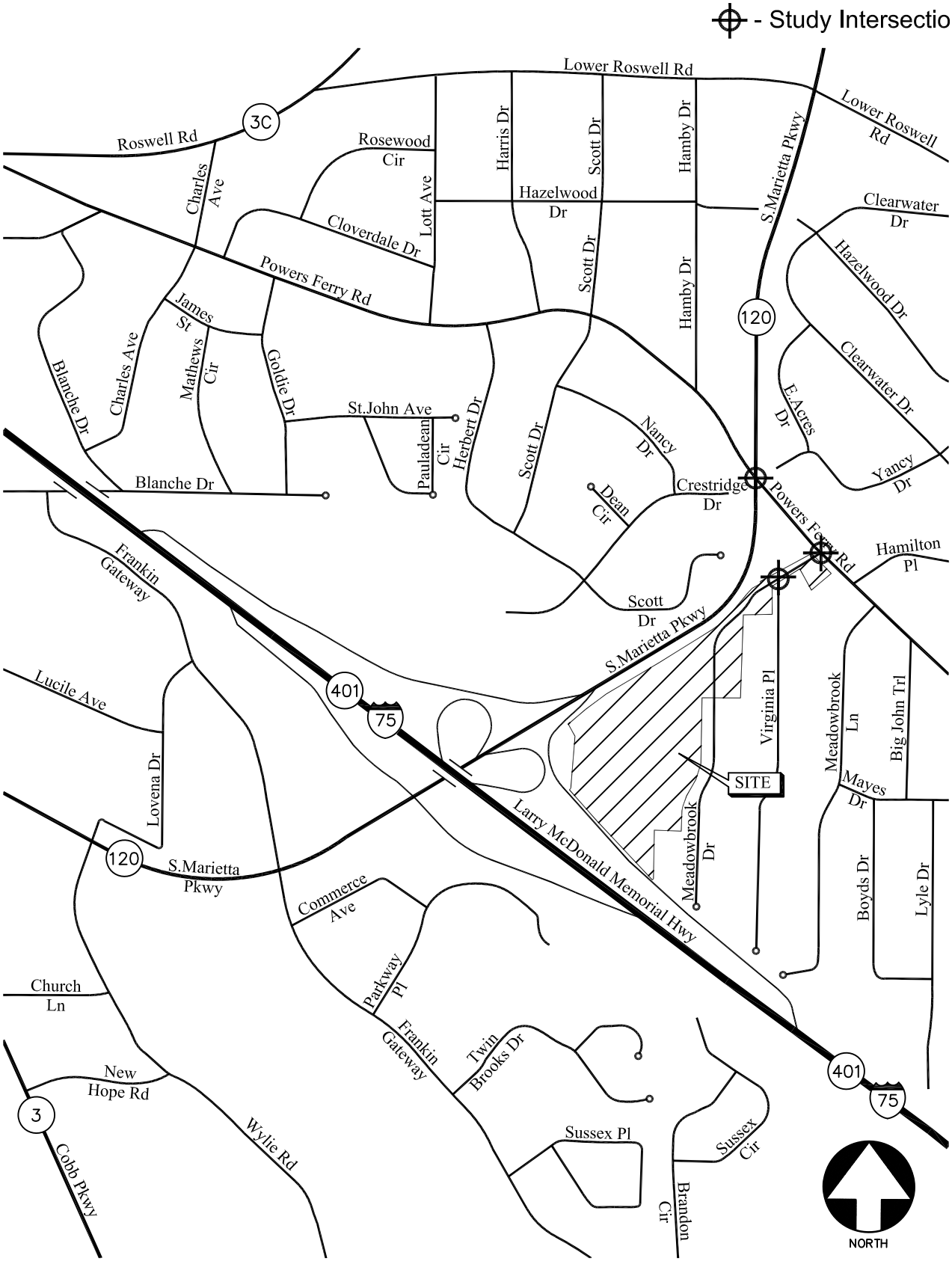
The purpose of this study is to determine the traffic impact that will result from the proposed NeXus Gardens mixed-use development located in the southeast corner of I-75 and SR 120 (South Marietta Parkway) interchange in Marietta, Georgia. The traffic analysis evaluates the current operations compared to the future conditions with the traffic generated by the development. The proposed development will consist of:

- Retail building: 2,500 sf
- Townhomes: 39 Units
- Senior Living: 160 Units
- Multi-family housing: 176 Units

This study includes the evaluation of traffic operations for the AM and PM peak hours at the intersections of:

- SR 120 (South Marietta Parkway) at Powers Ferry Road
- Powers Ferry Road at Meadowbrook Drive
- Meadowbrook Drive at Virginia Place

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



LOCATION MAP FIGURE 1

A&R Engineering Inc.

2.0 EXISTING FACILITIES / CONDITIONS

2.1 Roadway Facilities

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

2.1.1 SR 120 (South Marietta Parkway)

SR 120 (South Marietta Parkway) is a north-south, eight-lane, median-divided roadway with a posted speed limit of 55 mph in the vicinity of the site. GDOT traffic counts (Station ID's 067-2423 & 067-2425) indicate that the daily traffic volume on SR 120 (South Marietta Parkway) in 2019 was 38,700 vehicles per day north of Powers Ferry Road and 45,900 vehicles per day south of Powers Ferry Road. GDOT classifies SR 120 (South Marietta Parkway) as an Urban Principal Arterial roadway.

2.1.2 Powers Ferry Road

Powers Ferry Road is an east-west, two-lane, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site. GDOT traffic counts (Station ID 067-2094) indicate that the daily traffic volume on Powers Ferry Road in 2019 was 14,400 vehicles per day east of SR 120 (South Marietta Parkway). GDOT classifies Powers Ferry Road as an Urban Minor Collector roadway.

2.1.3 Meadowbrook Drive

Meadowbrook Drive is a north-south, two-lane, undivided roadway with a posted speed limit of 25 mph.

2.1.4 Virginia Place

Virginia Place is a north-south, two-lane, undivided roadway with a posted speed limit of 25 mph.

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 at which the side street or minor street is controlled by a stop sign, the criteria for evaluating traffic operations are the level-of-service (LOS) for the turning movements at the intersection and the level-of-service for the overall intersection. Level-of-service is based on the average controlled delay incurred at the intersection. Controlled delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the controlled 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 safely, resulting in extremely long total delays and long queues. The level-of-service criteria for two-way stop-controlled and all-way stop-controlled (unsignalized) intersections are given in Table 1.

TABLE 1 – LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level-of-service	Average Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: Highway Capacity Manual

3.2 Signalized Intersections

For signalized intersections, it is necessary to evaluate both capacity and level-of-service in order to evaluate the overall operation of the intersection. The capacity analysis of an intersection is performed by comparing the volume of traffic using the various lane groups at the intersection to the capacity of those lane groups. This results in a volume/capacity (v/c) ratio for each lane group. A v/c ratio greater than 1.0 indicates that the volume of traffic has exceeded the capacity available, resulting in a temporary excess of demand. Although the capacity of the entire intersection is not defined, a composite v/c ratio for the sum of the critical lane groups within the intersection is computed. This composite v/c ratio is an indication of the overall intersection sufficiency.

Level-of-service for a signalized intersection is defined in terms of average controlled delay per vehicle, which is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level-of-service criteria for signalized intersections, based on average controlled delay, are shown in Table 2. Level-of-service "A" indicates operations with very low controlled delay, while level-of-service "F" describes operations with extremely high average controlled delay. Level-of-service "E" is typically considered to be the limit of acceptable delay, and level-of-service "F" is considered unacceptable by most drivers.

TABLE 2 – LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level-of-service	Average Control Delay (sec)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Source: Highway Capacity Manual

4.0 EXISTING 2020 TRAFFIC ANALYSIS

4.1 Existing Traffic Volumes

Existing traffic counts were obtained at the following study intersections:

- SR 120 (South Marietta Parkway) at Powers Ferry Road
- Powers Ferry Road at Meadowbrook Drive
- Meadowbrook Drive at Virginia Place

Turning movement counts were collected at the intersections of SR 120 (South Marietta Parkway) at Powers Ferry Road and Powers Ferry Road at Meadowbrook Drive on Wednesday, September 2, 2020 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 two intersections counted. Volumes at the intersection of Meadowbrook Drive at Virginia Place were assumed to be 60% on Virginia Place and 40% on Meadowbrook Drive going into/coming from the Powers Ferry Road at Meadowbrook Drive intersection. The resulting AM and PM peak hour volumes for the three study intersections are shown in Figure 2.

With the COVID-19 pandemic affecting typical traffic patterns, turning movement counts taken currently would not accurately represent typical traffic conditions. Therefore, historical traffic count data were used to estimate the typical traffic conditions in the study area.

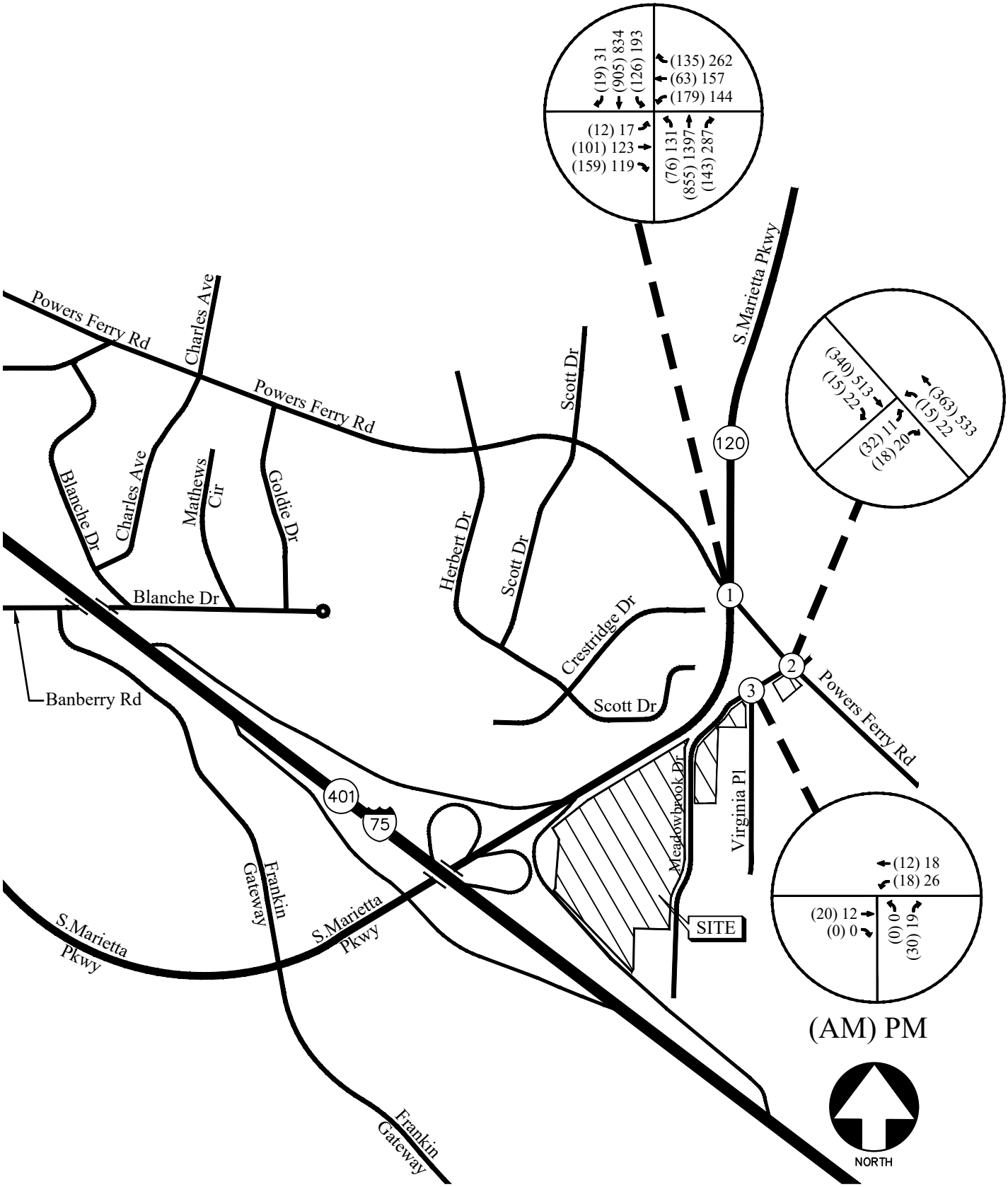
The hourly volumes in the historic AADT collected by GDOT (Station ID 067-2423) on Wednesday, June 13, 2018 to Thursday, June 14, 2018 was grown for 2 years at an annual growth rate of 1% and compared to the new existing counts collected. A comparison of the projected 2020 GDOT counts and the recently collected counts revealed that historic traffic volumes are higher by 36% in the AM peak hour and by 33% in the PM peak hour. Therefore, the recently collected turning movement counts were increased by 36% in the AM peak hour and by 33% in the PM peak hour at all the study intersections. The adjusted existing peak hour volumes are shown in Figure 3 and were used in the existing traffic operations analysis.

4.2 Existing Traffic Operations

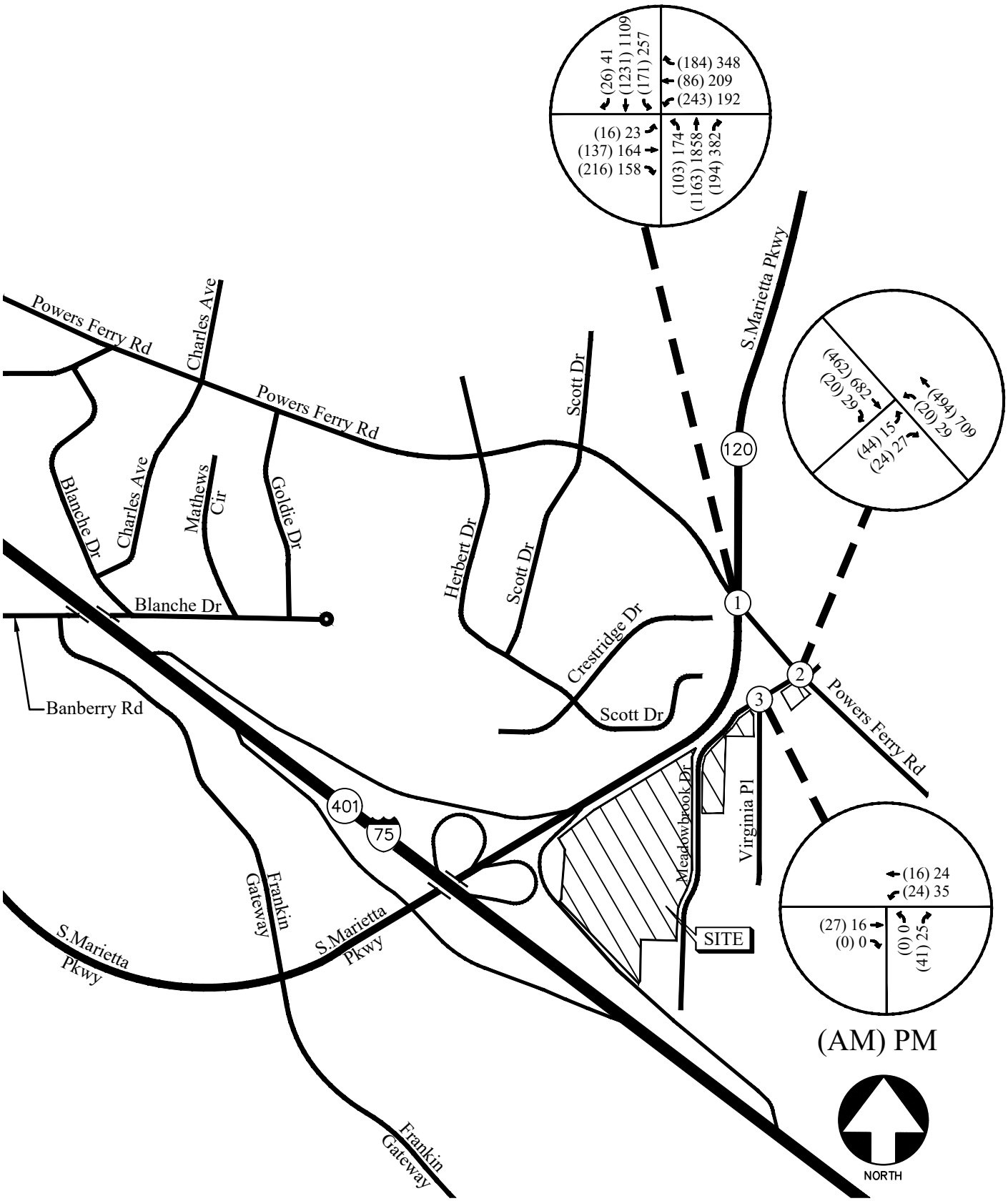
Existing 2020 traffic operations were analyzed at the study intersections in accordance with the HCM methodology. The results of the analyses are shown in Table 3. The existing traffic control and lane geometry for the intersections are shown in Figure 4.

TABLE 3 – EXISTING INTERSECTION OPERATIONS				
Intersection		Traffic Control	LOS (Delay)	
			AM Peak Hour	PM Peak Hour
1	**SR 120 (S. Marietta Pkwy) @ Powers Ferry Rd** -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	Signalized	**D (39.5)** E (63.9) E (58.6) C (32.0) C (32.8)	**D (48.8)** E (58.5) E (59.0) D (35.4) E (60.7)
2	**Powers Ferry Rd @ Meadowbrook Dr** -Westbound Left -Northbound Approach	Stop Controlled on NB Approach	 A (8.6) D (15.9)	 A (9.4) C (17.0)
3	**Meadowbrook Dr @ Virginia Pl** -Westbound Left -Northbound Approach	Stop Controlled on NB Approach	 A (7.3) A (8.6)	 A (7.3) A (8.5)

The results of existing traffic operations analysis indicate that all the study intersections are operating at satisfactory levels of service in both the AM and PM peak hours.



EXISTING WEEKDAY PEAK-HOUR VOLUMES FIGURE 2
(DURING COVID-19) **A&R Engineering Inc.**



ADJUSTED EXISTING WEEKDAY PEAK-HOUR VOLUMES FIGURE 3

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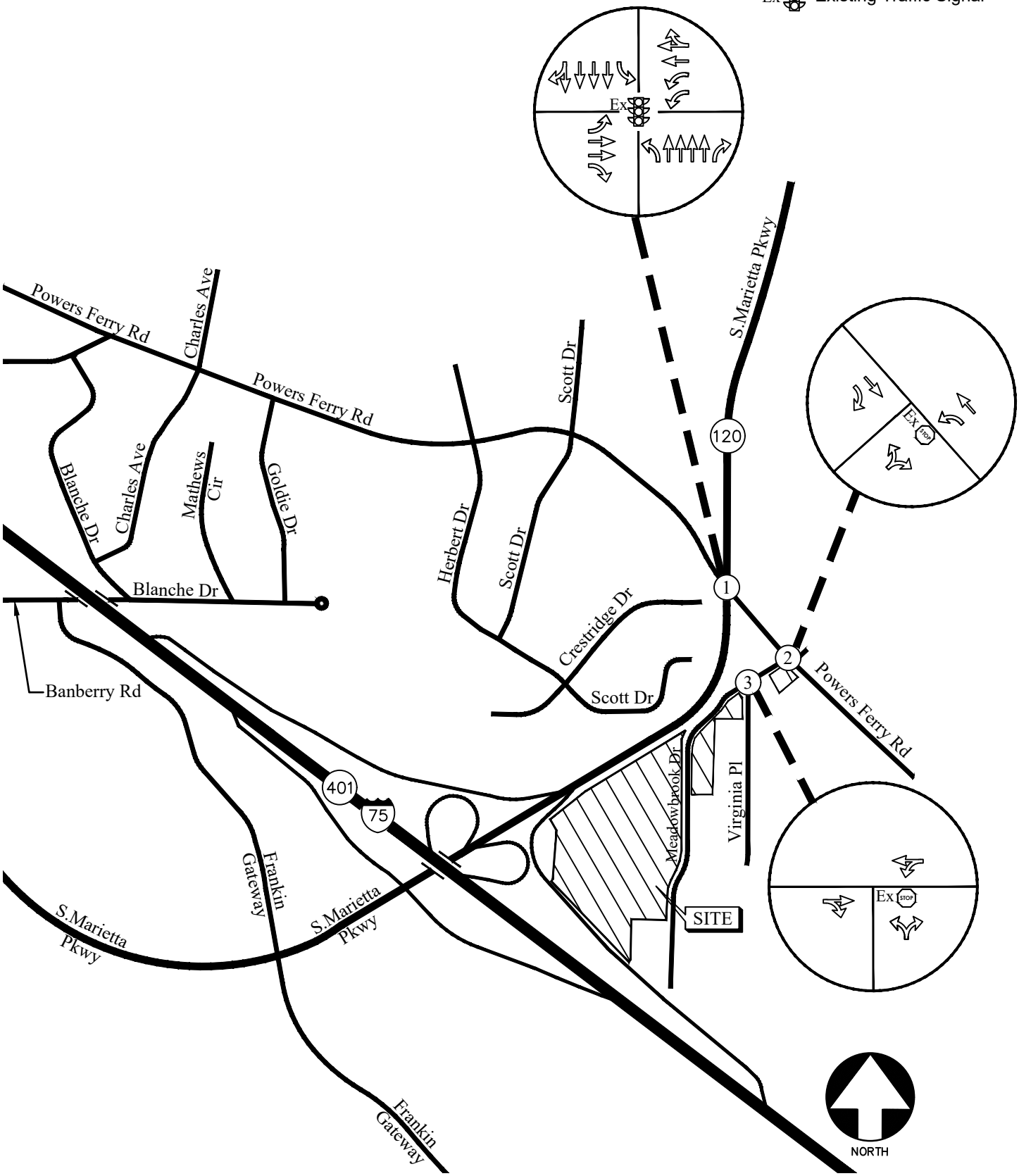

EXISTING TRAFFIC CONTROL AND LANE GEOMETRY FIGURE 4

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5.0 PROPOSED DEVELOPMENT

The proposed NeXus Gardens mixed-use development will be located in the southeast corner of I-75 and SR 120 (South Marietta Parkway) interchange in Marietta, Georgia.

The development proposes five driveways for residential development and one driveway for retail development on Meadowbrook Drive. A site plan is shown in Figure 5. The development will consist of:

- Retail building: 2,500 sf
- Townhomes: 39 Units
- Senior Living: 160 Units
- Multi-family housing: 176 Units

5.1 Trip Generation

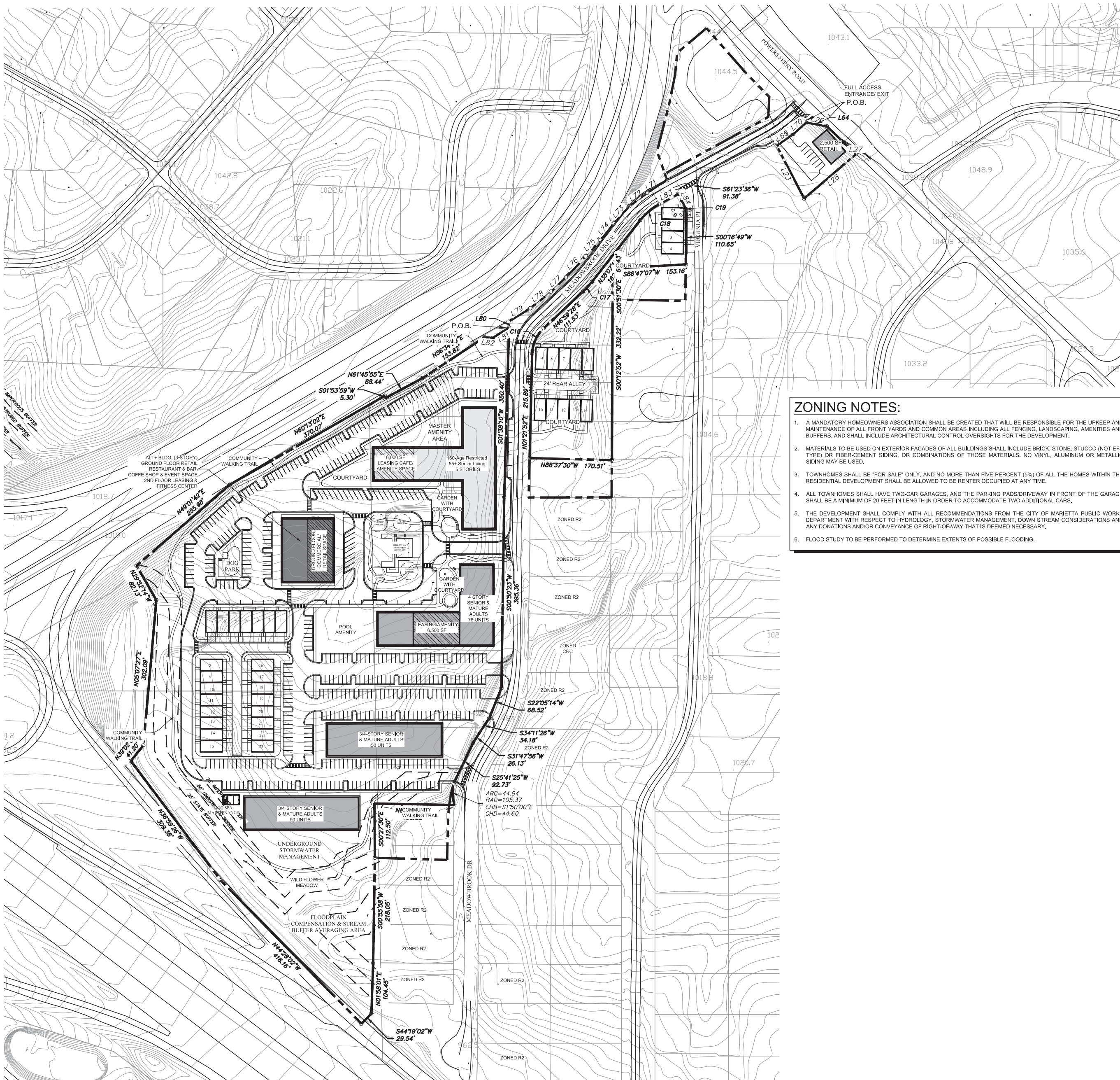
Trip generation estimates for the project were based on the rates and equations published in the 10th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation was based on the following ITE Land Uses: 220 – Multifamily Housing (Low-Rise), 221 – Multifamily Housing (Mid-Rise), 252 – Senior Adult Housing – Attached and 820 – Shopping Center. Due to the nature of the development, pass-by and mixed-use reductions have been applied per ITE standards. The calculated total trip generation for the proposed development is shown in Table 4.

TABLE 4 – TRIP GENERATION (PROPOSED DEVELOPMENT)

Land Use	Size	AM Peak Hour			PM Peak Hour			24 Hr
		Enter	Exit	Total	Enter	Exit	Total	2-way
ITE 220 – Multifamily Housing (Low-Rise)	39 Units	4	15	19	16	10	26	254
ITE 221 – Multifamily Housing (Mid-Rise)	176 Units	15	45	60	46	30	76	957
ITE 252 – Senior Adult Housing - Attached	160 Units	11	21	32	22	19	41	618
ITE 820 – Shopping Center	2,500 sf	1	1	2	5	5	10	94
Total Trips		31	82	113	89	64	153	1,923

5.2 Trip Distribution

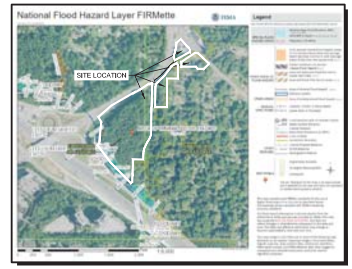
The trip distribution describes how traffic arrives and departs from the site. An overall trip distribution was developed for the site based on a review of the existing travel patterns in the area and the locations of major roadways and highways that will serve the development. The site-generated peak 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 6.



ZONING NOTES:

1. A MANDATORY HOMEOWNERS ASSOCIATION SHALL BE CREATED THAT WILL BE RESPONSIBLE FOR THE UPKEEP AND MAINTENANCE OF ALL FRONT YARDS AND COMMON AREAS INCLUDING ALL FENCING, LANDSCAPING, AMENITIES AND BUFFERS, AND SHALL INCLUDE ARCHITECTURAL CONTROL OVERSIGHTS FOR THE DEVELOPMENT.
2. MATERIALS TO BE USED ON EXTERIOR FACADES OF ALL BUILDINGS SHALL INCLUDE BRICK, STONE, STUCCO (NOT EFS TYPE) OR FIBER-CEMENT SIDING, OR COMBINATIONS OF THOSE MATERIALS. NO VINYL, ALUMINUM OR METALLIC SIDING MAY BE USED.
3. TOWNHOMES SHALL BE "FOR SALE" ONLY, AND NO MORE THAN FIVE PERCENT (5%) OF ALL THE HOMES WITHIN THE RESIDENTIAL DEVELOPMENT SHALL BE ALLOWED TO BE RENTER OCCUPIED AT ANY TIME.
4. ALL TOWNHOMES SHALL HAVE TWO-CAR GARAGES, AND THE PARKING PADS/DRIVEWAY IN FRONT OF THE GARAGE SHALL BE A MINIMUM OF 20 FEET IN LENGTH IN ORDER TO ACCOMMODATE TWO ADDITIONAL CARS.
5. THE DEVELOPMENT SHALL COMPLY WITH ALL RECOMMENDATIONS FROM THE CITY OF MARIETTA PUBLIC WORKS DEPARTMENT WITH RESPECT TO HYDROLOGY, STORMWATER MANAGEMENT, DOWN STREAM CONSIDERATIONS AND ANY DONATIONS AND/OR CONVEYANCE OF RIGHT-OF-WAY THAT IS DEEMED NECESSARY.
6. FLOOD STUDY TO BE PERFORMED TO DETERMINE EXTENTS OF POSSIBLE FLOODING.

SITE LOCATION MAP
NOT TO SCALE



FEMA FIRM MAP
NOT TO SCALE

SITE DATA:	
RETAIL SITE AREA	+/- 0.3 ACRES
TOWNHOME SITE AREA	+/- 1.62 ACRES
MULTI-FAMILY & INDEPENDENT LIVING SITE AREA	+/- 15.20 ACRES
TOTAL SITE AREA	+/- 17.14 ACRES
ZONING	
EXISTING ZONING	RRC & CRC
PROPOSED ZONING	MXD
ZONING JURISDICTION	CITY OF MARIETTA, GEORGIA
USE CALCULATIONS	
TOTAL SITE AREA	+/- 17.14 ACRES
SETBACK REQUIREMENTS	
FRONT SETBACK	15 FEET
SIDE SETBACK	10 FEET
REAR SETBACK	20 FEET
MIN. FLOOR AREA	1,400 SF
MAX. BUILDING HEIGHT	5 STORIES
DEVELOPMENT STANDARDS	
RETAIL BLDG. AREA PROVIDED	2,500 SF
ALTERNATE BLDG. -GROUND FLOOR RETAIL-RESTAURANT/ BAR, COFFE SHOP & EVENT SPACE/ 2ND FLOOR- LEASING & FITNESS CENTER	45,000 SF (3-STORY)
24' X 46' REAR LOADED TOWNHOMES	39 UNITS
AGE RESTRICTED 55+ SENIOR LIVING	160 UNITS
MULTI-FAMILY UNITS PROVIDED	176 UNITS
TOTAL RESIDENTIAL UNITS PROVIDED	375 UNITS
TOTAL SITE DENSITY PROVIDED	21.87 UPA
OPEN SPACE CALCULATIONS	
OPEN SPACE PROVIDED	+/-6.28 ACRES (31.5% OF TOTAL SITE AREA)
PARKING CALCULATIONS	
MIN. RETAIL PARKING REQUIRED	10 SPACES (1 SPACE/ 250 SF)
RETAIL PARKING PROVIDED	7 SPACES * (ADDITIONAL ON STREET)
MIN. TOWNHOME PARKING REQUIRED	99 SPACES (2 GARAGE SP + 0.2 SP/UNIT FOR GUEST)
TOWNHOME PARKING PROVIDED	156 SPACES (2 GARAGE SP + 2 DRIVEWAY SP)
AGE 55+ SENIOR PARKING REQUIRED	40 SPACES (1 SPACE/ 4 BEDS/UNITS)
MULTI-FAMILY PARKING REQUIRED	264 SPACES (1.5 SPACE/ DWELLING UNIT)
TOTAL SENIOR & MULTI-FAMILY PARKING REQUIRED	304 SPACES
TOTAL SENIOR & MULTI-FAMILY PARKING PROVIDED	305 SPACES

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FOR

Nexus Marietta

CITY OF MARIETTA, COBB COUNTY, GEORGIA

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REVISIONS:

NO.	DATE	BY	DESCRIPTION
-1	11/18/2020	PEC	City Comments

CONCEPTUAL MASTER PLAN

0 50 100 200 300

SCALE: 1" = 100'
DATE: OCTOBER, 2020
PROJECT: 20045.00

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

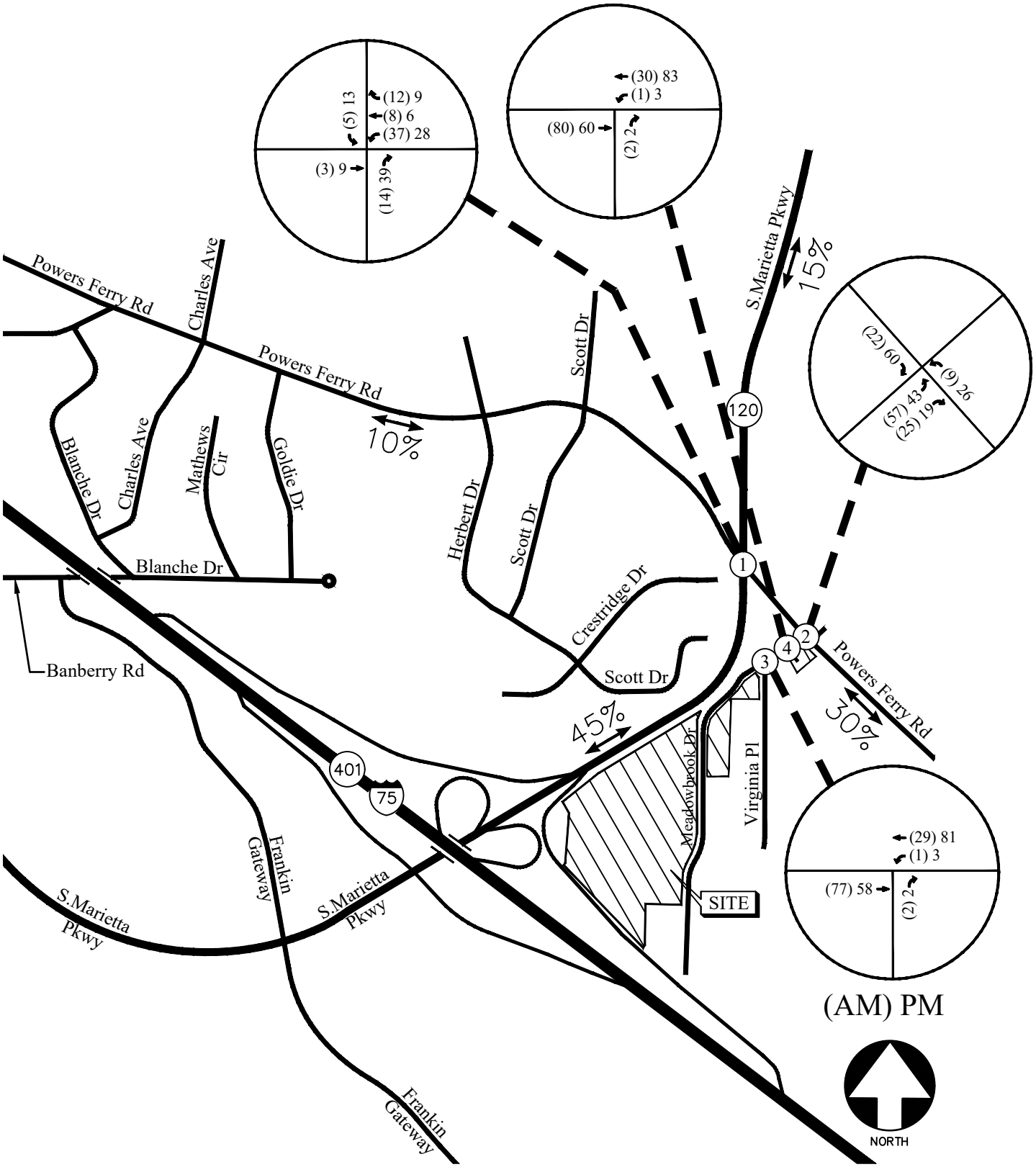
GEORGIA REGISTERED No. 34393 PROFESSIONAL ENGINEER KENNETH J WOOD

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000059389 EXP. 10/28/2021

GRID NORTH
GEORGIA WEST ZONE

Z7
SHEET

J:\2020\2004500\De\Concepts & Exhibits\Zoning\Zoning South Tract\20045.00-Site Zone-South-7.dwg - KWood - 11/19/2020 1:48 PM



TRIP DISTRIBUTION AND SITE-GENERATED WEEKDAY PEAK HOUR VOLUMES

FIGURE 6

A&R Engineering Inc.

6.0 FUTURE 2023 TRAFFIC ANALYSIS

The future 2023 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 adjusted existing traffic volumes (Figure 3) plus increases for annual growth of through traffic and added traffic from other nearby planned developments.

6.1.1 Annual Traffic Growth

In order to evaluate future traffic operations in this area, a projection of normal traffic growth was applied to the existing volumes. The Georgia Department of Transportation recorded average daily traffic volumes at several locations in the vicinity of the site. Reviewing the growth over the last three years revealed no consistent positive growth of through traffic; therefore, a growth rate of 1% was used in the analysis. This growth factor was applied to the existing traffic volumes between collector and arterial roadways to estimate the future year traffic volumes prior to addition of site-generated traffic.

6.1.2 Nearby Planned Development – Laurel Park Residential Development

There is a planned Laurel Park residential development consisting of 207 townhome units located in the northwest corner of I-75 and SR 120 (South Marietta Parkway) interchange. Access to this site will be via driveways on Blanche Drive and Crestridge Drive. Trip generation for this residential development was estimated using ITE land uses of 220 – Multifamily Housing (Low-Rise), 221 – Multifamily Housing (Mid-Rise), 252 – Senior Adult Housing - Attached and 820 – Shopping Center and is shown in Table 5 below.

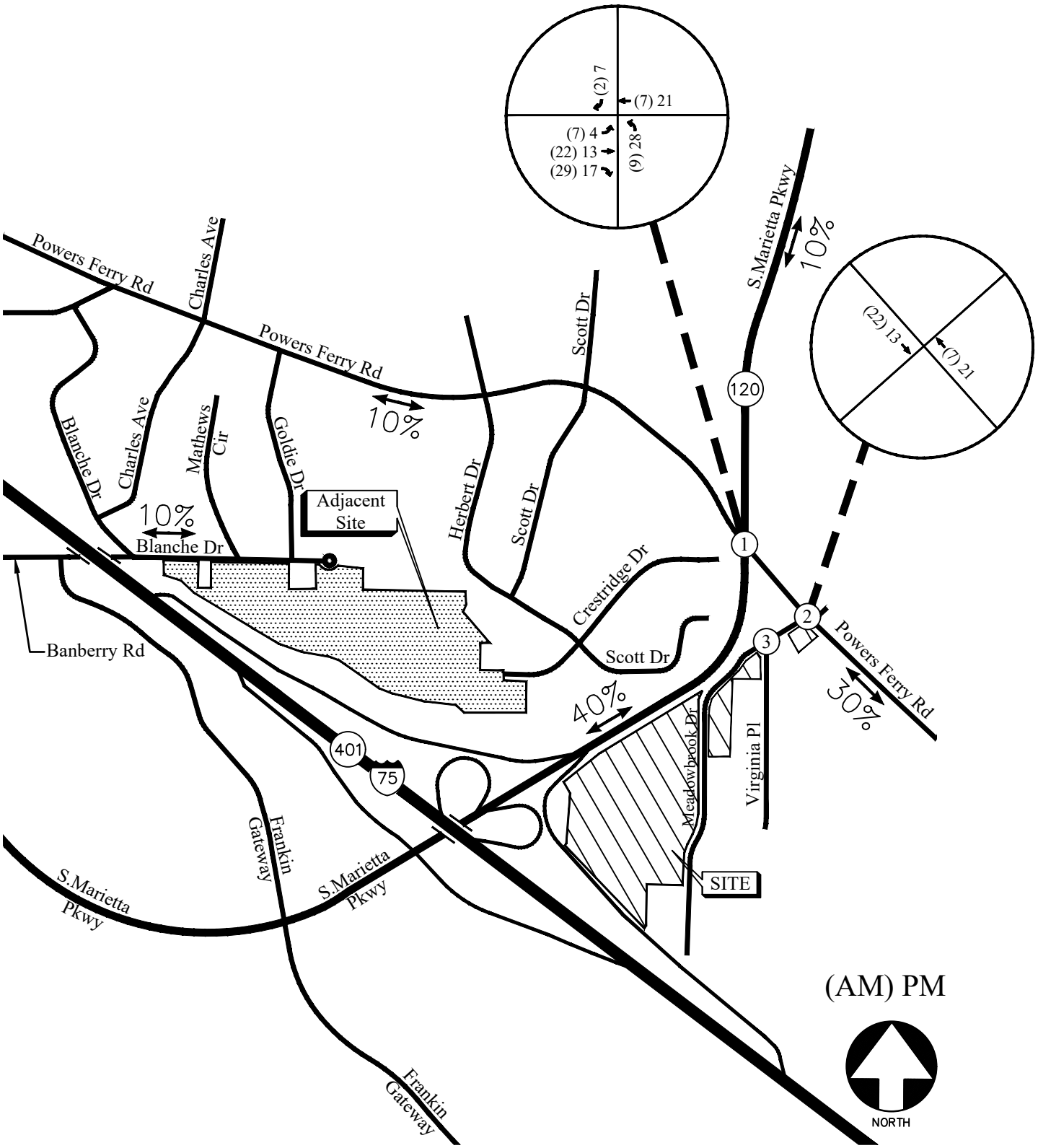
TABLE 5 – TRIP GENERATION (LAUREL PARK RESIDENTIAL DEVELOPMENT)

Land Use	Size	AM Peak Hour			PM Peak Hour			24 Hour
		Enter	Exit	Total	Enter	Exit	Total	2-way
ITE 220 – Multifamily Housing (Low-Rise)	207 Units	22	73	95	71	42	113	1,524

The trip distribution assumed and the site-generated peak hour volumes for this development are shown in Figure 7. This residential development's volumes (Figure 7) were added to the future year traffic volumes prior to the addition of the proposed mixed-use development's site-generated traffic. The resulting Future "No-Build" volumes on the roadway are shown in Figure 8.

6.2 Future "Build" Conditions

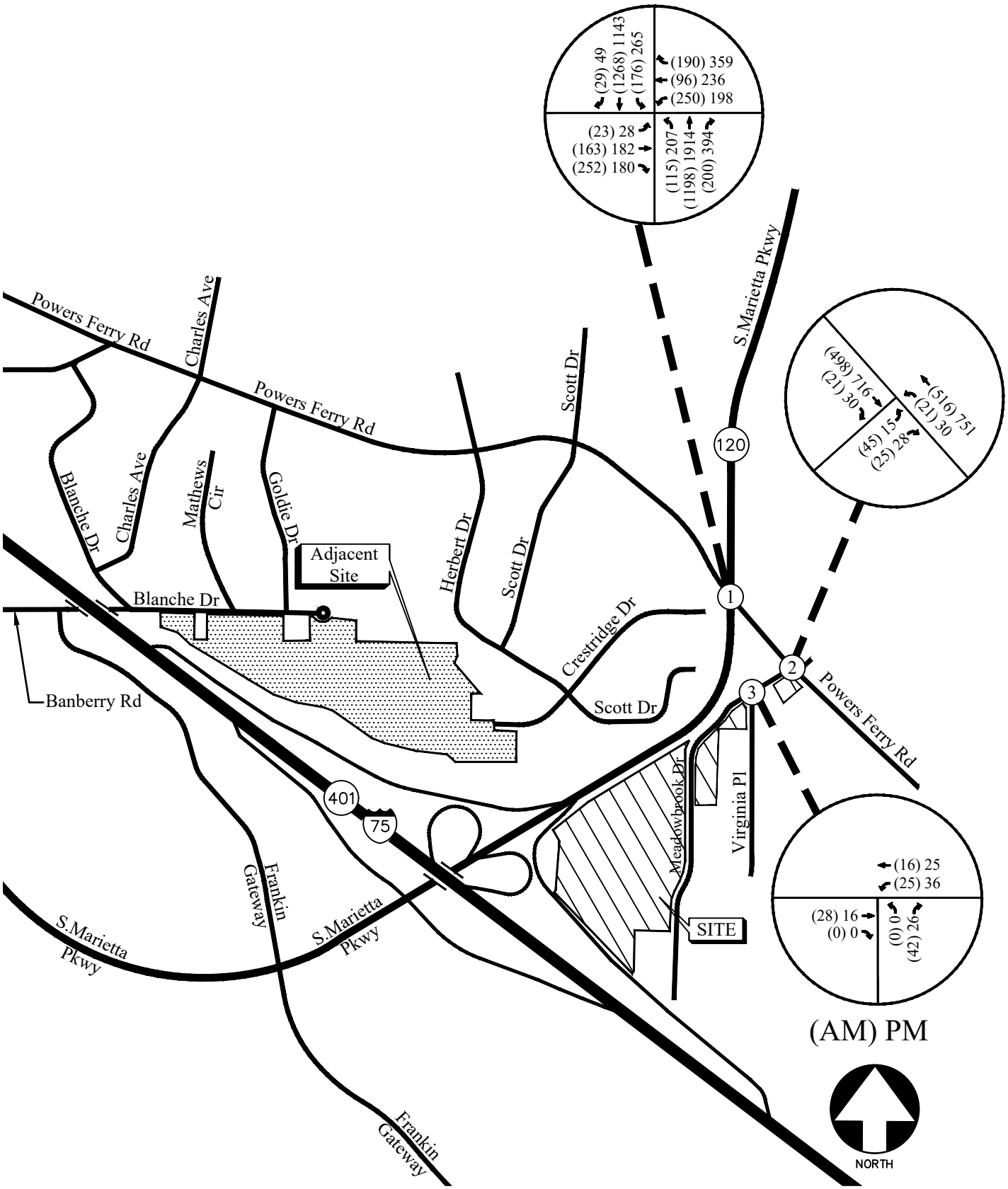
The "Build" or development conditions include the estimated background traffic from the "No-Build" conditions plus the added traffic from the proposed development. In order to evaluate future traffic operations in this area, the traffic volumes from the site (Figure 6) were added to base traffic volumes (Figure 8) to calculate the future traffic volumes after the construction of the development. These total future "Build" traffic volumes are shown in Figure 9.



TRIP DISTRIBUTION AND SITE-GENERATED WEEKDAY PEAK HOUR VOLUMES (ADJACENT SITE)

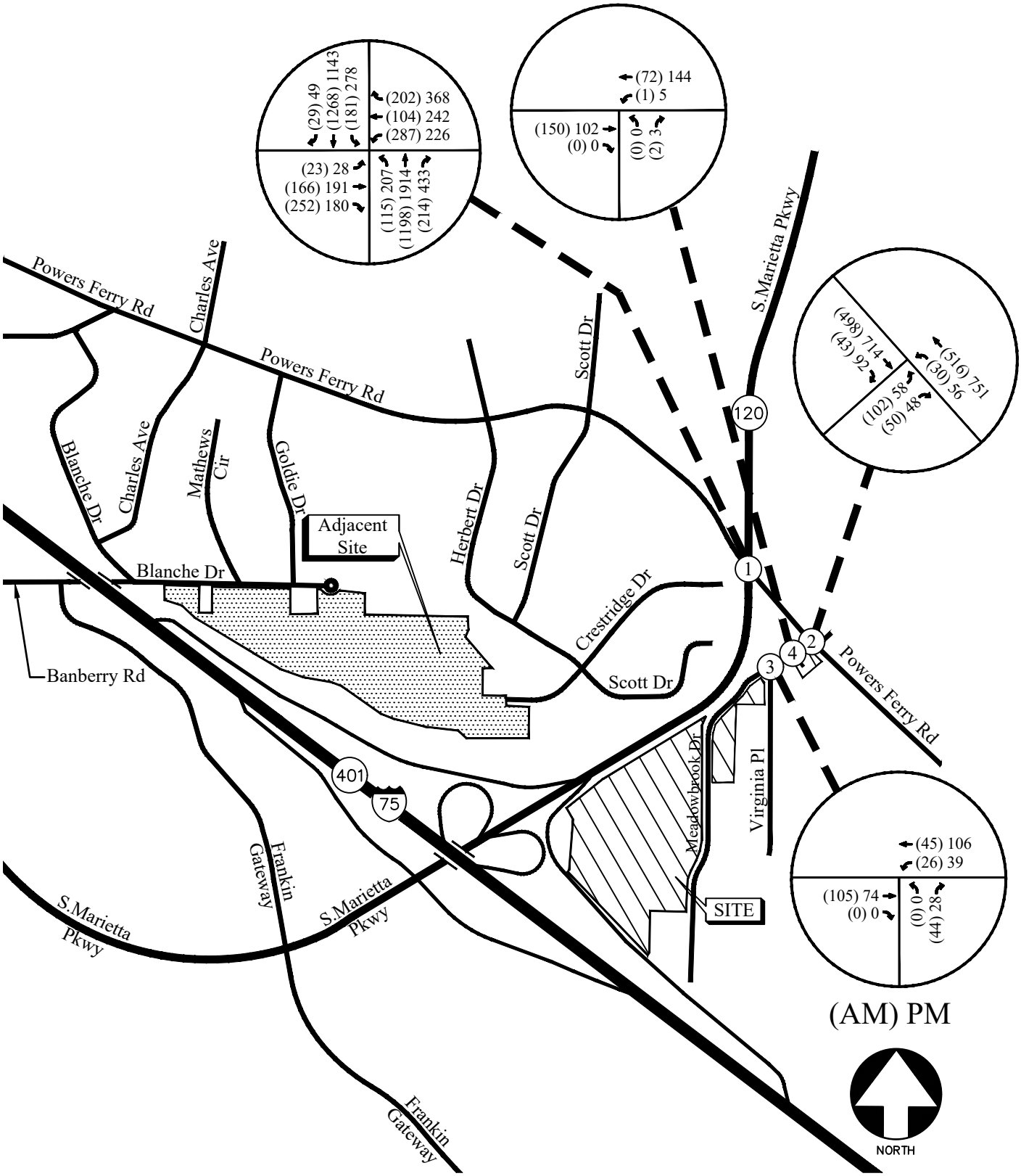
FIGURE 7

A&R Engineering Inc.



FUTURE (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES FIGURE 8

A&R Engineering Inc.



FUTURE (BUILD) WEEKDAY PEAK HOUR VOLUMES FIGURE 9

A&R Engineering Inc.

6.2.1 Future Traffic Operations

The future "No-Build" and "Build" traffic operations were analyzed using the volumes in Figure 8 and Figure 9, respectively. The results of the future traffic operations analysis are shown below in Table 6.

TABLE 6 – FUTURE INTERSECTION OPERATIONS

	Intersection	Future Condition: LOS (Delay)			
		NO-BUILD		BUILD	
		AM Peak	PM Peak	AM Peak	PM Peak
1	**SR 120 (S. Marietta Pkwy) @ Powers Ferry Rd**	**D (42.2)**	**D (52.1)**	**D (43.7)**	**D (54.8)**
	-Eastbound Approach	E (63.9)	D (57.8)	E (64.8)	E (58.2)
	-Westbound Approach	E (56.5)	E (57.7)	E (56.5)	E (58.0)
	-Northbound Approach	D (35.7)	D (39.4)	D (36.9)	D (40.2)
	-Southbound Approach	D (36.3)	E (66.3)	D (38.2)	E (73.5)
2	**Powers Ferry Rd @ Meadowbrook Dr**				
	-Westbound Left	A (8.7)	A (9.6)	A (8.9)	A (10.0)
	-Northbound Approach	C (16.7)	C (17.9)	C (22.5)	D (26.8)
3	**Meadowbrook Dr @ Virginia Pl**				
	-Westbound Left	A (7.3)	A (7.3)	A (7.5)	A (7.4)
	-Northbound Approach	A (8.6)	A (8.5)	A (9.0)	A (8.8)

The results of future "No-Build" and "Build" traffic operations analyses indicate that all the study intersections will continue to operate at satisfactory levels of service in both the AM and PM peak hours.

No improvements to traffic controls at study intersections are recommended.

We recommend widening Meadowbrook Drive to City's standards as existing width of Meadowbrook Drive is less than the standard width.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the traffic from the proposed NeXus Gardens mixed-use development that will be located in the southeast corner of I-75 and SR 120 (South Marietta Parkway) interchange in Marietta, Georgia. The development will consist of:

- Retail building: 2,500 sf
- Townhomes: 39 Units
- Senior Living: 160 Units
- Multi-family housing: 176 Units

The development proposes five driveways for residential development and one driveway for retail development on Meadowbrook Drive.

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

- SR 120 (South Marietta Parkway) at Powers Ferry Road
- Powers Ferry Road at Meadowbrook Drive
- Meadowbrook Drive at Virginia Place

The analysis included the evaluation of Future operations for “No-Build” and “Build” conditions, both of which account for increases in annual growth of through traffic and added traffic from other nearby planned developments.

The results of future “No-Build” and “Build” traffic operations analyses indicate that all the study intersections will continue to operate at satisfactory levels of service in both the AM and PM peak hours.

No improvements to traffic controls at study intersections are recommended.

We recommend widening Meadowbrook Drive to City’s standards as existing width of Meadowbrook Drive is less than the standard width.

Appendix

EXISTING INTERSECTION TRAFFIC COUNTS

A & R Engineering, Inc.

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

TMC DATA
SR 120 (Powers Ferry Rd) @
S Marietta Pkwy
7-9 am l 4-6 pm

File Name : 20200140
Site Code : 20200140
Start Date : 12/3/2020
Page No : 1

Groups Printed- Cars, Buses &Trucks

	SR 120 (South Marietta Pkwy) Northbound				SR 120 (South Marietta Pkwy) Southbound				Powers Ferry Rd Eastbound				Powers Ferry Rd 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	15	123	20	158	24	187	1	212	2	14	13	29	27	7	15	49	448
07:15 AM	26	166	34	226	27	200	5	232	4	19	24	47	51	7	20	78	583
07:30 AM	12	209	27	248	33	226	6	265	2	25	31	58	53	13	29	95	666
07:45 AM	22	223	50	295	32	233	3	268	2	31	67	100	58	13	44	115	778
Total	75	721	131	927	116	846	15	977	10	89	135	234	189	40	108	337	2475
08:00 AM	27	229	33	289	33	206	1	240	5	21	30	56	31	20	37	88	673
08:15 AM	15	194	33	242	28	240	9	277	3	24	31	58	37	17	25	79	656
08:30 AM	32	202	28	262	33	220	7	260	5	30	18	53	40	17	21	78	653
08:45 AM	20	232	25	277	24	214	7	245	12	18	18	48	36	26	22	84	654
Total	94	857	119	1070	118	880	24	1022	25	93	97	215	144	80	105	329	2636
*** BREAK ***																	
04:00 PM	24	335	60	419	39	160	1	200	5	28	25	58	29	29	46	104	781
04:15 PM	30	412	79	521	31	165	1	197	3	31	24	58	27	32	68	127	903
04:30 PM	19	256	69	344	50	237	2	289	7	32	28	67	35	36	56	127	827
04:45 PM	21	314	58	393	35	202	9	246	13	21	19	53	33	30	96	159	851
Total	94	1317	266	1677	155	764	13	932	28	112	96	236	124	127	266	517	3362
05:00 PM	32	303	64	399	34	205	7	246	6	35	42	83	39	39	63	141	869
05:15 PM	44	377	80	501	69	234	9	312	3	32	16	51	39	39	65	143	1007
05:30 PM	37	372	68	477	55	202	6	263	5	24	32	61	36	41	71	148	949
05:45 PM	18	345	75	438	35	193	9	237	3	32	29	64	30	38	63	131	870
Total	131	1397	287	1815	193	834	31	1058	17	123	119	259	144	157	262	563	3695
Grand Total	394	4292	803	5489	582	3324	83	3989	80	417	447	944	601	404	741	1746	12168
Apprch %	7.2	78.2	14.6		14.6	83.3	2.1		8.5	44.2	47.4		34.4	23.1	42.4		
Total %	3.2	35.3	6.6	45.1	4.8	27.3	0.7	32.8	0.7	3.4	3.7	7.8	4.9	3.3	6.1	14.3	

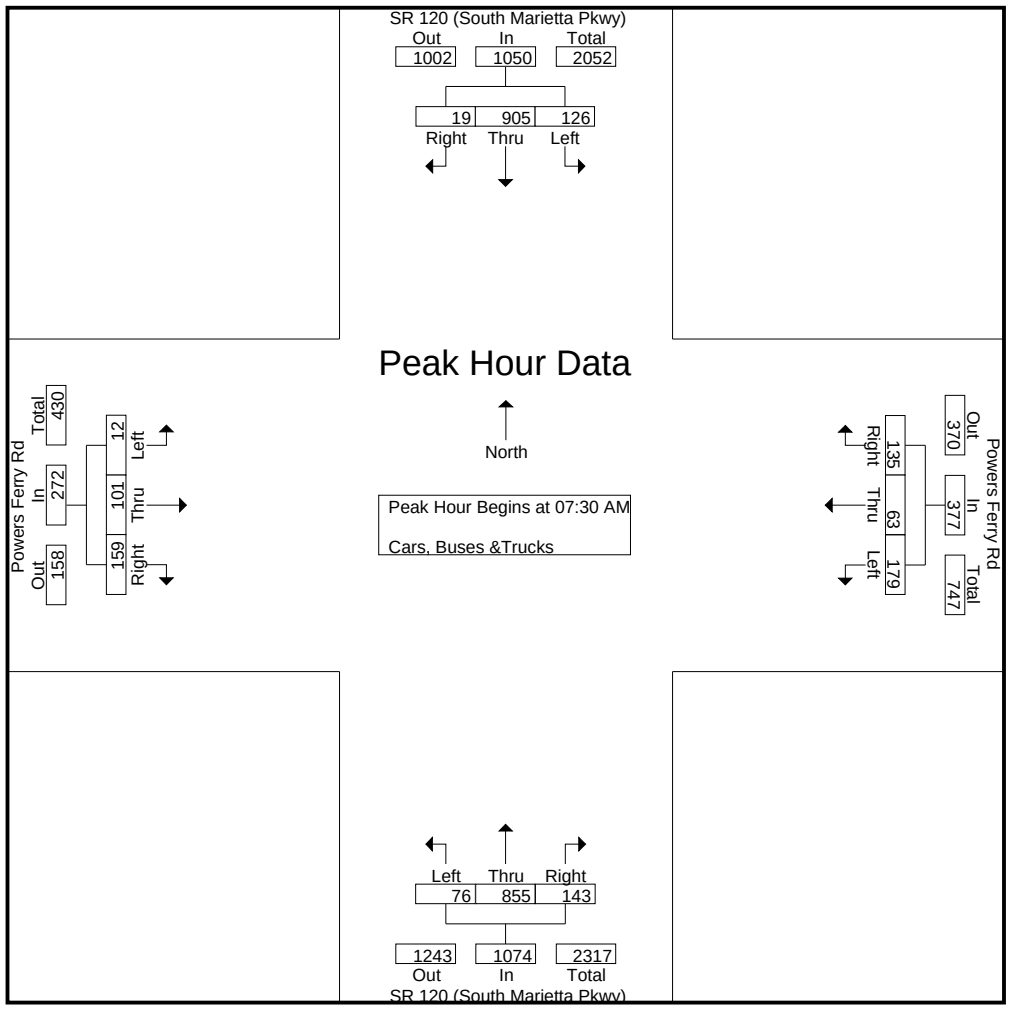
A & R Engineering, Inc.

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

TMC DATA
SR 120 (Powers Ferry Rd) @
S Marietta Pkwy
7-9 am l 4-6 pm

File Name : 20200140
Site Code : 20200140
Start Date : 12/3/2020
Page No : 2

	SR 120 (South Marietta Pkwy) Northbound				SR 120 (South Marietta Pkwy) Southbound				Powers Ferry Rd Eastbound				Powers Ferry Rd 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 07:30 AM																	
07:30 AM	12	209	27	248	**33**	226	6	265	2	25	31	58	53	13	29	95	666
07:45 AM	22	223	**50**	**295**	32	233	3	268	2	**31**	**67**	**100**	**58**	13	**44**	**115**	**778**
08:00 AM	**27**	**229**	33	289	33	206	1	240	**5**	21	30	56	31	**20**	37	88	673
08:15 AM	15	194	33	242	28	**240**	**9**	**277**	3	24	31	58	37	17	25	79	656
Total Volume	76	855	143	1074	126	905	19	1050	12	101	159	272	179	63	135	377	2773
% App. Total	7.1	79.6	13.3		12	86.2	1.8		4.4	37.1	58.5		47.5	16.7	35.8		
PHF	.704	.933	.715	.910	.955	.943	.528	.948	.600	.815	.593	.680	.772	.788	.767	.820	.891



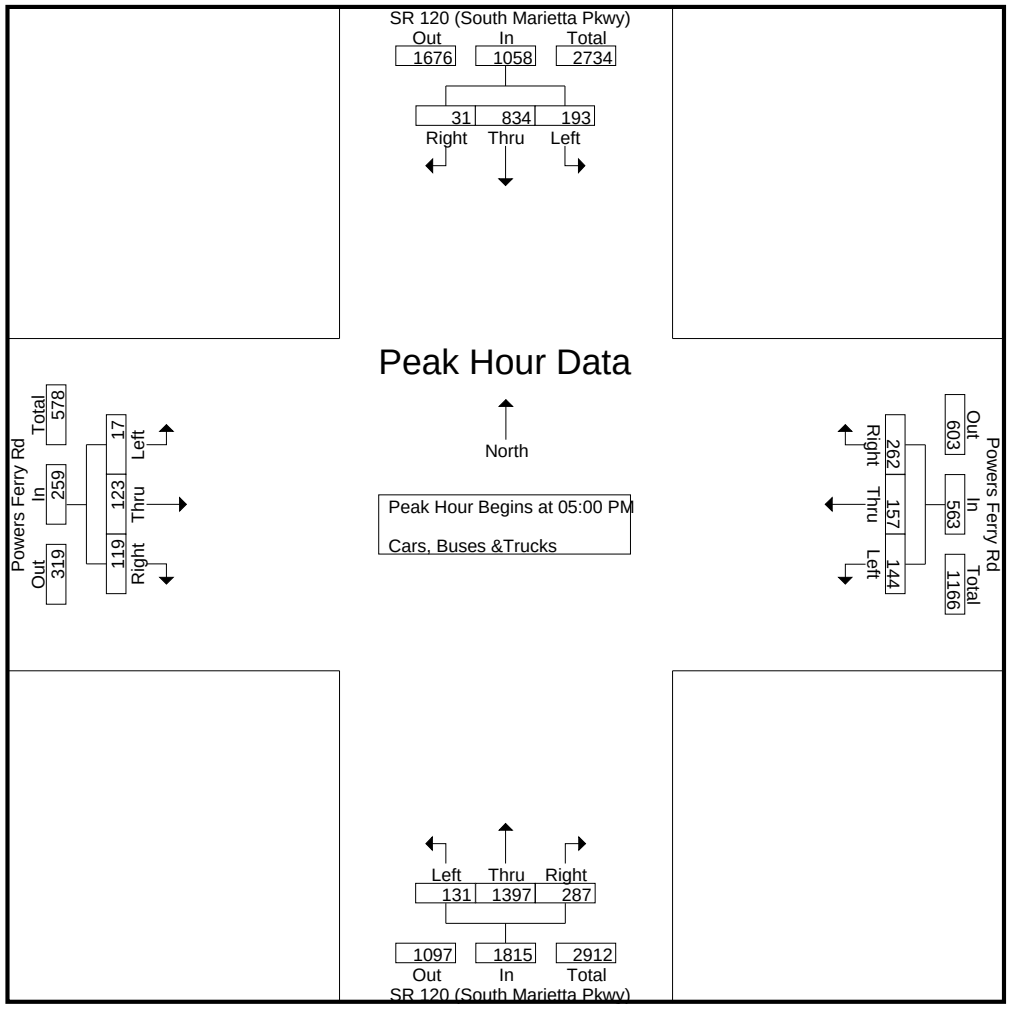
A & R Engineering, Inc.

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

TMC DATA
SR 120 (Powers Ferry Rd) @
S Marietta Pkwy
7-9 am l 4-6 pm

File Name : 20200140
Site Code : 20200140
Start Date : 12/3/2020
Page No : 3

	SR 120 (South Marietta Pkwy) Northbound				SR 120 (South Marietta Pkwy) Southbound				Powers Ferry Rd Eastbound				Powers Ferry Rd 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 05:00 PM																	
05:00 PM	32	303	64	399	34	205	7	246	**6**	**35**	**42**	**83**	**39**	39	63	141	869
05:15 PM	**44**	**377**	**80**	**501**	**69**	**234**	**9**	**312**	3	32	16	51	39	39	65	143	**1007**
05:30 PM	37	372	68	477	55	202	6	263	5	24	32	61	36	**41**	**71**	**148**	949
05:45 PM	18	345	75	438	35	193	9	237	3	32	29	64	30	38	63	131	870
Total Volume	131	1397	287	1815	193	834	31	1058	17	123	119	259	144	157	262	563	3695
% App. Total	7.2	77	15.8		18.2	78.8	2.9		6.6	47.5	45.9		25.6	27.9	46.5		
PHF	.744	.926	.897	.906	.699	.891	.861	.848	.708	.879	.708	.780	.923	.957	.923	.951	.917



A & R Engineering, Inc.

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

TMC DATA
Powers Ferry Rd @
Meadowbrook Dr
7-9 am l 4-6 pm

File Name : 20200143
Site Code : 20200143
Start Date : 12/3/2020
Page No : 1

Groups Printed- Cars,Buses & Trucks

	Meadowbrook Dr Northbound				Meadowbrook Dr Southbound				Powers Ferry Rd Eastbound				Powers Ferry Rd 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	1	0	3	4	0	0	0	0	0	43	1	44	1	49	0	50	98
07:15 AM	4	0	5	9	0	0	0	0	0	75	3	78	2	62	0	64	151
07:30 AM	8	0	3	11	0	0	0	0	0	80	2	82	3	85	0	88	181
07:45 AM	10	0	8	18	0	0	0	0	0	96	4	100	4	102	0	106	224
Total	23	0	19	42	0	0	0	0	0	294	10	304	10	298	0	308	654
08:00 AM	4	0	2	6	0	0	0	0	0	92	5	97	5	92	0	97	200
08:15 AM	10	0	5	15	0	0	0	0	1	72	4	77	3	84	0	87	179
08:30 AM	7	0	1	8	1	0	0	1	0	84	3	87	3	77	0	80	176
08:45 AM	5	0	1	6	0	0	0	0	0	69	1	70	1	72	0	73	149
Total	26	0	9	35	1	0	0	1	1	317	13	331	12	325	0	337	704
*** BREAK ***																	
04:00 PM	6	0	1	7	1	0	0	1	2	125	6	133	3	88	0	91	232
04:15 PM	3	0	0	3	0	0	0	0	3	121	6	130	4	116	1	121	254
04:30 PM	6	0	2	8	0	0	0	0	1	144	6	151	1	113	0	114	273
04:45 PM	3	0	3	6	1	0	0	1	2	109	5	116	8	149	1	158	281
Total	18	0	6	24	2	0	0	2	8	499	23	530	16	466	2	484	1040
05:00 PM	2	0	3	5	0	0	1	1	2	116	5	123	5	128	2	135	264
05:15 PM	3	0	7	10	2	0	0	2	5	153	5	163	4	131	0	135	310
05:30 PM	3	0	7	10	2	0	0	2	7	135	7	149	5	125	1	131	292
05:45 PM	5	0	2	7	0	0	0	0	2	119	5	126	1	121	0	122	255
Total	13	0	19	32	4	0	1	5	16	523	22	561	15	505	3	523	1121
Grand Total	80	0	53	133	7	0	1	8	25	1633	68	1726	53	1594	5	1652	3519
Apprch %	60.2	0	39.8		87.5	0	12.5		1.4	94.6	3.9		3.2	96.5	0.3		
Total %	2.3	0	1.5	3.8	0.2	0	0	0.2	0.7	46.4	1.9	49	1.5	45.3	0.1	46.9	

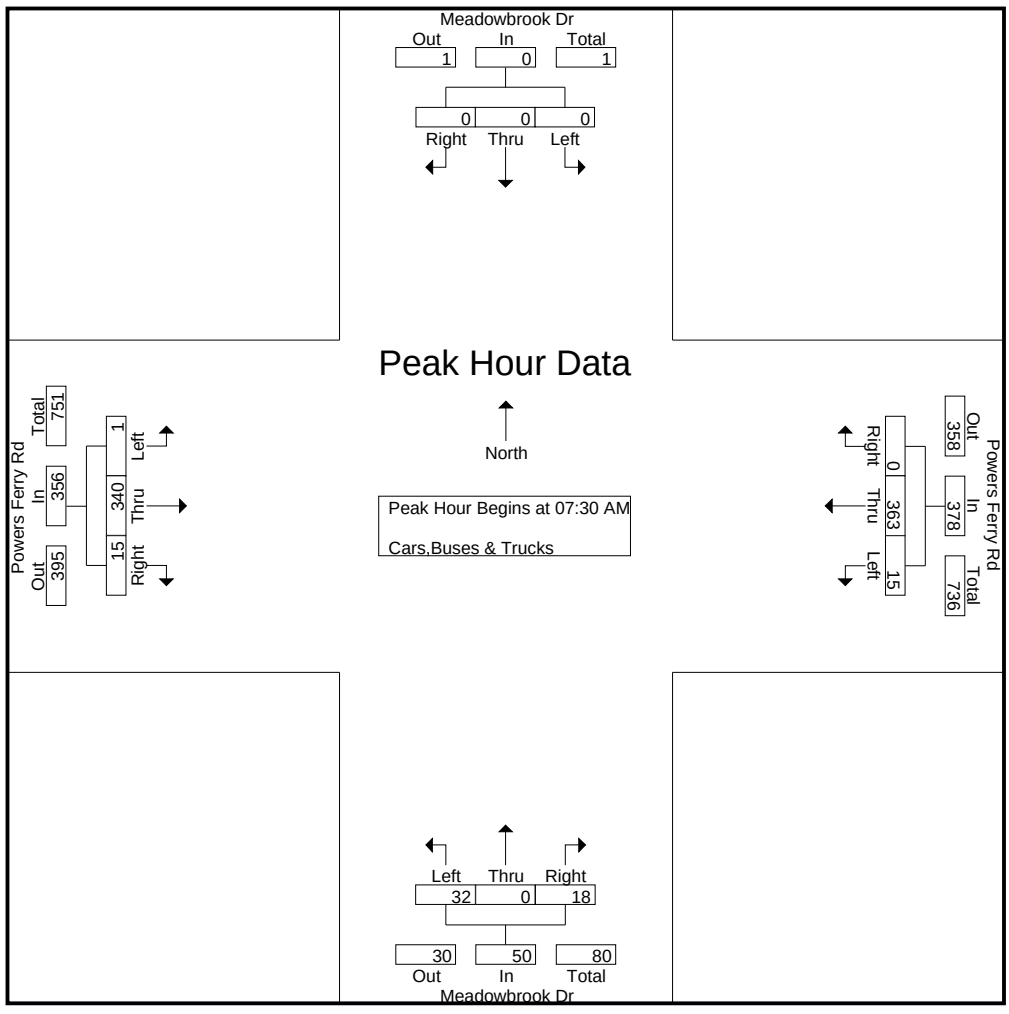
A & R Engineering, Inc.

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

TMC DATA
Powers Ferry Rd @
Meadowbrook Dr
7-9 am l 4-6 pm

File Name : 20200143
Site Code : 20200143
Start Date : 12/3/2020
Page No : 2

	Meadowbrook Dr Northbound				Meadowbrook Dr Southbound				Powers Ferry Rd Eastbound				Powers Ferry Rd 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 07:30 AM																	
07:30 AM	8	0	3	11	0	0	0	0	0	80	2	82	3	85	0	88	181
07:45 AM	**10**	0	**8**	**18**	0	0	0	0	0	**96**	4	**100**	4	**102**	0	**106**	**224**
08:00 AM	4	0	2	6	0	0	0	0	0	92	**5**	97	**5**	92	0	97	200
08:15 AM	10	0	5	15	0	0	0	0	**1**	72	4	77	3	84	0	87	179
Total Volume	32	0	18	50	0	0	0	0	1	340	15	356	15	363	0	378	784
% App. Total	64	0	36		0	0	0		0.3	95.5	4.2		4	96	0		
PHF	.800	.000	.563	.694	.000	.000	.000	.000	.250	.885	.750	.890	.750	.890	.000	.892	.875



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
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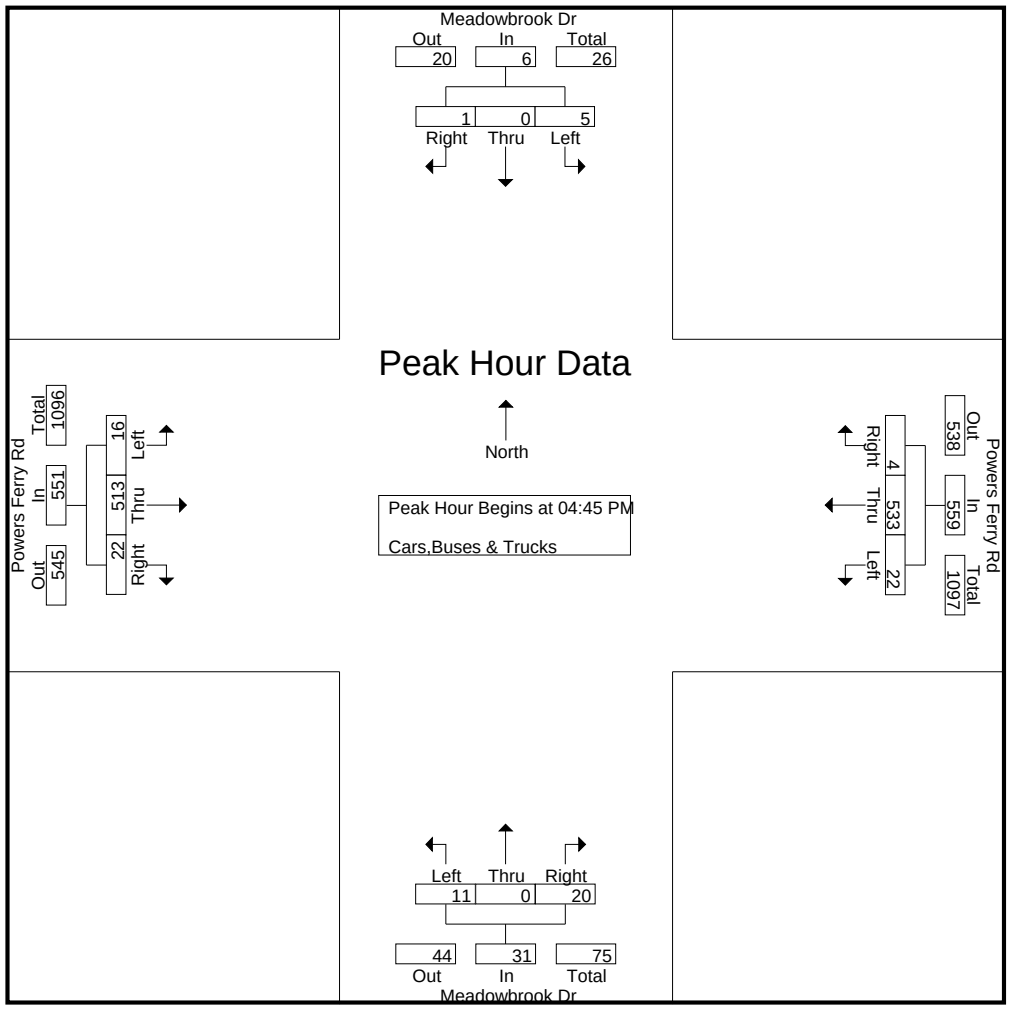
TMC DATA
Powers Ferry Rd @
Meadowbrook Dr
7-9 am l 4-6 pm

File Name : 20200143
Site Code : 20200143
Start Date : 12/3/2020
Page No : 3

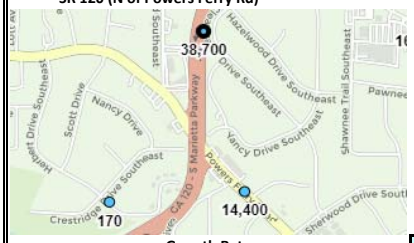
	Meadowbrook Dr Northbound				Meadowbrook Dr Southbound				Powers Ferry Rd Eastbound				Powers Ferry Rd Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**3**	0	3	6	1	0	0	1	2	109	5	116	**8**	**149**	1	**158**	281
05:00 PM	2	0	3	5	0	0	**1**	1	2	116	5	123	5	128	**2**	135	264
05:15 PM	3	0	**7**	**10**	**2**	0	0	**2**	5	**153**	5	**163**	4	131	0	135	**310**
05:30 PM	3	0	7	10	2	0	0	2	**7**	135	**7**	149	5	125	1	131	292
Total Volume	11	0	20	31	5	0	1	6	16	513	22	551	22	533	4	559	1147
% App. Total	35.5	0	64.5		83.3	0	16.7		2.9	93.1	4		3.9	95.3	0.7		
PHF	.917	.000	.714	.775	.625	.000	.250	.750	.571	.838	.786	.845	.688	.894	.500	.884	.925

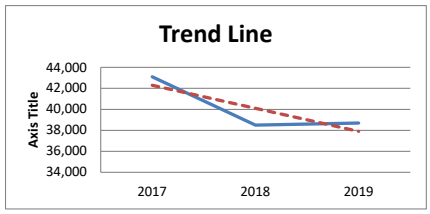


LINEAR REGRESSION OF DAILY TRAFFIC

Location	Growth Rate	R Squared	Station ID	Route	2017	2018	2019
SR 120 (N of Powers Ferry Rd)	-5.3%	0.72	067-2423	00012000	43,100	38,500	38,700
SR 120 (S of Powers Ferry Rd)	6.6%	0.74	067-2425	00012000	40,500	40,400	45,900
Powers Ferry Rd (SE of SR 120)	0.7%	0.43	067-2094	00115400	14,200	14,100	14,400
Roswell Rd (W of Powers Ferry	-1.9%	0.75	067-2474	000003CO	26,200	26,200	25,200
Roswell Rd (SW of Hamilton Trc	-6.1%	0.72	067-2476	000003CO	21,700	19,100	19,200
Weighted Average	**-0.8%**	0.09	Sum of Count Stations =		145,700	138,300	143,400

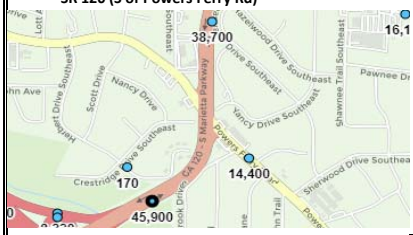
Location	Traffic Counter	RCLINK	2017	2018	2019
SR 120 (N of Powers Ferry Rd)	067-2423	00012000	43,100	38,500	38,700

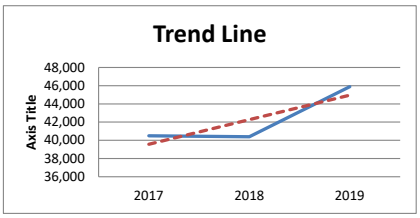




Growth Rate	-5.3%	Intercept	4,479,700	Slope	-2,200.00
Trend Line			42,300	40,100	37,900

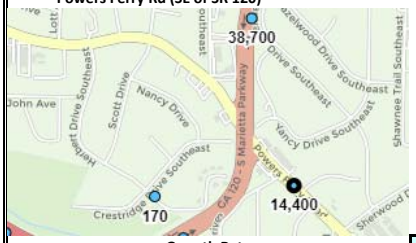
Location	Traffic Counter	RCLINK	2017	2018	2019
SR 120 (S of Powers Ferry Rd)	067-2425	00012000	40,500	40,400	45,900

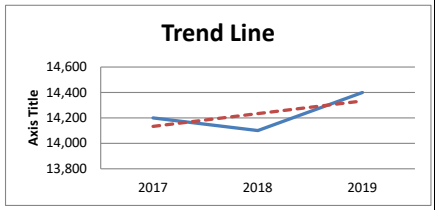




Growth Rate	6.6%	Intercept	-5,406,333	Slope	2,700.00
Trend Line			39,567	42,267	44,967

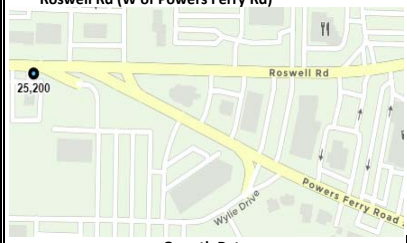
Location	Traffic Counter	RCLINK	2017	2018	2019
Powers Ferry Rd (SE of SR 120)	067-2094	00115400	14,200	14,100	14,400

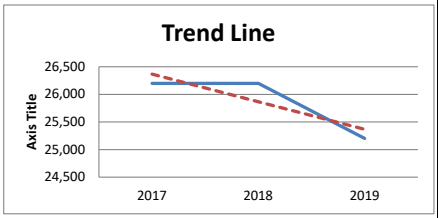




Growth Rate	0.7%	Intercept	-187,567	Slope	100.00
Trend Line			14,133	14,233	14,333

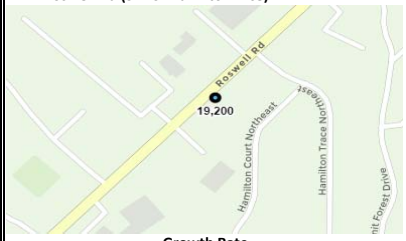
Location	Traffic Counter	RCLINK	2017	2018	2019
Roswell Rd (W of Powers Ferry Rd)	067-2474	000003CO	26,200	26,200	25,200

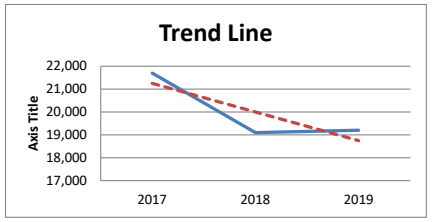




Growth Rate	-1.9%	Intercept	1,034,867	Slope	-500.00
Trend Line			26,367	25,867	25,367

Location	Traffic Counter	RCLINK	2017	2018	2019
Roswell Rd (SW of Hamilton Trce)	067-2476	000003CO	21,700	19,100	19,200





Growth Rate	-6.1%	Intercept	2,542,500	Slope	-1,250.00
Trend Line			21,250	20,000	18,750

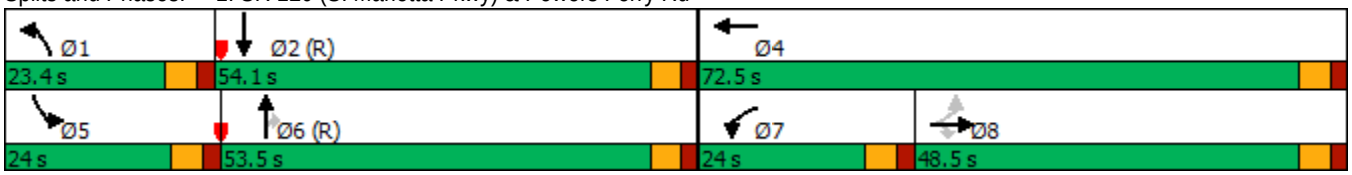
EXISTING INTERSECTION ANALYSIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	137	216	243	86	103	1163	194	171	1231
Future Volume (vph)	16	137	216	243	86	103	1163	194	171	1231
Lane Group Flow (vph)	18	154	243	273	304	116	1307	218	192	1412
Turn Type	Perm	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4	1	6		5	2
Permitted Phases	8		8					6		
Detector Phase	8	8	8	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	72.5	10.5	53.5	53.5	10.5	49.5
Total Split (s)	48.5	48.5	48.5	24.0	72.5	23.4	53.5	53.5	24.0	54.1
Total Split (%)	32.3%	32.3%	32.3%	16.0%	48.3%	15.6%	35.7%	35.7%	16.0%	36.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.21	0.53	0.69	0.73	0.34	0.65	0.40	0.24	0.72	0.39
Control Delay	68.4	72.2	17.7	76.0	15.5	81.3	24.3	3.6	75.3	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.4	72.2	17.7	76.0	15.5	81.3	24.3	3.6	75.3	20.0
Queue Length 50th (ft)	17	77	0	134	40	111	226	0	181	219
Queue Length 95th (ft)	42	111	82	181	75	173	295	48	257	293
Internal Link Dist (ft)		1228			530		1619			1724
Turn Bay Length (ft)	125		145	250		300		385	230	
Base Capacity (vph)	302	1014	627	423	1534	218	3266	913	273	3584
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.15	0.39	0.65	0.20	0.53	0.40	0.24	0.70	0.39

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 120 (S. Marietta Pkwy) & Powers Ferry Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	137	216	243	86	184	103	1163	194	171	1231	26
Future Volume (veh/h)	16	137	216	243	86	184	103	1163	194	171	1231	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	154	243	273	97	207	116	1307	0	192	1383	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	619	276	324	541	483	138	2996		213	3266	
Arrive On Green	0.17	0.17	0.17	0.09	0.30	0.30	0.08	0.47	0.00	0.12	0.51	0.00
Sat Flow, veh/h	1075	3554	1585	3456	1777	1585	1781	6434	1585	1781	6696	0
Grp Volume(v), veh/h	18	154	243	273	97	207	116	1307	0	192	1383	0
Grp Sat Flow(s),veh/h/ln	1075	1777	1585	1728	1777	1585	1781	1609	1585	1781	1609	0
Q Serve(g_s), s	2.1	5.6	22.4	11.7	6.0	15.7	9.6	20.4	0.0	16.0	20.2	0.0
Cycle Q Clear(g_c), s	2.1	5.6	22.4	11.7	6.0	15.7	9.6	20.4	0.0	16.0	20.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	235	619	276	324	541	483	138	2996		213	3266	
V/C Ratio(X)	0.08	0.25	0.88	0.84	0.18	0.43	0.84	0.44		0.90	0.42	
Avail Cap(c_a), veh/h	356	1019	454	426	794	708	213	2996		220	3266	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.0	53.5	60.4	66.9	38.4	41.7	68.2	26.9	0.0	65.1	23.2	0.0
Incr Delay (d2), s/veh	0.1	0.2	10.8	11.2	0.2	0.6	15.9	0.5	0.0	34.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.5	9.8	5.6	2.7	6.2	4.9	7.6	0.0	9.1	7.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	53.7	71.2	78.1	38.5	42.3	84.1	27.3	0.0	99.5	23.6	0.0
LnGrp LOS	D	D	E	E	D	D	F	C		F	C	
Approach Vol, veh/h		415			577			1423	A		1575	A
Approach Delay, s/veh		63.9			58.6			32.0			32.8	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.2	81.6		51.2	23.5	75.3	19.6	31.6
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	17.9	48.6		67.0	18.5	48.0	18.5	43.0
Max Q Clear Time (g_c+I1), s	11.6	22.2		17.7	18.0	22.4	13.7	24.4
Green Ext Time (p_c), s	0.1	17.0		2.0	0.0	15.8	0.4	1.7

Intersection Summary		
HCM 6th Ctrl Delay		39.5
HCM 6th LOS		D

Notes

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

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	462	20	20	494	44	24
Future Vol, veh/h	462	20	20	494	44	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	155	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	525	23	23	561	50	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	548	0	1132	525
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	607	-
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	-	-	1021	-	225	552
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	544	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1021	-	220	552
Mov Cap-2 Maneuver	-	-	-	-	356	-
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	531	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	15.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	407	-	-	1021	-
HCM Lane V/C Ratio	0.19	-	-	0.022	-
HCM Control Delay (s)	15.9	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	27	0	24	16	0	41
Future Vol, veh/h	27	0	24	16	0	41
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	0	26	17	0	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	29	0	98	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	69	-
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	-	-	1584	-	901	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1584	-	886	1046
Mov Cap-2 Maneuver	-	-	-	-	886	-
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	938	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.4	8.6
HCM LOS			A

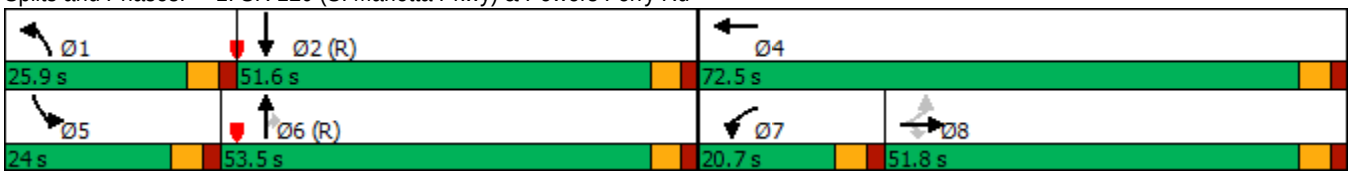
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1046	-	-	1584	-
HCM Lane V/C Ratio	0.043	-	-	0.016	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

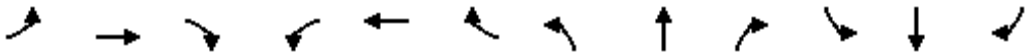
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	23	164	158	192	209	174	1858	382	257	1109
Future Volume (vph)	23	164	158	192	209	174	1858	382	257	1109
Lane Group Flow (vph)	25	178	172	209	605	189	2020	415	279	1250
Turn Type	Perm	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4	1	6		5	2
Permitted Phases	8		8					6		
Detector Phase	8	8	8	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	72.5	10.5	53.5	53.5	10.5	49.5
Total Split (s)	51.8	51.8	51.8	20.7	72.5	25.9	53.5	53.5	24.0	51.6
Total Split (%)	34.5%	34.5%	34.5%	13.8%	48.3%	17.3%	35.7%	35.7%	16.0%	34.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.38	0.58	0.58	0.67	0.65	0.74	0.76	0.46	0.61	0.37
Control Delay	80.4	72.8	16.6	76.9	28.1	78.2	39.7	4.5	56.8	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.4	72.8	16.6	76.9	28.1	78.2	39.7	4.5	56.8	22.0
Queue Length 50th (ft)	24	90	0	103	138	180	470	3	249	203
Queue Length 95th (ft)	56	127	73	147	196	257	550	73	355	272
Internal Link Dist (ft)		1228			530		1619			1724
Turn Bay Length (ft)	125		145	250		300		385	230	
Base Capacity (vph)	230	1092	607	347	1605	272	2666	897	458	3384
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.16	0.28	0.60	0.38	0.69	0.76	0.46	0.61	0.37

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 146.2 (97%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 120 (S. Marietta Pkwy) & Powers Ferry Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	164	158	192	209	348	174	1858	382	257	1109	41
Future Volume (veh/h)	23	164	158	192	209	348	174	1858	382	257	1109	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	178	172	209	227	378	189	2020	0	279	1205	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	601	268	258	498	444	211	3129		220	3159	
Arrive On Green	0.17	0.17	0.17	0.07	0.28	0.28	0.12	0.49	0.00	0.12	0.49	0.00
Sat Flow, veh/h	815	3554	1585	3456	1777	1585	1781	6434	1585	1781	6696	0
Grp Volume(v), veh/h	25	178	172	209	227	378	189	2020	0	279	1205	0
Grp Sat Flow(s),veh/h/ln	815	1777	1585	1728	1777	1585	1781	1609	1585	1781	1609	0
Q Serve(g_s), s	4.5	6.6	15.2	8.9	15.8	33.8	15.7	35.3	0.0	18.5	17.6	0.0
Cycle Q Clear(g_c), s	21.6	6.6	15.2	8.9	15.8	33.8	15.7	35.3	0.0	18.5	17.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	93	601	268	258	498	444	211	3129		220	3159	
V/C Ratio(X)	0.27	0.30	0.64	0.81	0.46	0.85	0.89	0.65		1.27	0.38	
Avail Cap(c_a), veh/h	207	1097	489	350	794	708	242	3129		220	3159	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	69.1	54.5	58.1	68.4	44.5	51.0	65.2	28.8	0.0	65.8	23.9	0.0
Incr Delay (d2), s/veh	1.5	0.3	2.6	9.9	0.7	5.7	29.2	1.0	0.0	152.2	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.0	6.3	4.3	7.1	14.1	8.6	13.0	0.0	17.4	6.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.6	54.8	60.6	78.2	45.2	56.7	94.3	29.9	0.0	218.0	24.3	0.0
LnGrp LOS	E	D	E	E	D	E	F	C		F	C	
Approach Vol, veh/h		375			814			2209	A		1484	A
Approach Delay, s/veh		58.5			59.0			35.4			60.7	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.3	79.1		47.6	24.0	78.4	16.7	30.9
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	20.4	46.1		67.0	18.5	48.0	15.2	46.3
Max Q Clear Time (g_c+I1), s	17.7	19.6		35.8	20.5	37.3	10.9	23.6
Green Ext Time (p_c), s	0.1	14.9		4.2	0.0	10.0	0.3	1.8

Intersection Summary			
HCM 6th Ctrl Delay		48.8	
HCM 6th LOS		D	

Notes

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

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	682	29	29	709	15	27
Future Vol, veh/h	682	29	29	709	15	27
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	155	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	733	31	31	762	16	29

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	764	0	1557	733
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	824	-
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	-	-	849	-	124	421
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	431	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	849	-	119	421
Mov Cap-2 Maneuver	-	-	-	-	256	-
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	415	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	17.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	342	-	-	849	-
HCM Lane V/C Ratio	0.132	-	-	0.037	-
HCM Control Delay (s)	17.1	-	-	9.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	16	0	35	24	0	25
Future Vol, veh/h	16	0	35	24	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	0	38	26	0	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	17	0	119	17
Stage 1	-	-	-	-	17	-
Stage 2	-	-	-	-	102	-
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	-	-	1600	-	877	1062
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	922	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1600	-	856	1062
Mov Cap-2 Maneuver	-	-	-	-	856	-
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	900	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1062	-	-	1600	-
HCM Lane V/C Ratio	0.026	-	-	0.024	-
HCM Control Delay (s)	8.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

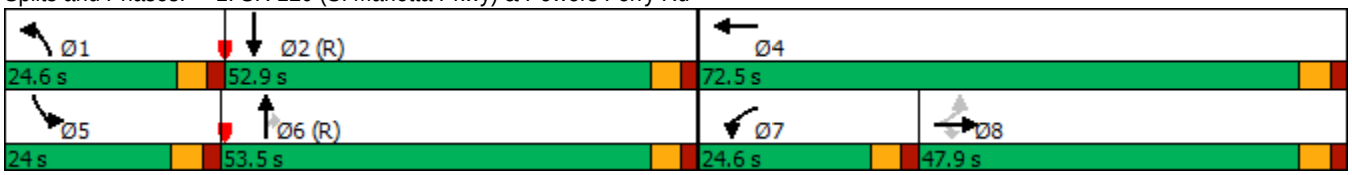
FUTURE "NO-BUILD" INTERSECTION ANALYSIS

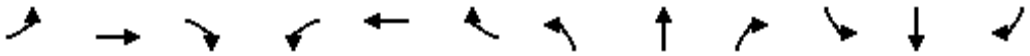
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	23	163	252	250	96	115	1198	200	176	1268
Future Volume (vph)	23	163	252	250	96	115	1198	200	176	1268
Lane Group Flow (vph)	26	183	283	281	321	129	1346	225	198	1458
Turn Type	Perm	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4	1	6		5	2
Permitted Phases	8		8					6		
Detector Phase	8	8	8	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	72.5	10.5	53.5	53.5	10.5	49.5
Total Split (s)	47.9	47.9	47.9	24.6	72.5	24.6	53.5	53.5	24.0	52.9
Total Split (%)	31.9%	31.9%	31.9%	16.4%	48.3%	16.4%	35.7%	35.7%	16.0%	35.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.26	0.54	0.75	0.73	0.34	0.68	0.43	0.25	0.71	0.43
Control Delay	67.0	69.4	23.3	75.6	15.1	81.3	27.1	4.1	73.9	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.0	69.4	23.3	75.6	15.1	81.3	27.1	4.1	73.9	22.8
Queue Length 50th (ft)	24	92	30	138	44	124	243	0	186	238
Queue Length 95th (ft)	54	124	121	185	76	188	331	53	263	335
Internal Link Dist (ft)		1228			530		1619			1724
Turn Bay Length (ft)	125		145	250		300		385	230	
Base Capacity (vph)	293	1000	627	437	1540	232	3117	885	281	3426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.18	0.45	0.64	0.21	0.56	0.43	0.25	0.70	0.43

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 120 (S. Marietta Pkwy) & Powers Ferry Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	163	252	250	96	190	115	1198	200	176	1268	29
Future Volume (veh/h)	23	163	252	250	96	190	115	1198	200	176	1268	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	183	283	281	108	213	129	1346	0	198	1425	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	710	317	333	591	527	152	2794		219	3037	
Arrive On Green	0.20	0.20	0.20	0.10	0.33	0.33	0.09	0.43	0.00	0.12	0.47	0.00
Sat Flow, veh/h	1059	3554	1585	3456	1777	1585	1781	6434	1585	1781	6696	0
Grp Volume(v), veh/h	26	183	283	281	108	213	129	1346	0	198	1425	0
Grp Sat Flow(s),veh/h/ln	1059	1777	1585	1728	1777	1585	1781	1609	1585	1781	1609	0
Q Serve(g_s), s	3.0	6.5	26.1	12.0	6.5	15.5	10.7	22.5	0.0	16.5	22.5	0.0
Cycle Q Clear(g_c), s	3.0	6.5	26.1	12.0	6.5	15.5	10.7	22.5	0.0	16.5	22.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	260	710	317	333	591	527	152	2794		219	3037	
V/C Ratio(X)	0.10	0.26	0.89	0.85	0.18	0.40	0.85	0.48		0.90	0.47	
Avail Cap(c_a), veh/h	347	1005	448	440	794	708	227	2794		220	3037	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.2	50.6	58.4	66.7	35.5	38.6	67.7	30.4	0.0	64.9	26.9	0.0
Incr Delay (d2), s/veh	0.2	0.2	15.2	11.0	0.1	0.5	17.2	0.6	0.0	35.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.9	11.8	5.8	2.9	6.1	5.5	8.4	0.0	9.4	8.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.4	50.8	73.7	77.7	35.7	39.1	84.9	31.0	0.0	100.6	27.4	0.0
LnGrp LOS	D	D	E	E	D	D	F	C		F	C	
Approach Vol, veh/h		492			602			1475	A		1623	A
Approach Delay, s/veh		63.9			56.5			35.7			36.3	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	76.3		55.4	23.9	70.6	19.9	35.5
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	19.1	47.4		67.0	18.5	48.0	19.1	42.4
Max Q Clear Time (g_c+I1), s	12.7	24.5		17.5	18.5	24.5	14.0	28.1
Green Ext Time (p_c), s	0.1	15.8		2.1	0.0	15.3	0.4	1.9

Intersection Summary		
HCM 6th Ctrl Delay		42.2
HCM 6th LOS		D

Notes

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

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	498	21	21	516	45	25
Future Vol, veh/h	498	21	21	516	45	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	155	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	566	24	24	586	51	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	590	0	1200	566
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	634	-
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	-	-	985	-	204	524
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	529	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	985	-	199	524
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	516	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	386	-	-	985	-
HCM Lane V/C Ratio	0.206	-	-	0.024	-
HCM Control Delay (s)	16.7	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	0	25	16	0	42
Future Vol, veh/h	28	0	25	16	0	42
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	0	27	17	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	30	0	101	30
Stage 1	-	-	-	-	30	-
Stage 2	-	-	-	-	71	-
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	-	-	1583	-	898	1044
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	952	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1583	-	883	1044
Mov Cap-2 Maneuver	-	-	-	-	883	-
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	936	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.5	8.6
HCM LOS			A

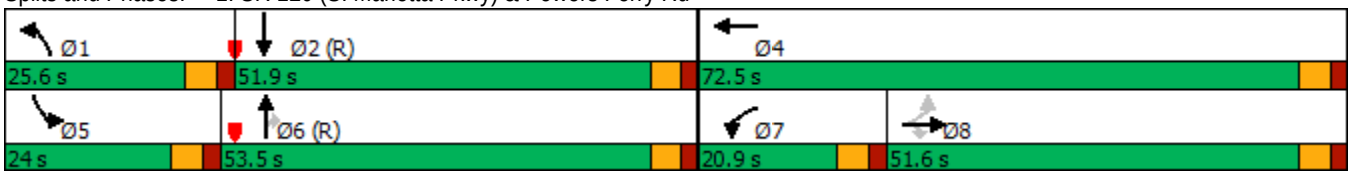
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1044	-	-	1583	-
HCM Lane V/C Ratio	0.044	-	-	0.017	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

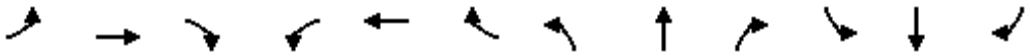
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	28	182	180	198	236	207	1914	394	265	1143
Future Volume (vph)	28	182	180	198	236	207	1914	394	265	1143
Lane Group Flow (vph)	30	198	196	215	647	225	2080	428	288	1295
Turn Type	Perm	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4	1	6		5	2
Permitted Phases	8		8					6		
Detector Phase	8	8	8	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	72.5	10.5	53.5	53.5	10.5	49.5
Total Split (s)	51.6	51.6	51.6	20.9	72.5	25.6	53.5	53.5	24.0	51.9
Total Split (%)	34.4%	34.4%	34.4%	13.9%	48.3%	17.1%	35.7%	35.7%	16.0%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.50	0.59	0.60	0.68	0.67	0.72	0.82	0.49	0.60	0.42
Control Delay	91.4	71.8	15.6	77.0	29.9	71.3	43.9	5.5	55.5	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.4	71.8	15.6	77.0	29.9	71.3	43.9	5.5	55.5	26.1
Queue Length 50th (ft)	29	100	0	106	160	209	506	11	256	234
Queue Length 95th (ft)	65	138	76	151	218	295	589	90	365	302
Internal Link Dist (ft)		1228			530		1619			1724
Turn Bay Length (ft)	125		145	250		300		385	230	
Base Capacity (vph)	193	1087	622	352	1610	312	2535	873	477	3117
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.18	0.32	0.61	0.40	0.72	0.82	0.49	0.60	0.42

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 120 (S. Marietta Pkwy) & Powers Ferry Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	182	180	198	236	359	207	1914	394	265	1143	49
Future Volume (veh/h)	28	182	180	198	236	359	207	1914	394	265	1143	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	198	196	215	257	390	225	2080	0	288	1242	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	98	644	287	264	523	466	239	3040		220	2971	
Arrive On Green	0.18	0.18	0.18	0.08	0.29	0.29	0.13	0.47	0.00	0.12	0.46	0.00
Sat Flow, veh/h	784	3554	1585	3456	1777	1585	1781	6434	1585	1781	6696	0
Grp Volume(v), veh/h	30	198	196	215	257	390	225	2080	0	288	1242	0
Grp Sat Flow(s),veh/h/ln	784	1777	1585	1728	1777	1585	1781	1609	1585	1781	1609	0
Q Serve(g_s), s	5.6	7.2	17.3	9.2	17.9	34.6	18.8	37.8	0.0	18.5	19.3	0.0
Cycle Q Clear(g_c), s	23.2	7.2	17.3	9.2	17.9	34.6	18.8	37.8	0.0	18.5	19.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	98	644	287	264	523	466	239	3040		220	2971	
V/C Ratio(X)	0.31	0.31	0.68	0.82	0.49	0.84	0.94	0.68		1.31	0.42	
Avail Cap(c_a), veh/h	197	1092	487	355	794	708	239	3040		220	2971	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	68.3	53.3	57.4	68.2	43.7	49.6	64.4	30.8	0.0	65.8	26.9	0.0
Incr Delay (d2), s/veh	1.7	0.3	2.9	10.2	0.7	5.4	42.6	1.3	0.0	168.6	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.3	7.2	4.4	8.0	14.3	11.1	14.1	0.0	18.4	7.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.1	53.5	60.2	78.5	44.4	55.0	106.9	32.1	0.0	234.3	27.4	0.0
LnGrp LOS	E	D	E	E	D	D	F	C		F	C	
Approach Vol, veh/h		424			862			2305	A		1530	A
Approach Delay, s/veh		57.8			57.7			39.4			66.3	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.6	74.8		49.6	24.0	76.4	16.9	32.7
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	20.1	46.4		67.0	18.5	48.0	15.4	46.1
Max Q Clear Time (g_c+I1), s	20.8	21.3		36.6	20.5	39.8	11.2	25.2
Green Ext Time (p_c), s	0.0	14.8		4.5	0.0	7.8	0.3	2.0

Intersection Summary		
HCM 6th Ctrl Delay		52.1
HCM 6th LOS		D

Notes

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

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	716	30	30	751	15	28
Future Vol, veh/h	716	30	30	751	15	28
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	155	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	770	32	32	808	16	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	802	0	1642	770
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	872	-
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	-	-	822	-	110	401
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	409	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	822	-	106	401
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	393	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	326	-	-	822	-
HCM Lane V/C Ratio	0.142	-	-	0.039	-
HCM Control Delay (s)	17.9	-	-	9.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	16	0	36	25	0	26
Future Vol, veh/h	16	0	36	25	0	26
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	0	39	27	0	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	17	0	122	17
Stage 1	-	-	-	-	17	-
Stage 2	-	-	-	-	105	-
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	-	-	1600	-	873	1062
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	919	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1600	-	851	1062
Mov Cap-2 Maneuver	-	-	-	-	851	-
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	896	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1062	-	-	1600	-
HCM Lane V/C Ratio	0.027	-	-	0.024	-
HCM Control Delay (s)	8.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

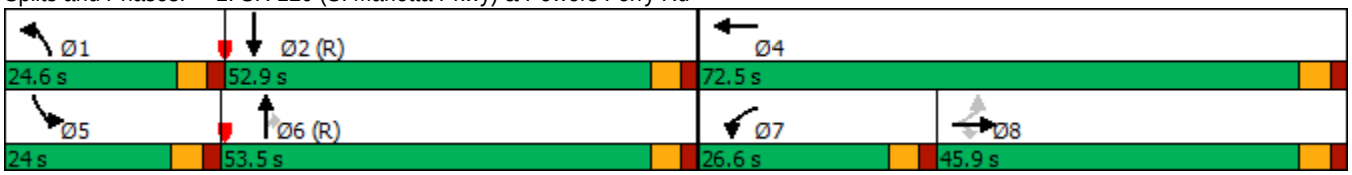
FUTURE "BUILD" INTERSECTION ANALYSIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	23	166	252	287	104	115	1198	214	181	1268
Future Volume (vph)	23	166	252	287	104	115	1198	214	181	1268
Lane Group Flow (vph)	26	187	283	322	344	129	1346	240	203	1458
Turn Type	Perm	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4	1	6		5	2
Permitted Phases	8		8					6		
Detector Phase	8	8	8	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	72.5	10.5	53.5	53.5	10.5	49.5
Total Split (s)	45.9	45.9	45.9	26.6	72.5	24.6	53.5	53.5	24.0	52.9
Total Split (%)	30.6%	30.6%	30.6%	17.7%	48.3%	16.4%	35.7%	35.7%	16.0%	35.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.26	0.54	0.75	0.76	0.35	0.68	0.45	0.28	0.71	0.44
Control Delay	66.8	69.3	24.5	75.1	14.6	81.3	29.0	4.3	72.7	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	69.3	24.5	75.1	14.6	81.3	29.0	4.3	72.7	24.1
Queue Length 50th (ft)	24	94	35	158	46	124	252	0	190	246
Queue Length 95th (ft)	53	125	127	208	78	188	342	56	268	346
Internal Link Dist (ft)		1228			530		1619			1724
Turn Bay Length (ft)	125		145	250		300		385	230	
Base Capacity (vph)	273	953	605	482	1550	232	2999	868	287	3341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.20	0.47	0.67	0.22	0.56	0.45	0.28	0.71	0.44

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 120 (S. Marietta Pkwy) & Powers Ferry Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	166	252	287	104	202	115	1198	214	181	1268	29
Future Volume (veh/h)	23	166	252	287	104	202	115	1198	214	181	1268	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	187	283	322	117	227	129	1346	0	203	1425	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	255	709	316	375	612	546	152	2716		220	2961	
Arrive On Green	0.20	0.20	0.20	0.11	0.34	0.34	0.09	0.42	0.00	0.12	0.46	0.00
Sat Flow, veh/h	1037	3554	1585	3456	1777	1585	1781	6434	1585	1781	6696	0
Grp Volume(v), veh/h	26	187	283	322	117	227	129	1346	0	203	1425	0
Grp Sat Flow(s),veh/h/ln	1037	1777	1585	1728	1777	1585	1781	1609	1585	1781	1609	0
Q Serve(g_s), s	3.1	6.7	26.1	13.7	6.9	16.4	10.7	22.9	0.0	16.9	23.0	0.0
Cycle Q Clear(g_c), s	3.1	6.7	26.1	13.7	6.9	16.4	10.7	22.9	0.0	16.9	23.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	255	709	316	375	612	546	152	2716		220	2961	
V/C Ratio(X)	0.10	0.26	0.90	0.86	0.19	0.42	0.85	0.50		0.92	0.48	
Avail Cap(c_a), veh/h	327	957	427	486	794	708	227	2716		220	2961	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.3	50.7	58.5	65.7	34.5	37.6	67.7	31.7	0.0	65.1	28.1	0.0
Incr Delay (d2), s/veh	0.2	0.2	16.9	11.6	0.1	0.5	17.2	0.6	0.0	40.3	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	3.0	11.9	6.6	3.1	6.5	5.5	8.7	0.0	9.9	8.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	50.9	75.4	77.3	34.6	38.1	84.9	32.3	0.0	105.3	28.6	0.0
LnGrp LOS	D	D	E	E	C	D	F	C		F	C	
Approach Vol, veh/h		496			666			1475	A		1628	A
Approach Delay, s/veh		64.8			56.5			36.9			38.2	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	74.5		57.2	24.0	68.8	21.8	35.4
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	19.1	47.4		67.0	18.5	48.0	21.1	40.4
Max Q Clear Time (g_c+I1), s	12.7	25.0		18.4	18.9	24.9	15.7	28.1
Green Ext Time (p_c), s	0.1	15.5		2.3	0.0	15.1	0.5	1.8

Intersection Summary		
HCM 6th Ctrl Delay		43.7
HCM 6th LOS		D

Notes

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

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	498	43	30	516	102	50
Future Vol, veh/h	498	43	30	516	102	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	155	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	566	49	34	586	116	57

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	615	0	1220	566
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	654	-
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	-	-	965	-	199	524
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	517	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	965	-	192	524
Mov Cap-2 Maneuver	-	-	-	-	330	-
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	499	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	22.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	376	-	-	965	-
HCM Lane V/C Ratio	0.459	-	-	0.035	-
HCM Control Delay (s)	22.5	-	-	8.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	2.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	105	0	26	45	0	44
Future Vol, veh/h	105	0	26	45	0	44
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	114	0	28	49	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	114	0	219	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	105	-
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	-	-	1475	-	769	939
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	919	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1475	-	754	939
Mov Cap-2 Maneuver	-	-	-	-	754	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	901	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	9
HCM LOS			A

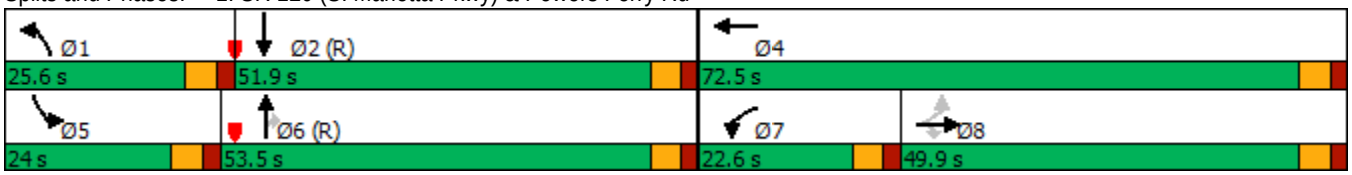
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	939	-	-	1475	-
HCM Lane V/C Ratio	0.051	-	-	0.019	-
HCM Control Delay (s)	9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

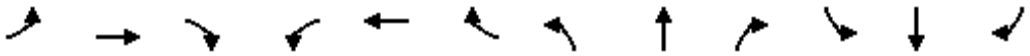
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	28	191	180	227	242	207	1914	434	278	1143
Future Volume (vph)	28	191	180	227	242	207	1914	434	278	1143
Lane Group Flow (vph)	30	208	196	247	664	225	2080	472	302	1295
Turn Type	Perm	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4	1	6		5	2
Permitted Phases	8		8					6		
Detector Phase	8	8	8	7	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	5.0	6.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	10.5	72.5	10.5	53.5	53.5	10.5	49.5
Total Split (s)	49.9	49.9	49.9	22.6	72.5	25.6	53.5	53.5	24.0	51.9
Total Split (%)	33.3%	33.3%	33.3%	15.1%	48.3%	17.1%	35.7%	35.7%	16.0%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.46	0.60	0.59	0.71	0.67	0.72	0.88	0.54	0.60	0.43
Control Delay	85.0	71.9	15.3	76.6	29.6	71.3	49.7	6.0	53.7	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.0	71.9	15.3	76.6	29.6	71.3	49.7	6.0	53.7	27.3
Queue Length 50th (ft)	28	104	0	121	167	209	527	12	266	239
Queue Length 95th (ft)	64	145	76	169	225	295	610	99	379	309
Internal Link Dist (ft)		1228			530		1619			1724
Turn Bay Length (ft)	125		145	250		300		385	230	
Base Capacity (vph)	200	1047	606	391	1609	312	2356	867	506	3042
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.20	0.32	0.63	0.41	0.72	0.88	0.54	0.60	0.43

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 120 (S. Marietta Pkwy) & Powers Ferry Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	191	180	227	242	369	207	1914	434	278	1143	49
Future Volume (veh/h)	28	191	180	227	242	369	207	1914	434	278	1143	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	208	196	247	263	401	225	2080	0	302	1242	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	98	635	283	297	535	478	239	2994		220	2926	
Arrive On Green	0.18	0.18	0.18	0.09	0.30	0.30	0.13	0.47	0.00	0.12	0.45	0.00
Sat Flow, veh/h	772	3554	1585	3456	1777	1585	1781	6434	1585	1781	6696	0
Grp Volume(v), veh/h	30	208	196	247	263	401	225	2080	0	302	1242	0
Grp Sat Flow(s),veh/h/ln	772	1777	1585	1728	1777	1585	1781	1609	1585	1781	1609	0
Q Serve(g_s), s	5.7	7.7	17.4	10.6	18.2	35.5	18.8	38.3	0.0	18.5	19.6	0.0
Cycle Q Clear(g_c), s	22.8	7.7	17.4	10.6	18.2	35.5	18.8	38.3	0.0	18.5	19.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	98	635	283	297	535	478	239	2994		220	2926	
V/C Ratio(X)	0.31	0.33	0.69	0.83	0.49	0.84	0.94	0.69		1.37	0.42	
Avail Cap(c_a), veh/h	188	1052	469	394	794	708	239	2994		220	2926	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	68.3	53.7	57.7	67.5	43.0	49.0	64.4	31.7	0.0	65.8	27.6	0.0
Incr Delay (d2), s/veh	1.7	0.3	3.0	10.9	0.7	5.8	42.6	1.4	0.0	194.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.5	7.2	5.1	8.1	14.7	11.1	14.3	0.0	20.0	7.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.0	54.0	60.7	78.4	43.7	54.9	106.9	33.0	0.0	260.4	28.1	0.0
LnGrp LOS	E	D	E	E	D	D	F	C		F	C	
Approach Vol, veh/h		434			911			2305	A		1544	A
Approach Delay, s/veh		58.2			58.0			40.2			73.5	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.6	73.7		50.7	24.0	75.3	18.4	32.3
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	20.1	46.4		67.0	18.5	48.0	17.1	44.4
Max Q Clear Time (g_c+I1), s	20.8	21.6		37.5	20.5	40.3	12.6	24.8
Green Ext Time (p_c), s	0.0	14.7		4.6	0.0	7.3	0.3	2.0

Intersection Summary			
HCM 6th Ctrl Delay		54.8	
HCM 6th LOS		D	

Notes

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

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	716	92	57	751	60	48
Future Vol, veh/h	716	92	57	751	60	48
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	155	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	770	99	61	808	65	52

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	869	0	1700	770
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	930	-
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	-	-	775	-	101	401
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	384	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	775	-	93	401
Mov Cap-2 Maneuver	-	-	-	-	224	-
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	354	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	26.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	279	-	-	775	-
HCM Lane V/C Ratio	0.416	-	-	0.079	-
HCM Control Delay (s)	26.8	-	-	10	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	2	-	-	0.3	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	74	0	39	109	0	28
Future Vol, veh/h	74	0	39	109	0	28
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	0	42	118	0	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	80	0	282	80
Stage 1	-	-	-	-	80	-
Stage 2	-	-	-	-	202	-
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	-	-	1518	-	708	980
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	832	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1518	-	687	980
Mov Cap-2 Maneuver	-	-	-	-	687	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	807	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	980	-	-	1518	-
HCM Lane V/C Ratio	0.031	-	-	0.028	-
HCM Control Delay (s)	8.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

TRAFFIC VOLUME WORKSHEETS

20-116 - Mixed-Use Development on South Marietta Parkway

Traffic Volumes

A&R Engineering
January 2021

1. SR 120 @ Powers Ferry Rd

A.M. Peak Hour

Condition	SR 120 (S. Marietta Parkway) Northbound				SR 120 (S. Marietta Parkway) Southbound				Powers Ferry Road Eastbound				Powers Ferry Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2020 Volumes during Covid-19:	76	855	143	1074	126	905	19	1050	12	101	159	272	179	63	135	377
Adjusted Existing 2020 Volumes:	103	1163	194	1460	171	1231	26	1428	16	137	216	369	243	86	184	513
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Adjacent Site Trips:	9	0	0	9	0	0	2	2	7	22	29	58	0	7	0	7
No-Build 2023 Volumes:	115	1198	200	1513	176	1268	29	1473	23	163	252	438	250	96	190	536
Total New Trips:	0	0	14	14	5	0	0	5	0	3	0	3	37	8	12	57
Future 2023 Traffic Volumes:	115	1198	214	1527	181	1268	29	1478	23	166	252	441	287	104	202	593

P.M. Peak Hour

Condition	SR 120 (S. Marietta Parkway) Northbound				SR 120 (S. Marietta Parkway) Southbound				Powers Ferry Road Eastbound				Powers Ferry Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2020 Volumes during Covid-19:	131	1397	287	1815	193	834	31	1058	17	123	119	259	144	157	262	563
Adjusted Existing 2020 Volumes:	174	1858	382	2414	257	1109	41	1407	23	164	158	345	192	209	348	749
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Adjacent Site Trips:	28	0	0	28	0	0	7	7	4	13	17	34	0	21	0	21
No-Build 2023 Volumes:	207	1914	394	2515	265	1143	49	1457	28	182	180	390	198	236	359	793
Total New Trips:	0	0	40	40	13	0	0	13	0	9	0	9	29	6	10	45
Future 2023 Traffic Volumes:	207	1914	434	2555	278	1143	49	1470	28	191	180	399	227	242	369	838

20-116 - Mixed-Use Development on South Marietta Parkway

Traffic Volumes

A&R Engineering
January 2021

2. Powers Ferry @ Meadowbrook

A.M. Peak Hour

	Meadowbrook Drive Northbound				Powers Ferry Place Drwy Southbound				Powers Ferry Road Eastbound				Powers Ferry Road Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2020 Volumes during Covid-19:	32	0	18	50	0	0	0	0	0	340	15	355	15	363	0	378
Adjusted Existing 2020 Volumes:	44	0	24	68	0	0	0	0	0	462	20	482	20	494	0	514
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Adjacent Site Trips:	0	0	0	0	0	0	0	0	0	22	0	22	0	7	0	7
No-Build 2023 Volumes:	45	0	25	70	0	0	0	0	0	498	21	519	21	516	0	537
Total New Trips:	57	0	25	82	0	0	0	0	0	0	22	22	9	0	0	9
Future 2023 Traffic Volumes:	102	0	50	152	0	0	0	0	0	498	43	541	30	516	0	546

P.M. Peak Hour

	Meadowbrook Drive Northbound				Powers Ferry Place Drwy Southbound				Powers Ferry Road Eastbound				Powers Ferry Road Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2020 Volumes during Covid-19:	11	0	20	31	5	0	1	6	0	513	22	535	22	533	0	555
Adjusted Existing 2020 Volumes:	15	0	27	42	7	0	1	8	0	682	29	711	29	709	0	738
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Adjacent Site Trips:	0	0	0	0	0	0	0	0	0	13	0	13	0	21	0	21
No-Build 2023 Volumes:	15	0	28	43	7	0	1	8	0	716	30	746	30	751	0	781
Total New Trips:	45	0	19	64	0	0	0	0	0	0	62	62	27	0	0	27
Future 2023 Traffic Volumes:	60	0	47	107	7	0	1	8	0	716	92	808	57	751	0	808

20-116 - Mixed-Use Development on South Marietta Parkway

Traffic Volumes

A&R Engineering
January 2021

3. Meadowbrook Dr @ Virginia Pl

A.M. Peak Hour

	Virginia Place Northbound				- Southbound				Meadowbrook Drive Eastbound				Meadowbrook Drive Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2020 Volumes during Covid-19:	0	0	30	30	0	0	0	0	0	20	0	20	18	12	0	30
Adjusted Existing 2020 Volumes:	0	0	41	41	0	0	0	0	0	27	0	27	24	16	0	40
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Adjacent Site Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2023 Volumes:	0	0	42	42	0	0	0	0	0	28	0	28	25	16	0	41
Total New Trips:	0	0	2	2	0	0	0	0	0	77	0	77	1	29	0	30
Future 2023 Traffic Volumes:	0	0	44	44	0	0	0	0	0	105	0	105	26	45	0	71

P.M. Peak Hour

	Virginia Place Northbound				- Southbound				Meadowbrook Drive Eastbound				Meadowbrook Drive Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2020 Volumes during Covid-19:	0	0	19	19	0	0	0	0	0	12	0	12	26	18	0	44
Adjusted Existing 2020 Volumes:	0	0	25	25	0	0	0	0	0	16	0	16	35	24	0	59
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Adjacent Site Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2023 Volumes:	0	0	26	26	0	0	0	0	0	16	0	16	36	25	0	61
Total New Trips:	0	0	2	2	0	0	0	0	0	60	0	60	3	84	0	87
Future 2023 Traffic Volumes:	0	0	28	28	0	0	0	0	0	76	0	76	39	109	0	148

20-116 - Mixed-Use Development on South Marietta Parkway

Traffic Volumes

A&R Engineering
January 2021

4. Meadowbrook Dr @ Retail Drwy

A.M. Peak Hour

	Meadowbrook Drive Northbound				Meadowbrook Drive Southbound				- Eastbound				Retail Site Driveway Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2020 Volumes during Covid-19:	0	0	0	0	0	0	0	0	0	50	0	50	0	30	0	30
Adjusted Existing 2020 Volumes:	0	0	0	0	0	0	0	0	0	68	0	68	0	41	0	41
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Adjacent Site Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2023 Volumes:	0	0	0	0	0	0	0	0	0	70	0	70	0	42	0	42
Total New Trips:	0	0	2	2	0	0	0	0	0	80	0	80	1	30	0	31
Future 2023 Traffic Volumes:	0	0	2	2	0	0	0	0	0	150	0	150	1	72	0	73

P.M. Peak Hour

	Meadowbrook Drive Northbound				Meadowbrook Drive Southbound				- Eastbound				Retail Site Driveway Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2020 Volumes during Covid-19:	0	0	0	0	0	0	0	0	0	31	0	31	0	44	0	44
Adjusted Existing 2020 Volumes:	0	0	0	0	0	0	0	0	0	41	0	41	0	59	0	59
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Adjacent Site Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2023 Volumes:	0	0	0	0	0	0	0	0	0	42	0	42	0	61	0	61
Total New Trips:	0	0	2	2	0	0	0	0	0	62	0	62	3	86	0	89
Future 2023 Traffic Volumes:	0	0	2	2	0	0	0	0	0	104	0	104	3	147	0	150