

DRAFT



March 15, 2019

Kenny Blackwood
Superintendent
Spartanburg School District Three
3535 Clifton Glendale Road
Spartanburg, SC 29307

**RE: Traffic Impact and Access Study
Proposed Middle School Site
Spartanburg County School District Three
Spartanburg County, South Carolina**

Dear Mr. Blackwood:

As requested, Short Engineering & Consulting, LLC has completed an assessment of the traffic impacts associated with the proposed Spartanburg County School District Three middle school site to be located within the Spartanburg County, South Carolina municipal limits. The following provides a summary of this study's findings.

PROJECT DESCRIPTION

The project site is generally located along the south side of Lewis Chapel Road, between Clifton Glendale Road and Goldmine Road. As proposed, the overall site (totaling [REDACTED]-acres) will be developed to include a public middle school which will be designed to accommodate a maximum total of 900 students.

Based on the current development schedule, the proposed middle school is expected to be fully constructed and operational by 2022 (Horizon Year).

Access for the site is proposed via the construction of two (2) new access driveways along Lewis Chapel Road. The specific location, user (passenger vehicle, buses, etc.) type, allowable movements, necessary laneage/geometrics and traffic control for the proposed access points will be formally discussed in a later section of this report.

Figure 1, located in the Appendix of this report, graphically depicts the site location in relation to the local/regional roadway system.

Figure 2, located in the Appendix of this report, graphically depicts the most up-to-date site plan as proposed.

EXISTING CONDITIONS

A comprehensive field inventory of the project study area has been conducted. The field inventory included a collection of geometric data, traffic volumes and traffic control within the study area.

The existing geometry and traffic control for the study area intersection(s) are depicted graphically in **Figure 3**, which follows this report.

Traffic Volumes

In order to determine the existing traffic volume flow patterns within the study area, weekday morning (7:00-9:00 AM), midday/school dismissal (2:00-4:00 PM) and evening (4:00-6:00 PM) peak period turning movement specific count data was collected for the following two (2) existing off-site intersections which represent the off-site project study area as designated by South Carolina Department of Transportation (SCDOT) staff:

- Clifton Glendale Road at Lewis Chapel Road
- Goldmine Road at Lewis Chapel Road

Summarized count sheets for these intersections are included in the Appendix of this report.

Figures 4-6, located in the Appendix, graphically depict the resultant Existing AM, Midday and PM peak-hour traffic volumes for the off-site study area intersections.

FUTURE CONDITIONS

Traffic analyses for future conditions have been conducted for two separate scenarios: first, 2022 No-Build conditions, which include an annual normal growth in traffic, all pertinent background development traffic, and any pertinent planned roadway/intersection improvements; and secondly, 2022 Build conditions, which account for all No-Build conditions PLUS traffic generated by the proposed development.

No-Build Traffic Conditions

Annual Growth Rate

Growth in the area was investigated via a nearby SCDOT permanent count stations as well as growth rate information utilized in past reports. Based on this information, a conservative 3-percent per year growth rate has been utilized.

Background Development

No specific background development projects are known to exist which are currently approved and/or permitted and will cause an increase/change in traffic volume (in excess of normal annual volume growth) within the immediate study area prior to or concurrent with the projected horizon year for the project.

The anticipated 2022 No-Build AM, Midday and PM peak-hour traffic volumes, which include the 3-percent annual growth, are shown in **Figures 7-9**, which follow this report.

Planned Roadway/Intersection Improvements

There are currently no known roadway/intersection improvement projects that are planned prior to or concurrent with the projected horizon year of the project that would affect study area roadway/intersection capacities and/or operations.

Site-Generated Traffic

Traffic volumes expected to be generated by the proposed project were forecasted using a combination of rates developed from local/empirical data as well as usage of the Tenth Edition of the ITE *Trip Generation* manual, as published by the Institute of Transportation Engineers.

A copy of all local/empirical data (as provided by School District Three staff) is included in the Appendix of this document.

Table 1 depicts the anticipated site-generated traffic for the proposed middle school site.

Table 1
PROJECT TRIP-GENERATION SUMMARY
Spartanburg County School District Three Middle School

Time Period	Spartanburg County District Three Middle School 900- Student Capacity			
	Student Drop-Off & Pick-Up (a)	Faculty & Staff (b)	Buses (c)	Total Trips (a + b + c)
Weekday Daily	NA	NA	NA	1,920
AM Peak-Hour <i>(Commuter Peak & School Enter)</i>				
Enter	189	132	22	343
<u>Exit</u>	<u>189</u>	<u>0</u>	<u>22</u>	<u>343</u>
Total	378	132	44	554
Midday Peak-Hour <i>(School Exit)</i>				
Enter	189	0	22	211
<u>Exit</u>	<u>189</u>	<u>132</u>	<u>22</u>	<u>343</u>
Total	378	132	44	554
PM Peak-Hour <i>(Commuter Peak)</i>				
Enter	38	37	0	75
<u>Exit</u>	<u>39</u>	<u>39</u>	<u>0</u>	<u>78</u>
Total	77	76	0	153

1. AM & Midday peak-hour trip generation based on rates & vehicle composition percentages developed from empirical data.
2. Weekday Daily trip generation based on ITE Trip Generation manual, Tenth Edition - LUC 522. Rounded to nearest applicable 10.
3. PM peak-hour trip generation based on ITE Trip Generation manual, Tenth Edition - LUC 522.
 Assume equal distribution between Faculty/Staff and Student Drop-Off/Pick-Up.

As shown, the middle school site can be expected to generate a total of **1,920** two-way vehicular trips on a weekday daily basis, of which a total of **554** trips (**343** entering, **211** exiting) can be expected during the AM peak-hour. During the Midday (School Exit) peak-hour, **554** trips (**211** entering, **343** exiting) can be expected. During the PM peak-hour, **153** trips (**75** entering, **78** exiting) can be expected.

Distribution Pattern

School District Three administrative staff was consulted in an effort to determine likely arrival/departure patterns for student drop-off/pickup vehicles, faculty/staff vehicles and buses. The trip distribution pattern for each user type is shown in **Tables 2a, 2b & 2c**. It should be noted that the distribution pattern for the bus traffic assumes that the buses would be stored off-site at 381 Cherry Hill Road after the morning arrival period is completed and then return from storage for the afternoon dismissal period.

Table 2a
TRIP DISTRIBUTION PATTERN
STUDENT DROP-OFF / PICK-UP VEHICLES
Spartanburg County School District Three Middle School

		STUDENT DROP-OFF / PICK-UP					
		AM PEAK-HOUR		MIDDAY PEAK-HOUR		PM PEAK-HOUR	
Roadways	Direction To / From	Entering Percent	Exiting Percent	Entering Percent	Exiting Percent	Entering Percent	Exiting Percent
Clifton Glendale Road	North	25	25	25	25	25	25
	South	25	25	25	25	25	25
Goldmine Road	North	25	25	25	25	25	25
	South	25	25	25	25	25	25
Total		100	100	100	100	100	100

Table 2b
TRIP DISTRIBUTION PATTERN
FACULTY & STAFF VEHICLES
Spartanburg County School District Three Middle School

		FACULTY & STAFF					
		AM PEAK-HOUR		MIDDAY PEAK-HOUR		PM PEAK-HOUR	
Roadways	Direction To / From	Entering Percent	Exiting Percent	Entering Percent	Exiting Percent	Entering Percent	Exiting Percent
Clifton Glendale Road	North	25	25	25	25	25	25
	South	25	25	25	25	25	25
Goldmine Road	North	25	25	25	25	25	25
	South	25	25	25	25	25	25
Total		100	100	100	100	100	100

Table 2c
TRIP DISTRIBUTION PATTERN
BUSES

Spartanburg County School District Three Middle School

		BUSES					
		AM PEAK-HOUR		MIDDAY PEAK-HOUR		PM PEAK-HOUR	
Roadways	Direction To / From	Entering Percent	Exiting Percent	Entering Percent	Exiting Percent	Entering Percent	Exiting Percent
Clifton Glendale Road	North	37.5	100	100	37.5	NA	NA
	South	37.5	0	0	37.5	NA	NA
Goldmine Road	North	12.5	0	0	12.5	NA	NA
	South	12.5	0	0	12.5	NA	NA
Total		100	100	100	100	NA	NA

These distribution patterns have been applied to the site-generated traffic volumes shown in Table 1 to develop the site-generated specific volumes for the study area intersections. These site-generated volumes are illustrated in **Figures 10-18**, which follow this report.

Build Traffic Conditions

The site-generated traffic, as depicted in Figures 10-18, has been added to the respective 2022 No-Build traffic volumes shown in Figures 7-9. This results in the peak-hour 2022 Buildout traffic volumes, which are graphically depicted in **Figures 19-21**. These volumes were used as the basis to determine potential improvement measures necessary to mitigate traffic impacts caused by the project.

TRAFFIC OPERATIONS

Analysis Methodology

A primary result of capacity analysis is the assignment of Level-of-Service (LOS) to traffic facilities under various traffic flow conditions. The concept of Level-of-Service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A Level-of-Service designation provides an index to the quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six Levels-of-Service are defined for each type of facility (signalized and unsignalized intersections). They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst.

Since the Level-of-Service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of Levels-of-Service depending on the time of day, day of week, or period of a year.

Capacity Analysis Results

As part of this Traffic Impact & Access Study (TIAS), capacity analyses have been performed at the off-site study area intersections in order to evaluate any potential project-related impact to the surrounding transportation system. The results of these analyses are summarized in **Table 3**.

Table 3
LEVEL-OF-SERVICE SUMMARY
OFF-SITE STUDY AREA INTERSECTIONS
Spartanburg County School District Three Middle School

	Time	2019 EXISTING		2022 NO-BUILD		2022 BUILD	
Unsignalized Intersection(s)	Period	Delay ^a	LOS ^b	Delay	LOS	Delay	LOS
Clifton Glendale Road at Lewis Chapel Road							
NB Approach - Left-Turn Movement (Clifton Glendale Road)	AM	8.2	A	8.3	A	8.3	A
	Midday	0.0	A	0.0	A	0.0	A
	PM	8.3	A	8.4	A	8.4	A
SB Approach - Left-Turn Movement (Clifton Glendale Road)	AM	8.8	A	9.0	A	10.3	B
	Midday	8.0	A	8.1	A	8.9	A
	PM	8.2	A	8.3	A	8.4	A
EB Approach (Lewis Chapel Road)	AM	21.1	C	23.4	C	47.2	E
	Midday	15.0	C	16.4	C	23.8	C
	PM	16.9	C	18.7	C	20.6	C
WB Approach (Lewis Chapel Road)	AM	14.6	C	16.3	C	127.3	F
	Midday	12.0	B	12.9	B	76.5	F
	PM	13.5	B	14.8	B	20.0	C
Goldmine Road at Lewis Chapel Road							
NB Approach - Left-Turn Movement (Goldmine Road)	AM	7.3	A	7.3	A	7.7	A
	Midday	7.3	A	7.3	A	7.5	A
	PM	7.3	A	7.3	A	7.4	A
EB Approach (Lewis Chapel Road)	AM	8.6	A	8.7	A	10.8	B
	Midday	8.6	A	8.7	A	10.6	B
	PM	8.7	A	8.7	A	9.2	A

a. Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

GENERAL NOTES:

1. For unsignalized TWSC intersections, Delay calculated via HCM 2010 methodology and is representative of critical movement/lane group/approach.

As shown in Table 3, under Existing conditions, each of the off-site unsignalized study area intersections operate at acceptable service levels (*in terms of all critical movements/lane groups/approaches analyzed*) during all time periods under review.

Under 2022 No-Build conditions, which include the application of the 3-percent normal annual growth rate, operating levels are projected to remain relatively consistent with those shown under Existing Conditions. All unsignalized study area intersections are projected to maintain acceptable operating levels.

2022 Build conditions, which account for the addition of site traffic related to the proposed middle school site, indicate increases in delay value throughout the study area. These increases are not projected to significantly impact operating levels at the Goldmine Road/Lewis Chapel Road but are projected to significantly impact the minor-street operating levels at the Clifton Glendale Road/Lewis Chapel Road intersection. Potential mitigation measures for the Clifton Glendale Road/Lewis Chapel Road intersection will be reviewed in a later section of this document.

RECOMMENDED MITIGATION

The final phase of the analysis process is to identify mitigating measures which may either minimize the impact of the project on the transportation system or tend to alleviate poor service levels not caused by the project. Measures considered necessary to mitigate roadway system deficiencies and/or support the project access requirements are discussed as follows.

Proposed Site Access

Access for the site is proposed via the construction of two (2) new access driveways along Lewis Chapel Road. The specific location, user (passenger vehicle, buses, etc.) type, allowable movements, necessary laneage/geometrics and traffic control for the proposed access points is discussed in the following sections.

Lewis Chapel Road at Western Site Access (*Full-Movement Access*)

This access is to be located along Lewis Chapel Road, approximately [REDACTED]-feet (inside edge to inside edge) east/west of Clifton Glendale Road/Goldmine Road. It is proposed as a full-movement access and will service all student drop-off/pick-up movements as well as all faculty/staff vehicles.

Per Chapter 4 of the SCDOT Access and Roadside Management Standards (ARMS) manual and direction from SCDOT Office of School Operations (OSO) staff, the recommended geometrics and traffic control for the Western Access is as follows:

- ***Eastbound (Lewis Chapel Road) Approach*** – Provide for a single through lane and a separate right-turn lane. Based on a review of **Figure A-9** of the SCDOT ARMS manual, a storage length of **150-feet** is recommended for the separate right-turn lane with a taper length of **150-feet**.
- ***Westbound (Lewis Chapel Road) Approach*** – Provide for a separate left-turn lane and a single through lane. Based on a review of **Figure A-9** of the SCDOT ARMS manual, a storage length of **250-feet** is recommended for the separate left-turn lane with a turn lane development length and reverse radius length to be based on the applicable design speed.
- ***Northbound (Western Site Access) Approach*** – Construct/stripe new northbound approach leg to create formalized intersection with Lewis Chapel Road. Provide a single entering lane to service all entering movements into the site. Provide a separate left-turn lane and a separate right-turn

lane to accommodate movements exiting the site. Based on a review of **Figure 9.5-K** of the *Highway Design Manual*, a storage length of **100 to 150-feet** is recommended for the separate right-turn lane with a taper length to be based on the applicable design speed.

- **Traffic Control** – Install STOP sign control for the newly constructed northbound (Western Access) approach leg. If required to ensure safe/acceptable operating levels, police control of the intersection may be implemented.

Lewis Chapel Road at Eastern Site Access (*Full-Movement Access*)

This access is to be located along Lewis Chapel Road, approximately [redacted]-feet (inside edge to inside edge) east/west of Clifton Glendale Road/Goldmine Road. It is proposed as a full-movement access and will service all site related bus traffic.

Per Chapter 4 of the SCDOT ARMS manual and direction from SCDOT Office of School Operations (OSO) staff, the recommended geometrics and traffic control for the Eastern Access is as follows:

- **Eastbound (Lewis Chapel Road) Approach** – Provide for a single through lane and a separate right-turn lane. Based on a review of **Figure A-9** of the SCDOT ARMS manual, a storage length of **150-feet** is recommended for the separate right-turn lane with a taper length of **150-feet**.
- **Westbound (Lewis Chapel Road) Approach** – Provide for a separate left-turn lane and a single through lane. Based on a review of **Figure A-9** of the SCDOT ARMS manual, a storage length of **250-feet** is recommended for the separate left-turn lane with a turn lane development length and reverse radius length to be based on the applicable design speed.
- **Northbound (Eastern Access) Approach** – Construct/stripe new northbound approach leg to create formalized intersection with Lewis Chapel Road. Provide a single entering lane to service all entering movements into the site. Provide a separate left-turn lane and a separate right-turn lane to accommodate movements exiting the site. Based on a review of **Figure 9.5-K** of the *Highway Design Manual*, a storage length of **100-feet** is recommended for the separate right-turn lane with a taper length to be based on the applicable design speed.

Note: One exit lane may be acceptable if construction cost of additional lane is an issue.

- **Traffic Control** – Install STOP sign control for the newly constructed northbound (Eastern Access) approach leg. If required to ensure safe/acceptable operating levels, police control of the intersection may be implemented.

Lewis Chapel Road – General Cross-Section

In order to accommodate the proposed access points, the general cross-section of Lewis Chapel Road fronting the site should be designed in accordance with Chapter 4 the SCDOT ARMS manual as well as **Figure A-9**. In general, a minimum of **600-feet** of separation distance should be provided between proposed access points. The final separation distance between the proposed access points will be dictated by the previously cited turn lane storage lengths, taper lengths, etc. Given the cited turn lane storage lengths, taper lengths, etc., it is recommended that a continuous three-lane cross-section be provided between the proposed access points.

The following **Table 4** depicts the operational characteristics of the proposed site access intersections assuming the geometrics and traffic control described above.

Table 4
LEVEL-OF-SERVICE SUMMARY
SITE ACCESS INTERSECTIONS
Spartanburg County School District Three Middle School

Unsignalized Intersection(s)	Time	2022 BUILD MITIGATED	
	Period	Delay ^a	LOS ^b
Lewis Chapel Road at Western Access			
Northbound Approach - Left-Turn Movement (Western Access)	AM	13.9	B
	Midday	13.0	B
	PM	9.7	A
Northbound Approach - Right-Turn Movement (Western Access)	AM	8.8	A
	Midday	9.4	A
	PM	8.7	A
Westbound Approach - Left-Turn Movement (Lewis Chapel Road)	AM	8.0	A
	Midday	7.8	A
	PM	7.5	A
Lewis Chapel Road at Eastern Access			
Northbound Approach - Left-Turn Movement (Eastern Access)	AM	12.6	B
	Midday	12.6	B
	PM	0.0	A
Northbound Approach - Right-Turn Movement (Eastern Access)	AM	0.0	A
	Midday	10.8	B
	PM	0.0	A
Westbound Approach - Left-Turn Movement (Lewis Chapel Road)	AM	8.6	A
	Midday	0.0	A
	PM	0.0	A

a. Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

GENERAL NOTES:

1. For unsignalized TWSC intersections, Delay calculated via HCM 2010 methodology and is representative of critical movement/lane group/approach.

As shown in Table 4, assuming the cited geometrics and traffic control are in-place, the proposed site access intersections are anticipated to operate acceptably (*in terms of all critical movements/lane groups/approaches analyzed*) during all studied peak hours.

Sight Distance Considerations

The cited access drive intersections should be designed/constructed to meet current applicable City/County/SCDOT standards and/or guidelines in terms of sight distance. It is assumed that this will be the responsibility of the project's site/civil engineer and will be depicted on all appropriate submittal information.

Heavy Vehicle Considerations

The cited access drive intersections should be designed/constructed to meet current applicable City/County/SCDOT standards and/or guidelines in terms of heavy vehicle circulation. It is assumed that this will be the responsibility of the project's site/civil engineer and will be depicted on all appropriate submittal information.

Off-Site Study Area Intersections

Clifton Glendale Road at Lewis Chapel Road

As shown in Table 3, the proposed middle school site is projected to have a significant impact to the operating levels of this off-site study area intersection. As such, the following mitigation measures are required and/or recommended to offset projected development impacts at this location:

- ***Westbound (Lewis Chapel Road) Approach*** – Improve/widen the westbound approach to provide for a shared left-turn/through lane and a separate right-turn lane. Based on a review of **Figure 9.5-K** of the *Highway Design Manual*, a storage length of **150-feet** is recommended with a taper length to be based on the applicable design speed.
- ***Northbound (Clifton Glendale Road) Approach*** – Improve/widen the northbound approach to provide for a separate left-turn lane, a single through lane and a separate right-turn lane. Per **Figure 9.5-A** of the SCDOT *Highway Design Manual*, consideration of a separate right-turn lane is warranted. Based on a review of **Figure 9.5-K** of the *Highway Design Manual*, a storage length of **150-feet** is recommended with a taper length to be based on the applicable design speed.
- ***Southbound (Clifton Glendale Road) Approach*** – Improve the existing southbound separate left-turn lane to provide for additional storage capacity. Based on a review of **Figure 9.5-L** of the *Highway Design Manual*, a storage length of **200-feet** is recommended with a taper length to be based on the applicable design speed.

Goldmine Road at Lewis Chapel Road

As shown in Table 3, the proposed middle school site is not projected to have a significant impact to the operating levels of this off-site study area intersection. Acceptable operating levels are projected under all future year analysis scenarios. As such, no off-site mitigation measures are required to offset projected development impacts at this location.

Although the addition of project related traffic does not cause the subject intersection to operate unacceptably, the intersection does present some existing geometric issues/constraints that could be seen as problematic with the increased traffic volume related to the proposed project. It is recommended that school district staff and/or representatives coordinate with SCDOT/County staff to determine if any improvements will be required to improve existing geometric constraints.

OTHER CONSIDERATIONS

Based on initial site investigations, it was noted that the cross-section width (approximately 18-feet) and travel lane widths (approximately 9-feet) for Lewis Chapel Road are currently sub-standard based on existing SCDOT/County design guidelines. This issue has been investigated by Spartanburg County engineering staff who have recommended that Lewis Chapel Road (between Clifton Glendale Road and Goldmine Road) would be an excellent candidate for a full-depth reclamation and widening project in order to bring the existing roadway up to existing standards.

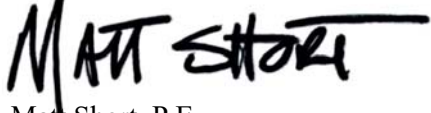
Mr. Kenny Blackwood
March 15, 2019
Page 11

It is recommended that school district staff and/or representatives coordinate with County staff to determine what (if any) improvements to the Lewis Chapel Road roadway segment will be required as part of the permitting process for the proposed middle school site.

If you have any questions or comments regarding any information contained within this report, please contact me at (803) 361-9000.

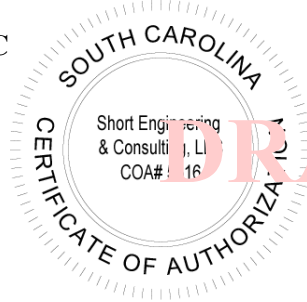
Regards,

SHORT ENGINEERING & CONSULTING, LLC



Matt Short, P.E.
Principal/Owner

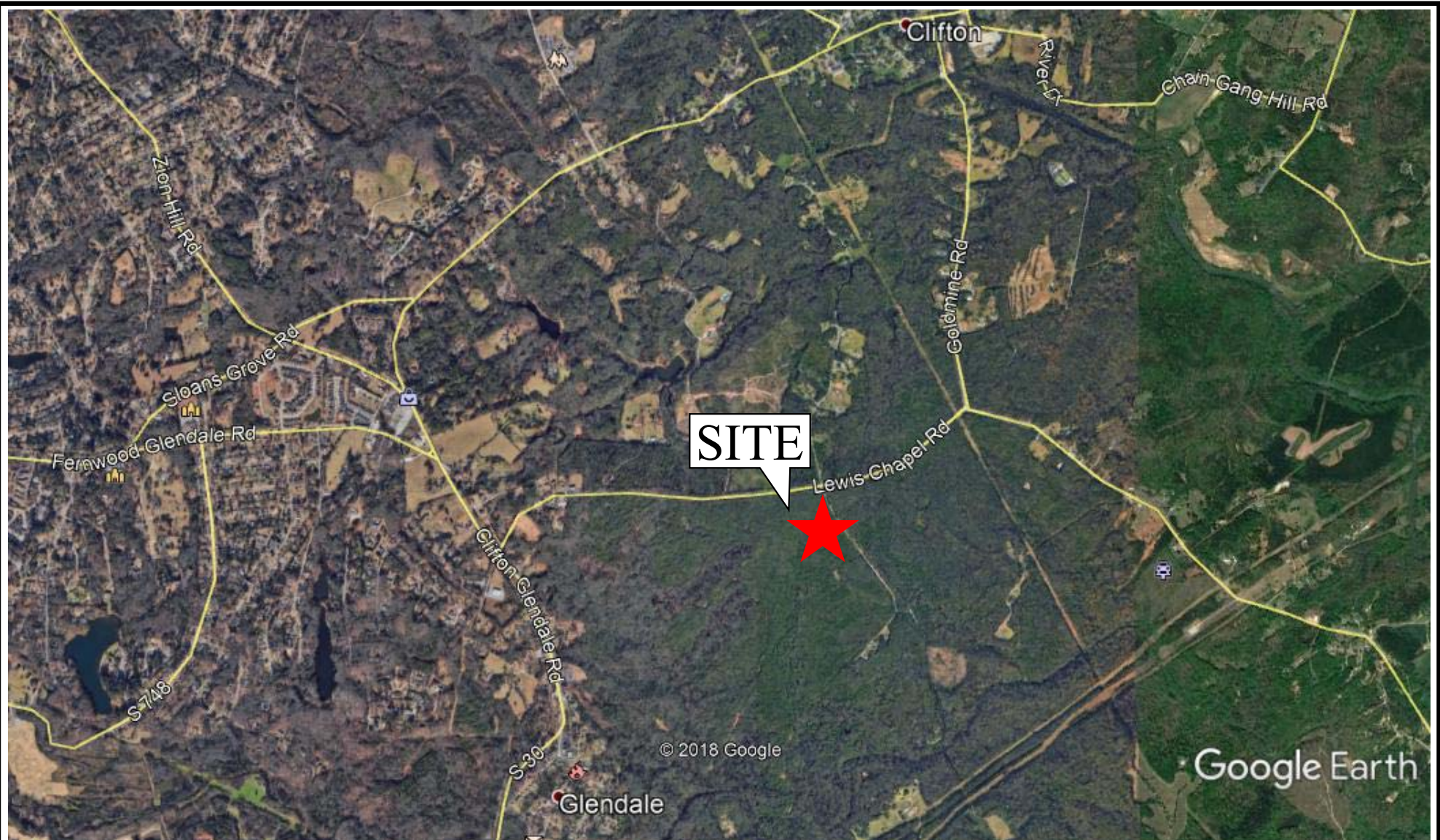
Attachments



APPENDIX

- Figures
- Count Data
- Local Empirical Data For Trip Gen
- Intersection Capacity Analyses
- Turn Lane Calculations

FIGURES



NOT TO SCALE

Figure 1

SITE LOCATION MAP

*Spartanburg County School District 3 Middle School Site
Spartanburg, South Carolina*



TO BE PROVIDED

Figure 2

CONCEPTUAL SITE PLAN

Spartanburg County School District Three Middle School Site : Spartanburg, SC

NOT TO SCALE



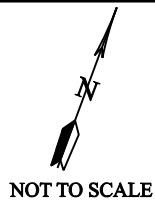
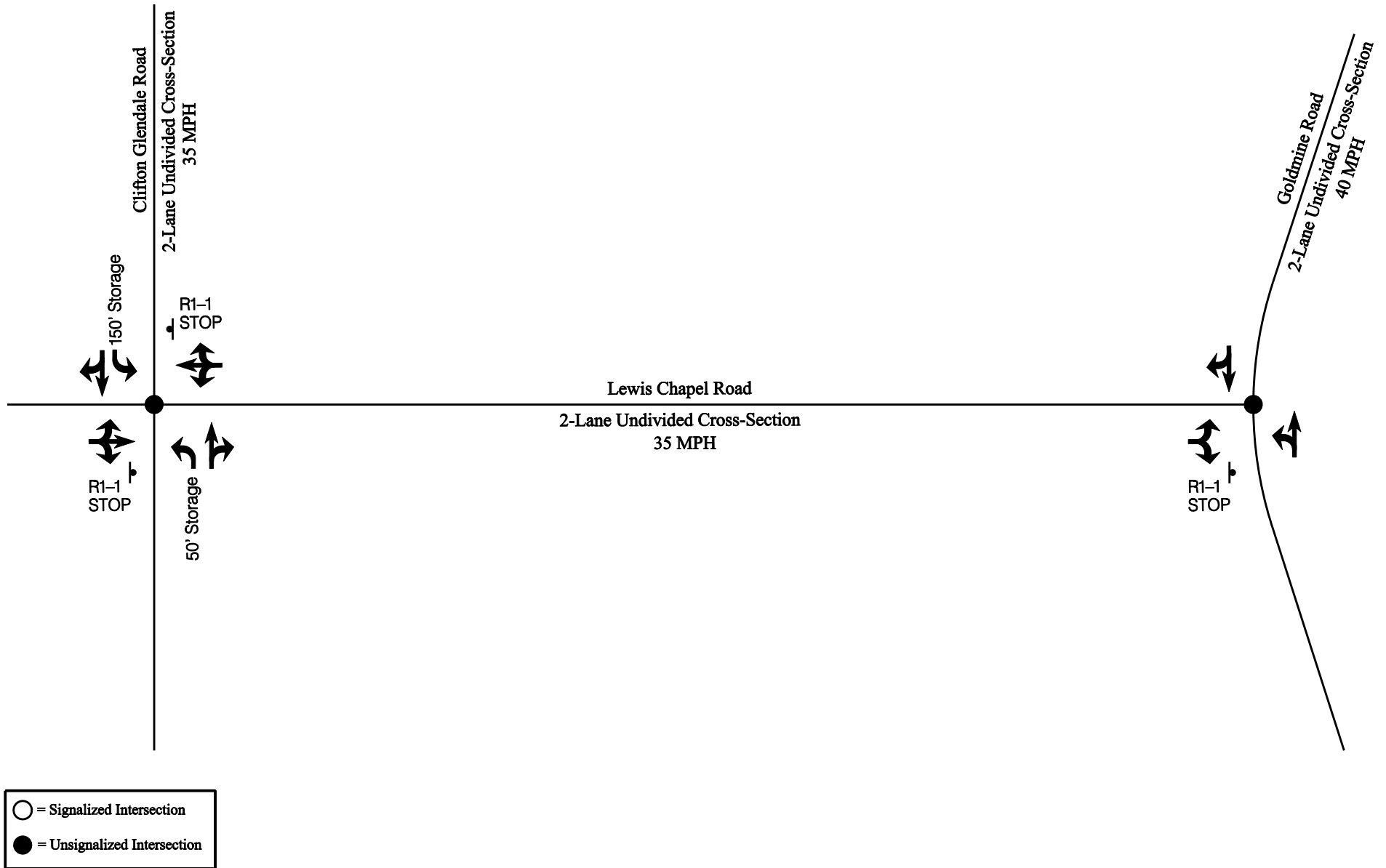


Figure 3

EXISTING GEOMETRICS & TRAFFIC CONTROL

Spartanburg County School District Three Middle School Site : Spartanburg, SC

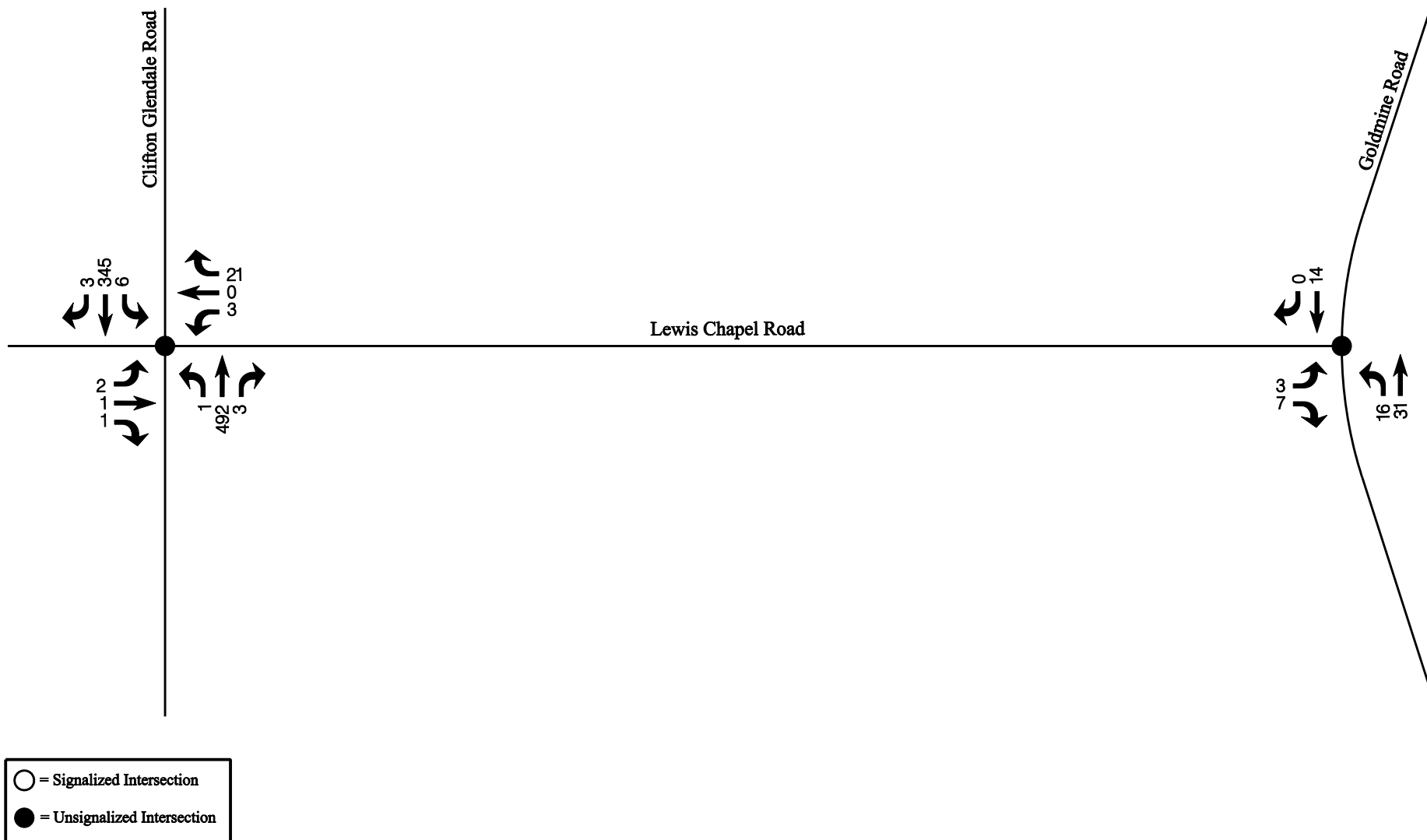


Figure 4
2019 EXISTING TRAFFIC VOLUMES
AM PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC

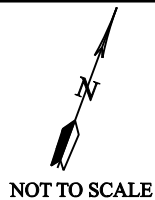
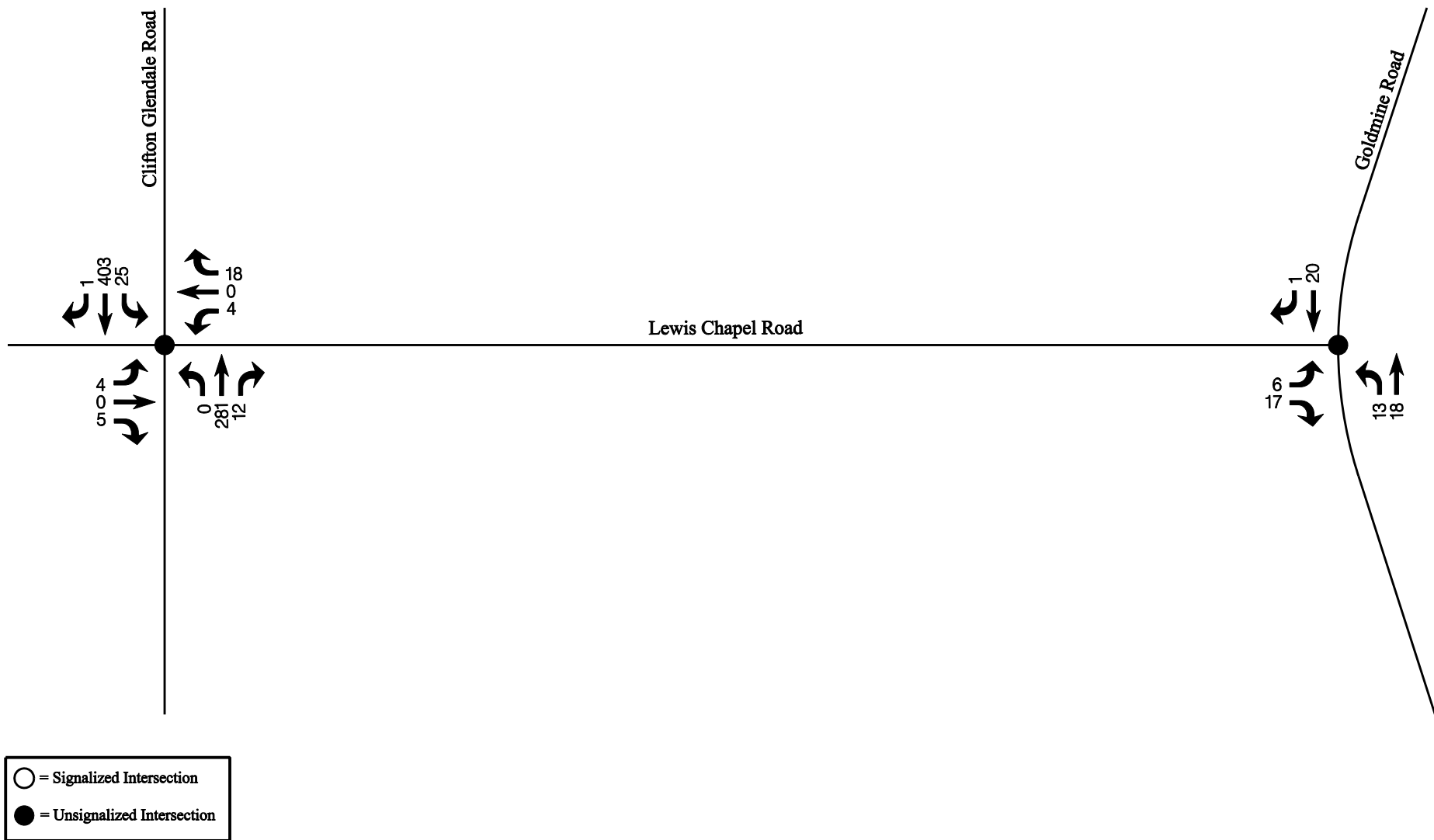


Figure 5

**2019 EXISTING TRAFFIC VOLUMES
MIDDAY (SCHOOL EXIT) PEAK-HOUR**

Spartanburg County School District Three Middle School Site : Spartanburg, SC

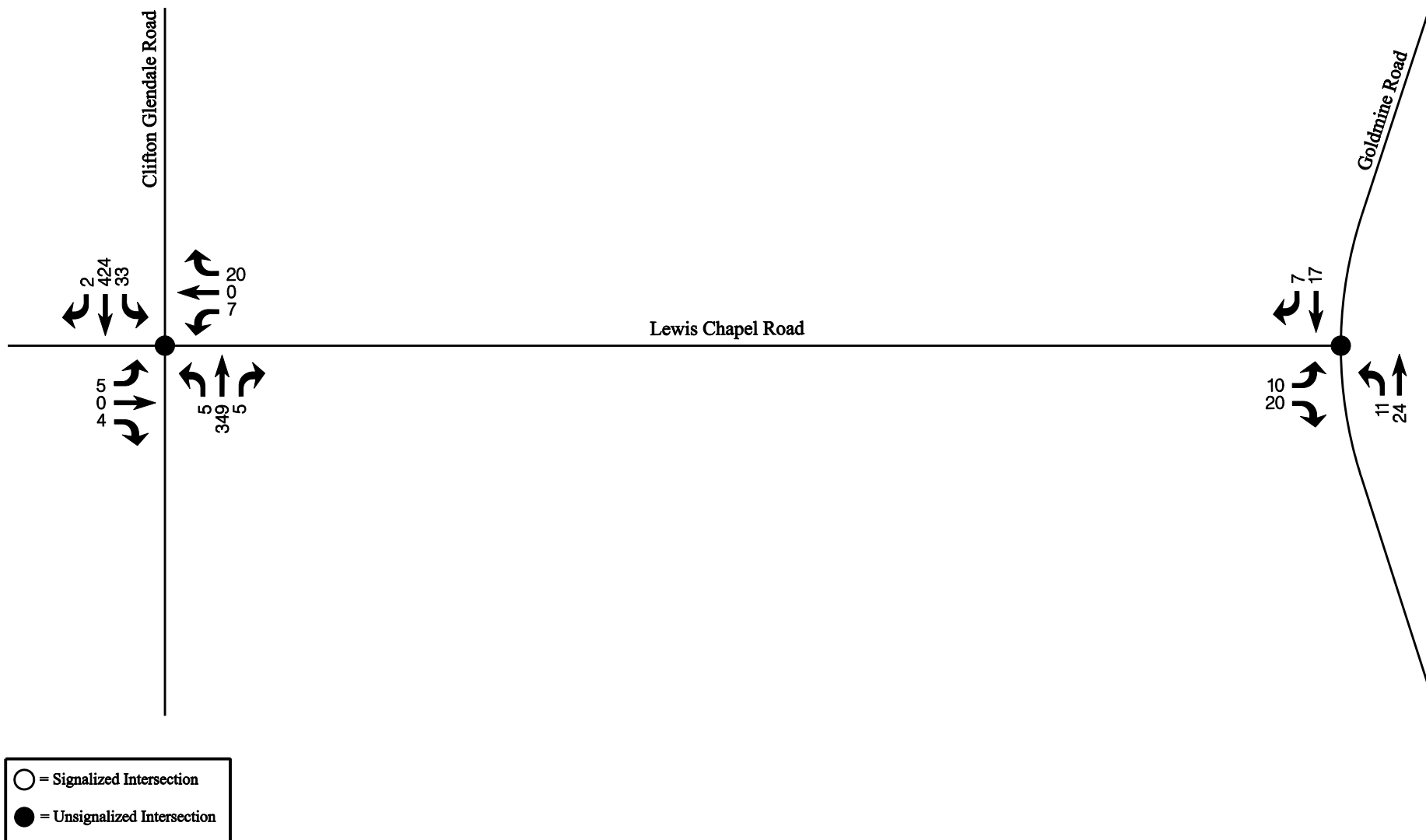
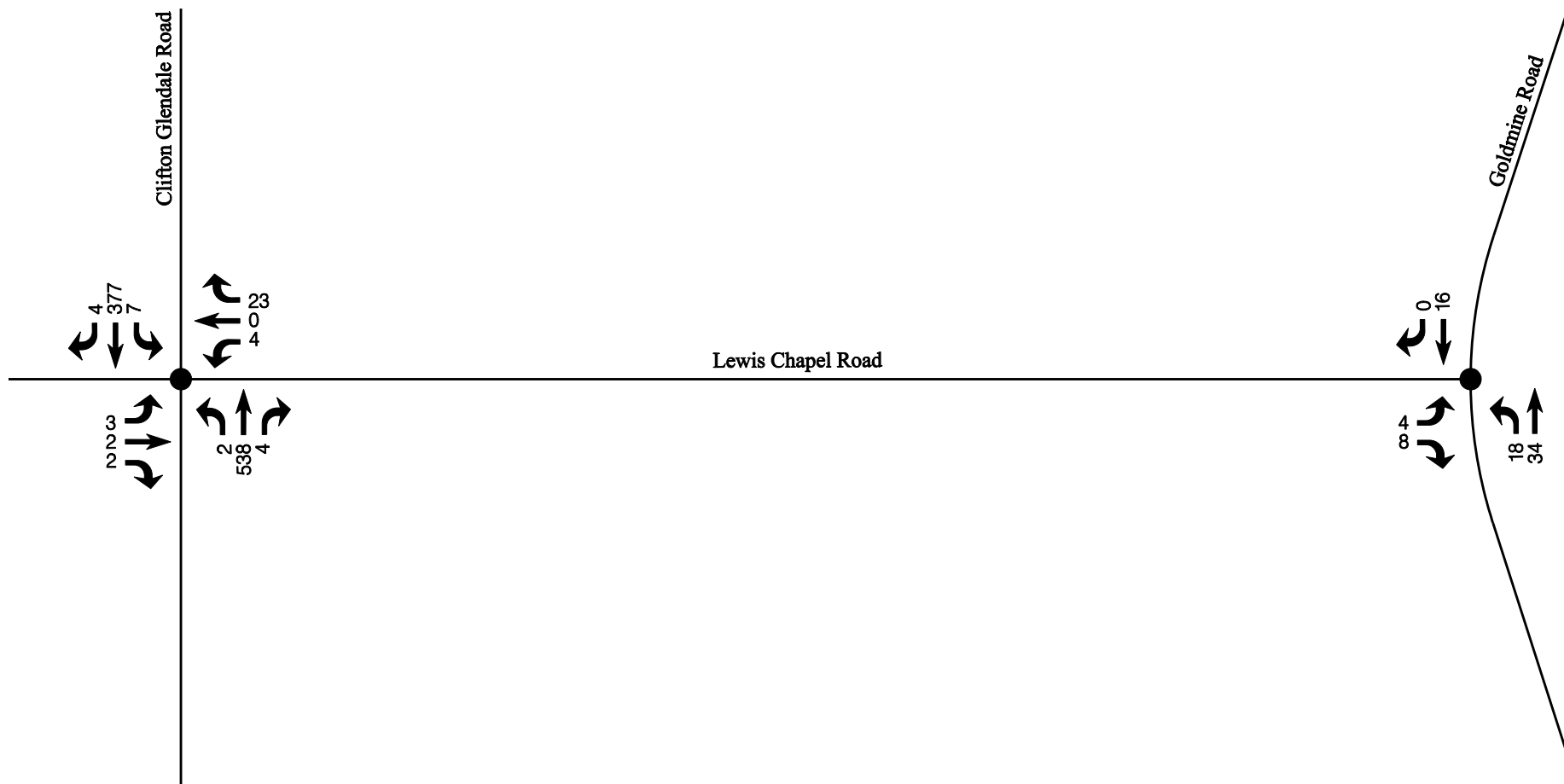


Figure 6
2019 EXISTING TRAFFIC VOLUMES
PM PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC



- = Signalized Intersection
- = Unsignalized Intersection

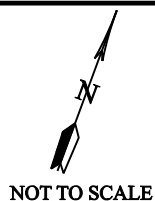


Figure 7
2022 NO-BUILD TRAFFIC VOLUMES
AM PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC



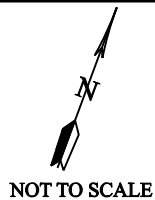
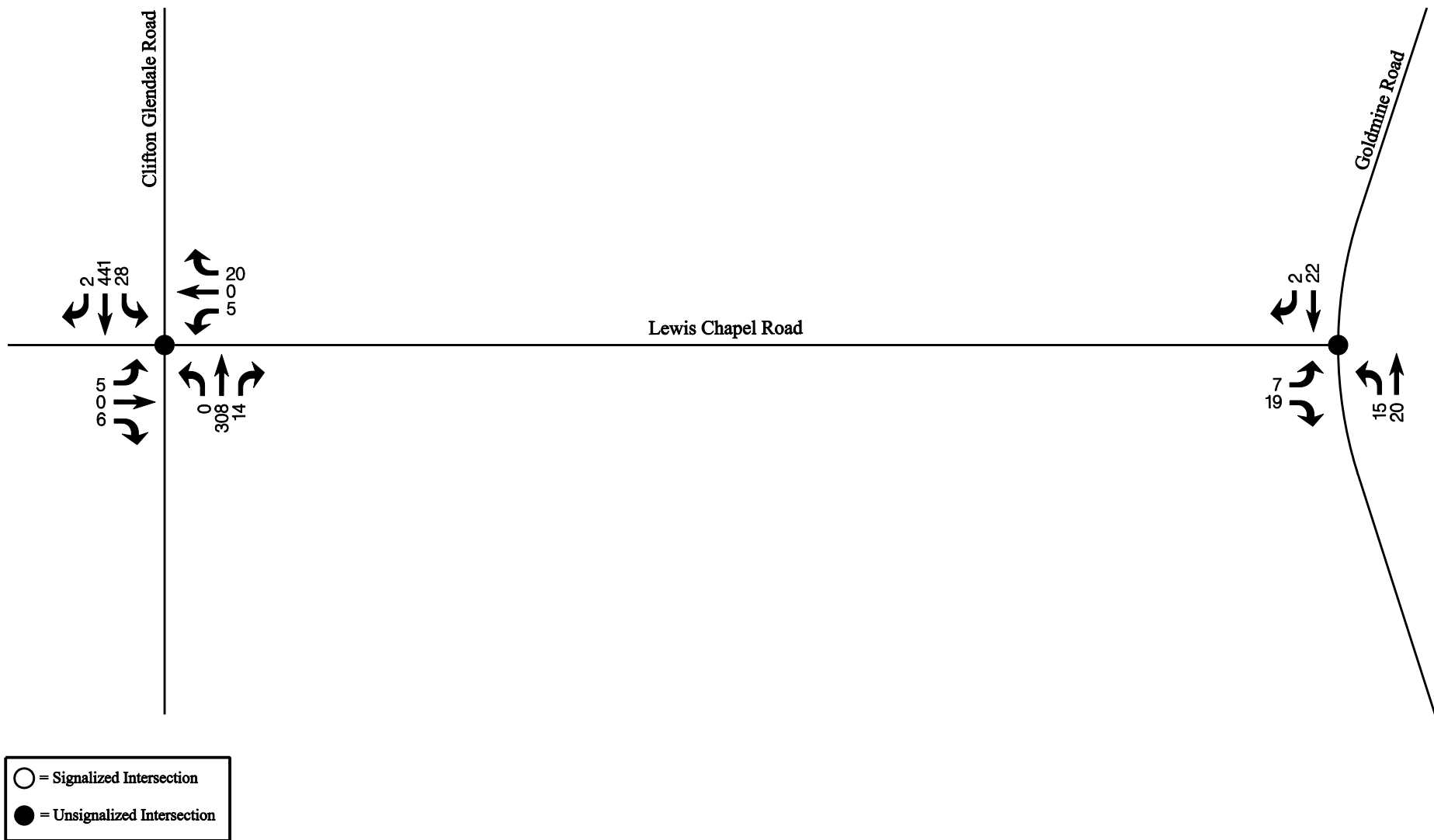
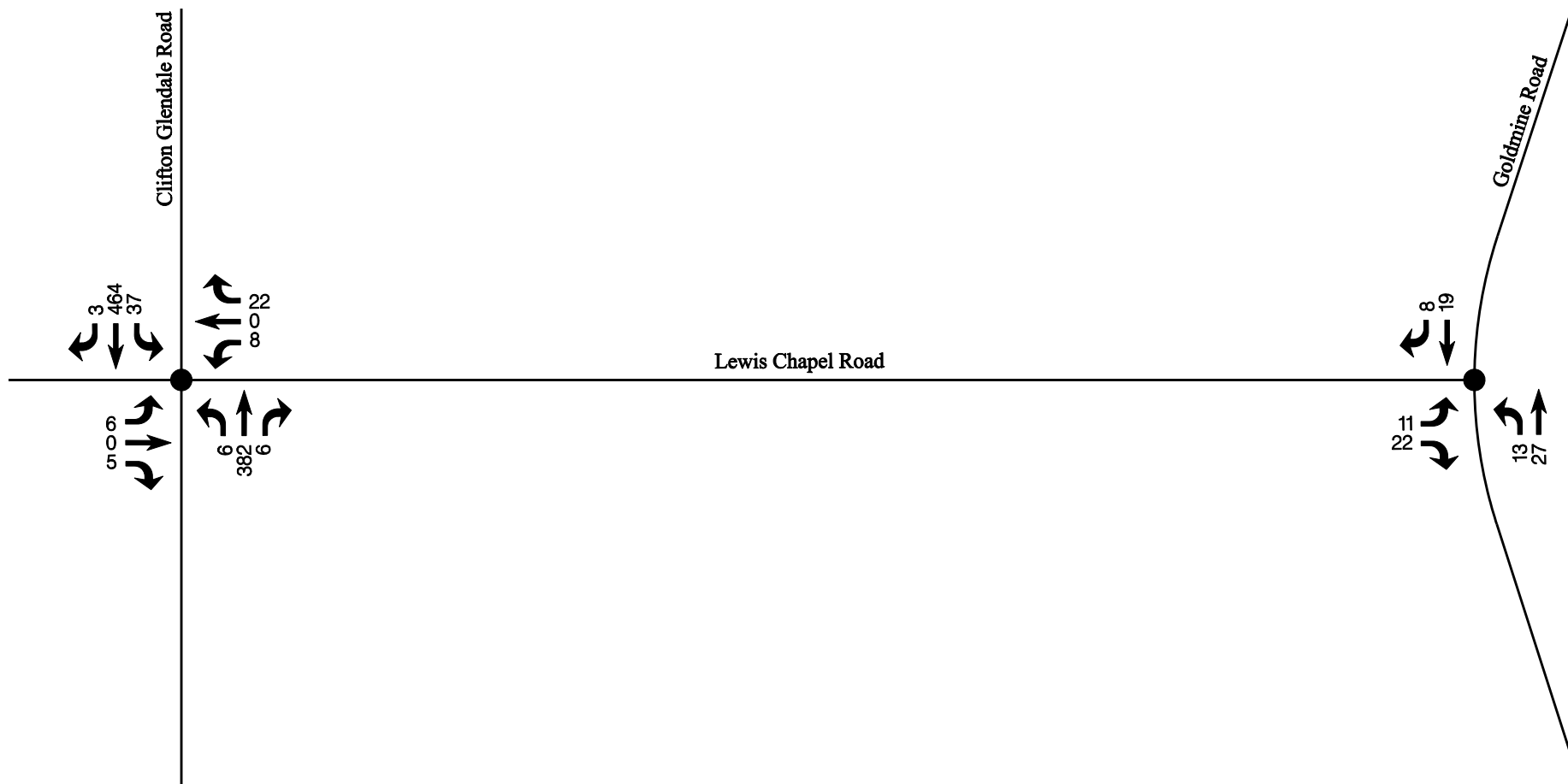


Figure 8

**2022 NO-BUILD TRAFFIC VOLUMES
MIDDAY (SCHOOL EXIT) PEAK-HOUR**

Spartanburg County School District Three Middle School Site : Spartanburg, SC



- = Signalized Intersection
- = Unsignalized Intersection

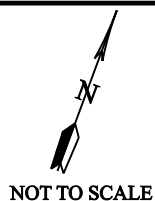
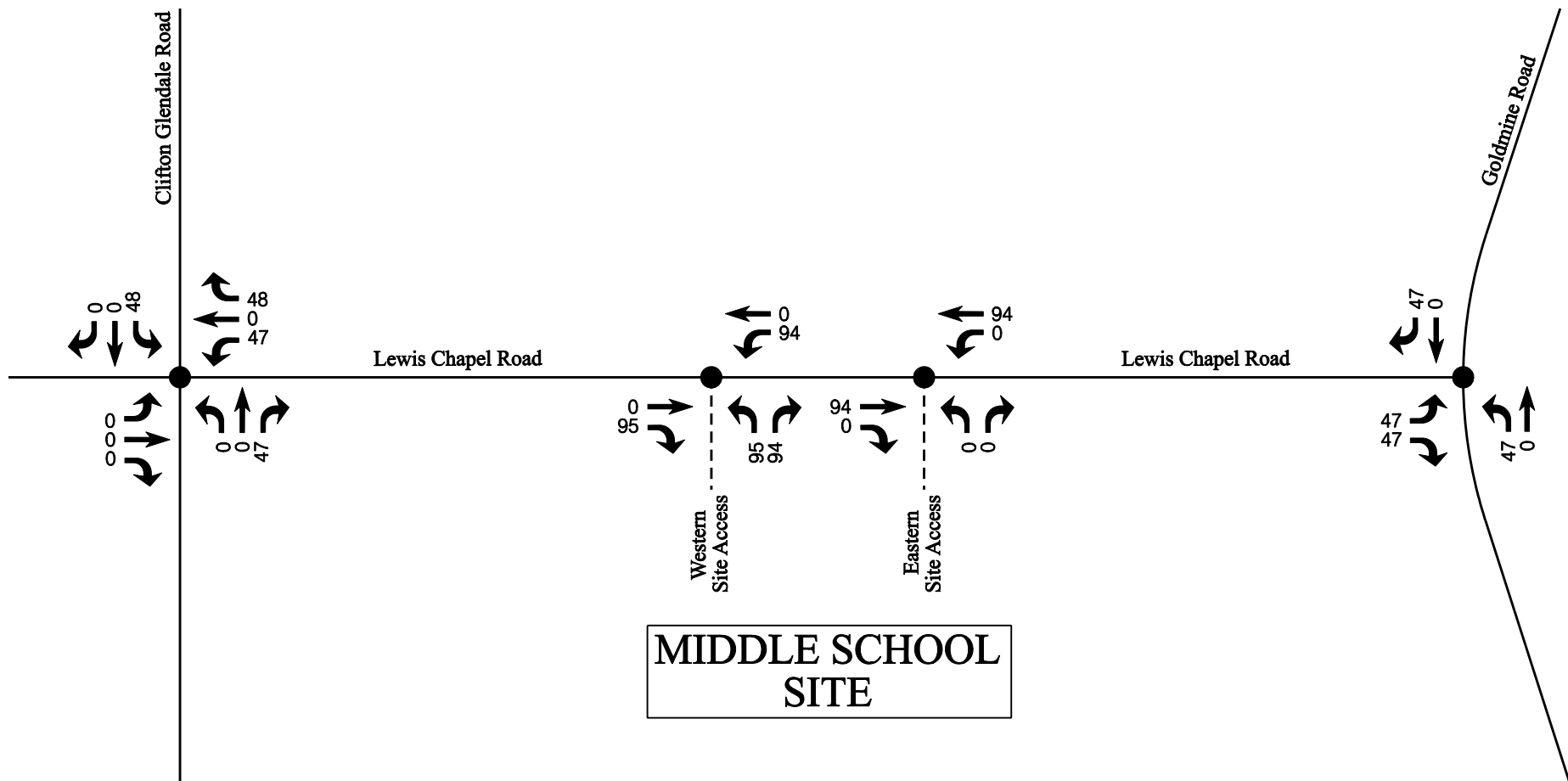


Figure 9
2022 NO-BUILD TRAFFIC VOLUMES
PM PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC

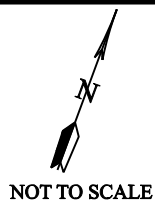


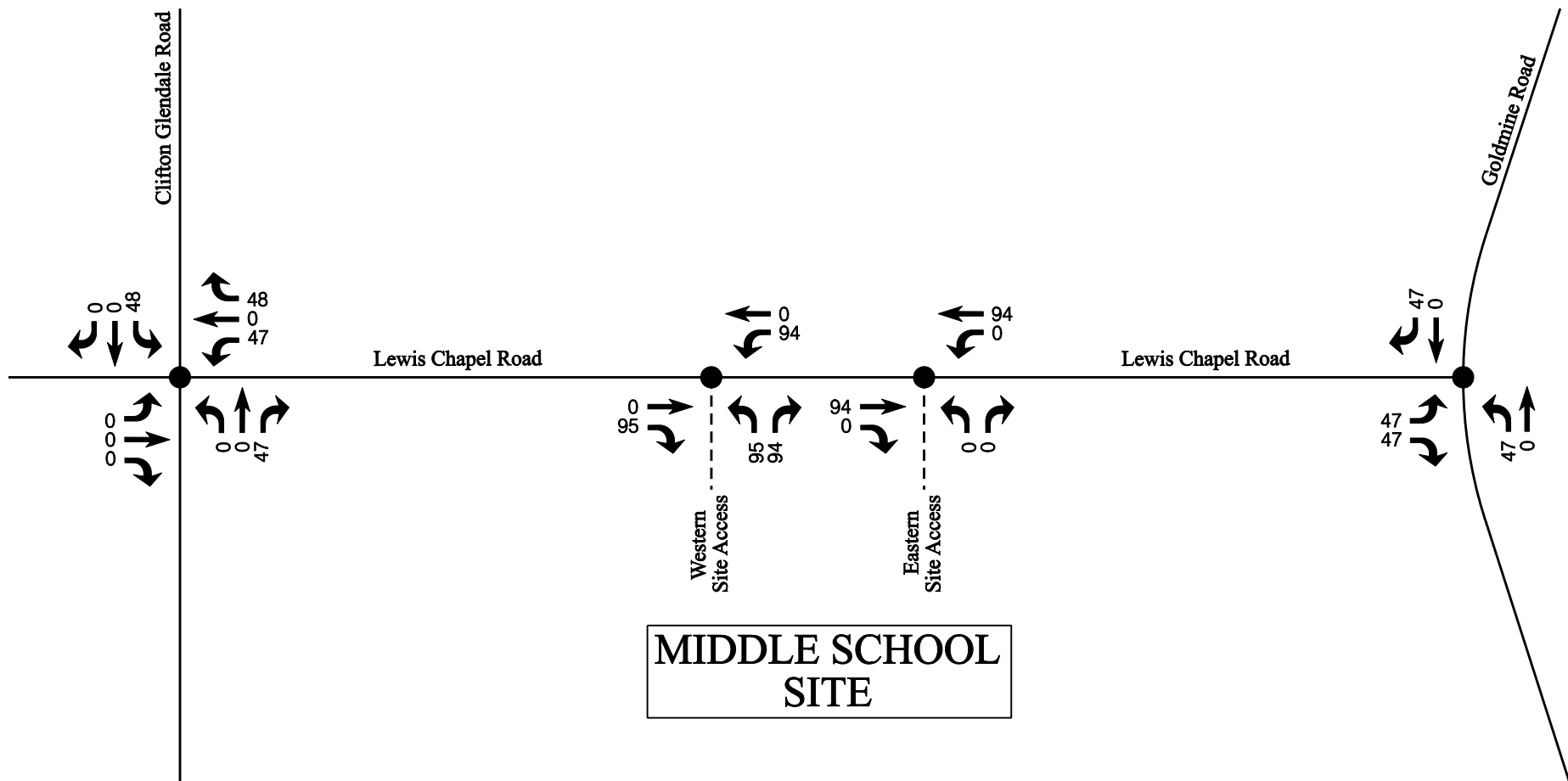
- = Signalized Intersection
- = Unsignalized Intersection

Figure 10

SITE TRAFFIC - STUDENT DROP-OFF / PICK-UP AM PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC



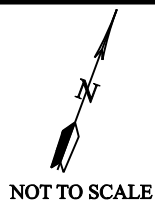


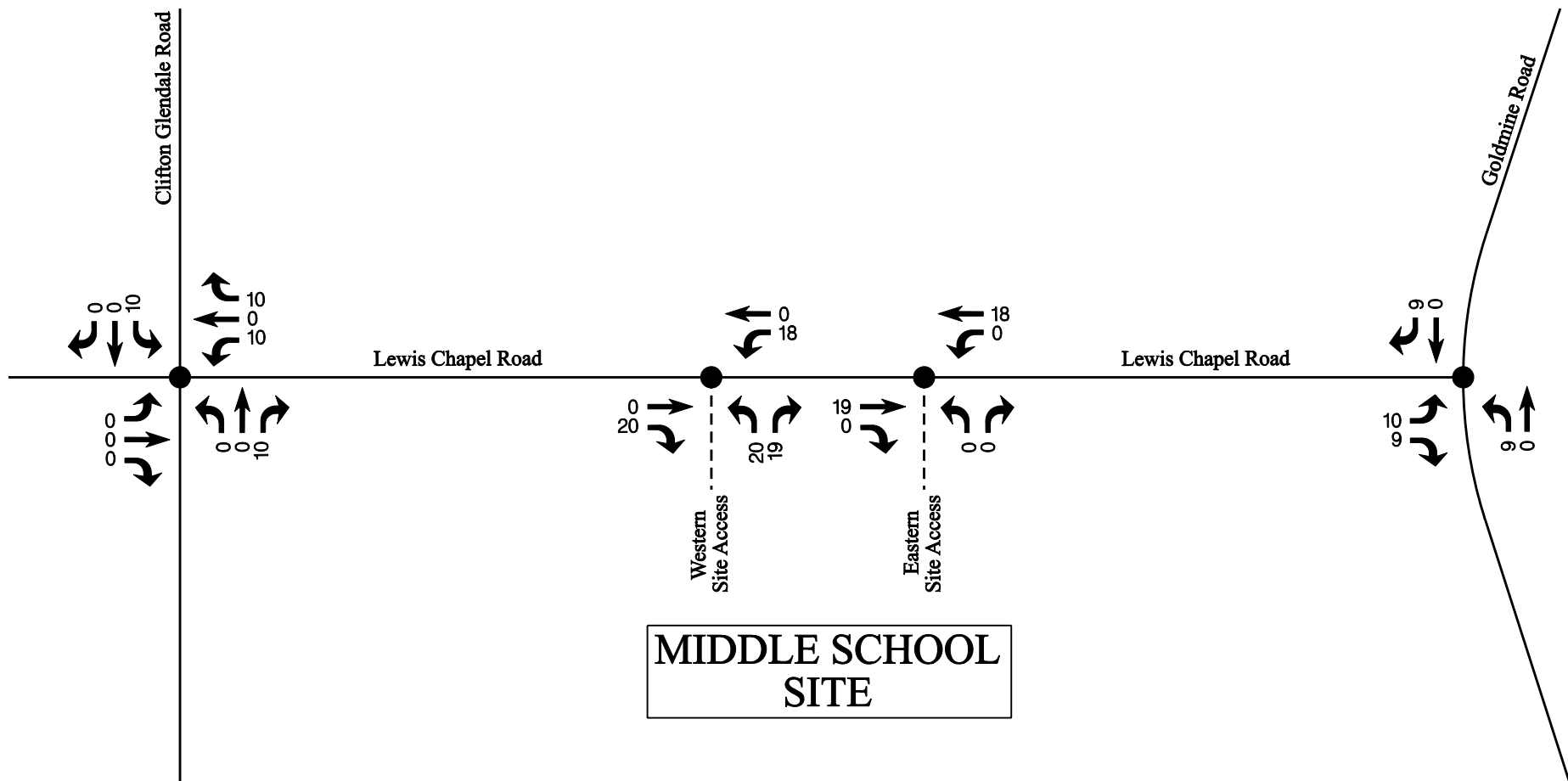
- = Signalized Intersection
- = Unsignalized Intersection

Figure 11

SITE TRAFFIC - STUDENT DROP-OFF / PICK-UP MIDDAY (SCHOOL EXIT) PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC



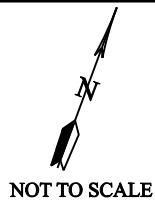


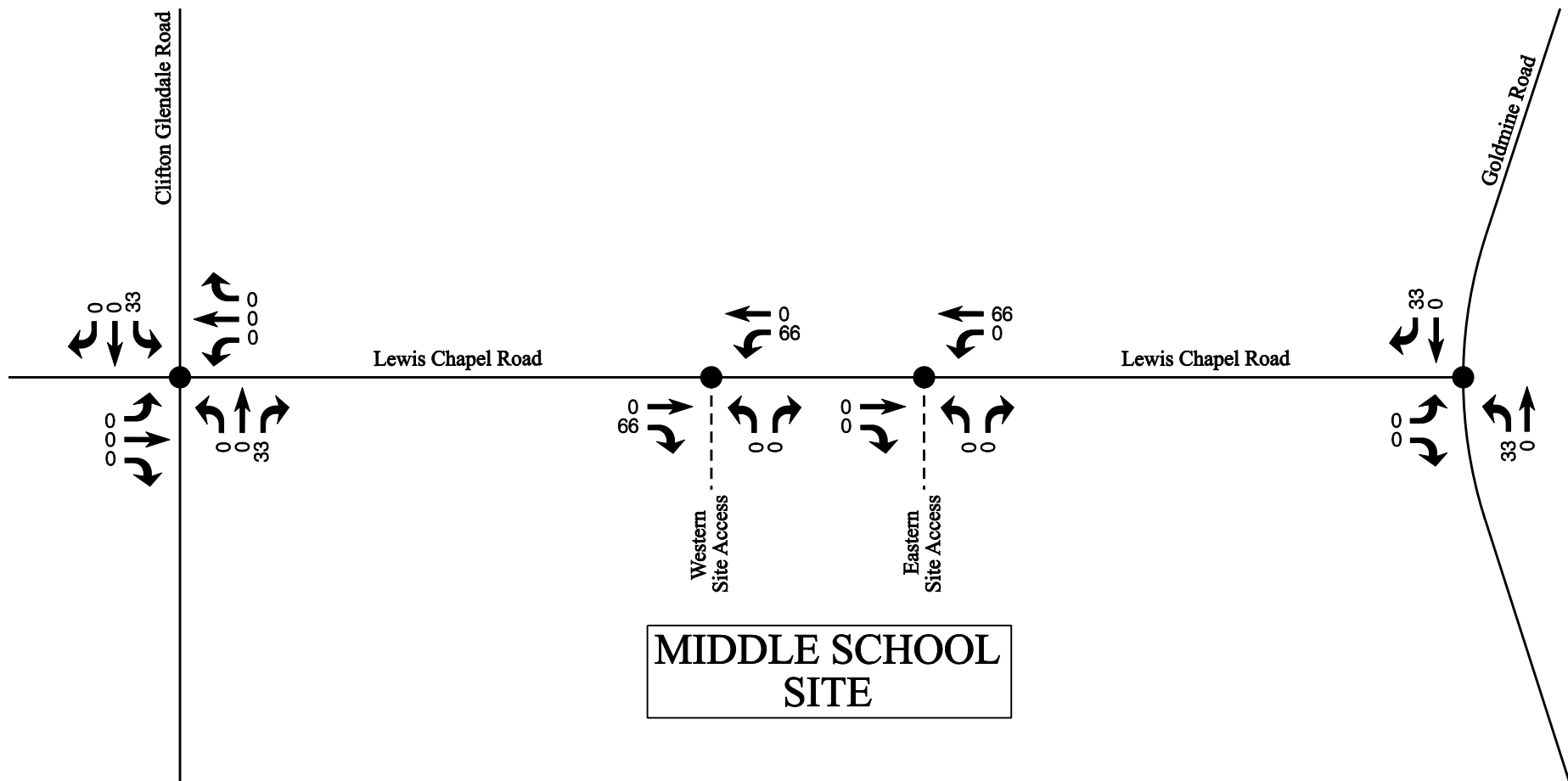
- = Signalized Intersection
- = Unsignalized Intersection

Figure 12

SITE TRAFFIC - STUDENT DROP-OFF / PICK-UP PM PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC





- = Signalized Intersection
- = Unsignalized Intersection

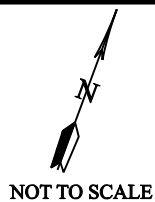
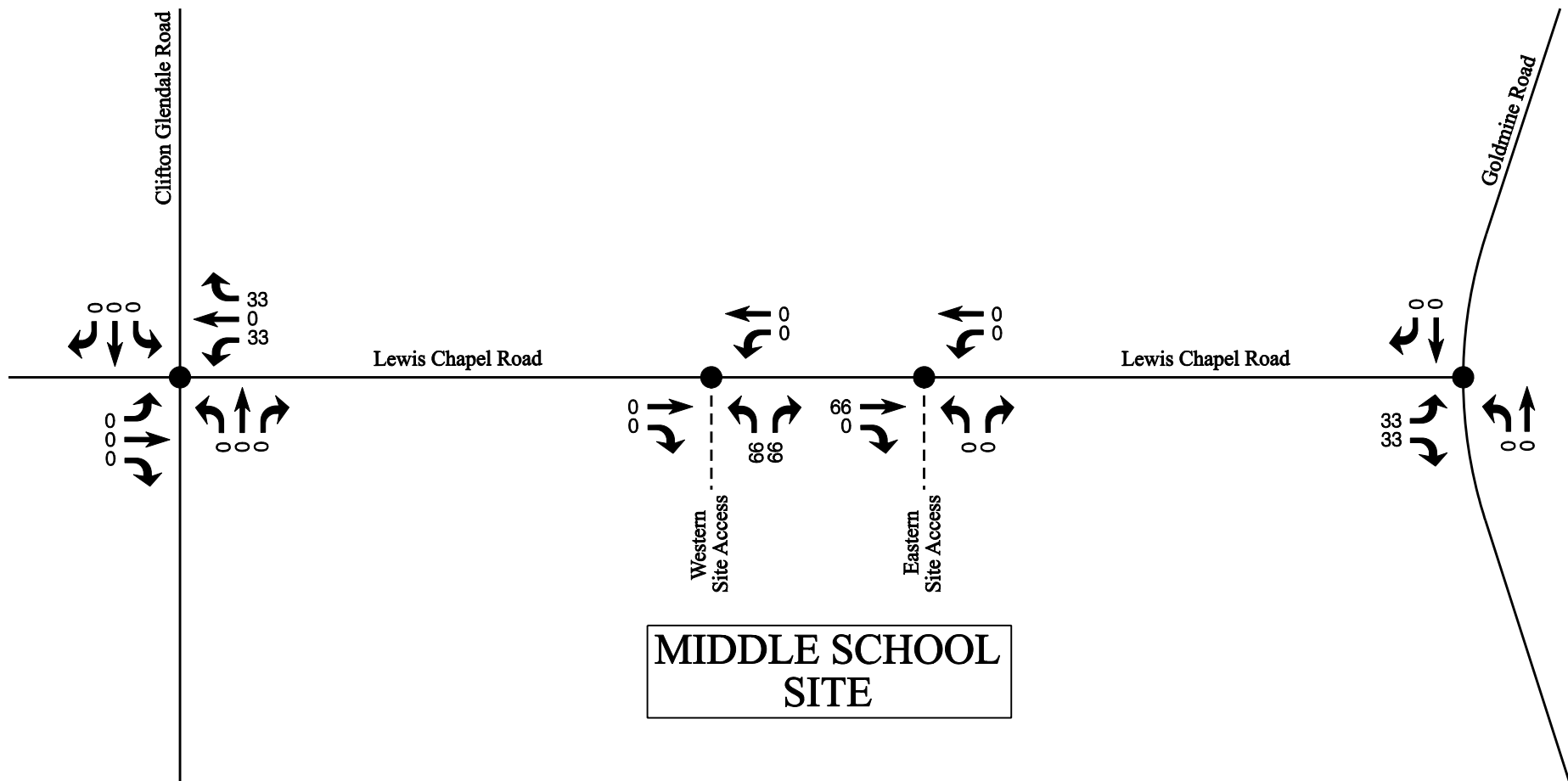


Figure 13
SITE TRAFFIC - FACULTY / STAFF
AM PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC

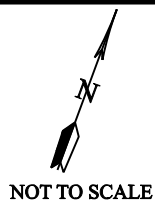


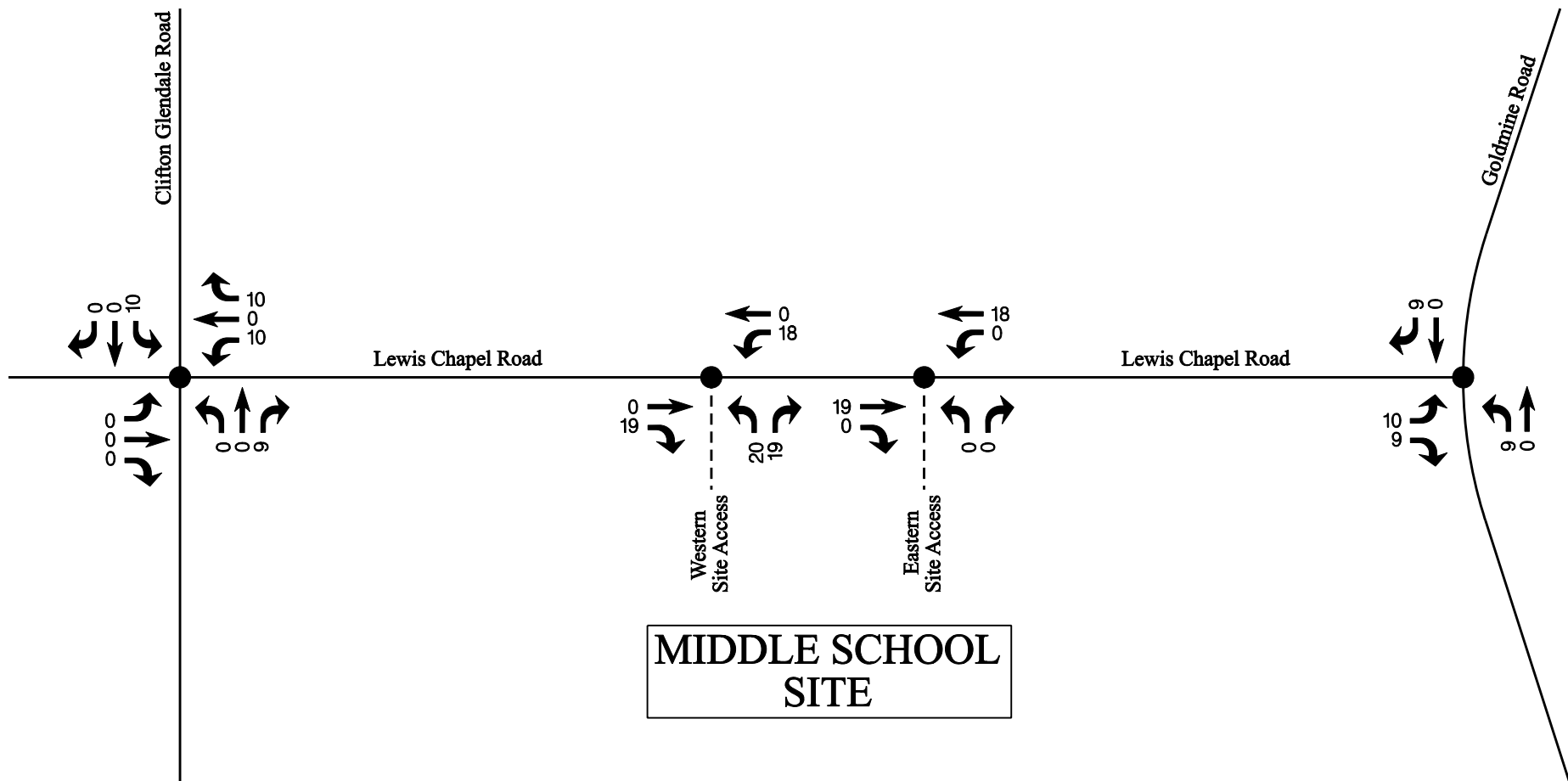
- = Signalized Intersection
- = Unsignalized Intersection

Figure 14

SITE TRAFFIC - FACULTY / STAFF MIDDAY (SCHOOL EXIT) PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC





- = Signalized Intersection
- = Unsignalized Intersection

MIDDLE SCHOOL
SITE

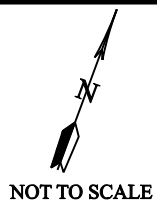
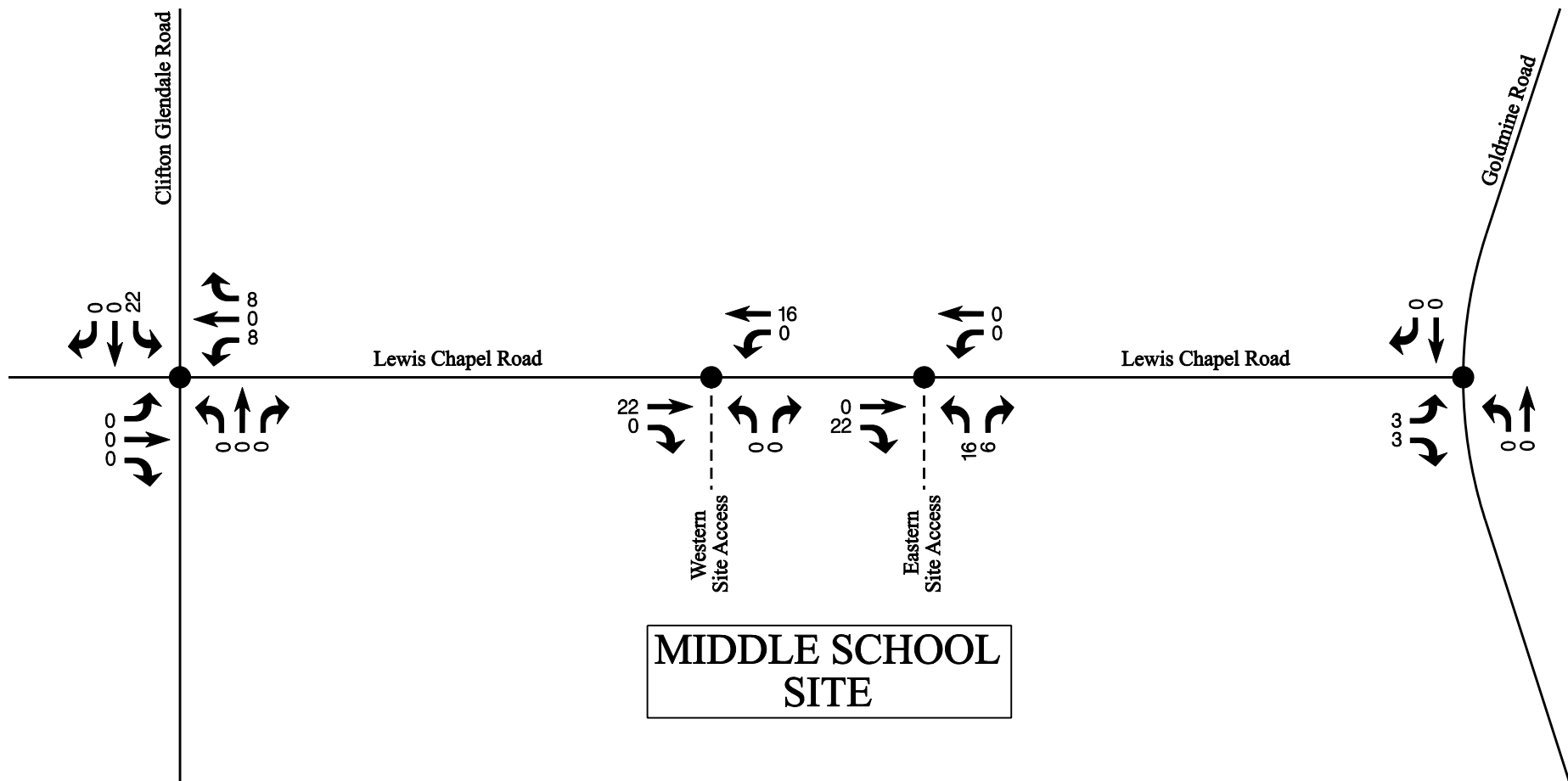


Figure 15
SITE TRAFFIC - FACULTY / STAFF
PM PEAK-HOUR
Spartanburg County School District Three Middle School Site : Spartanburg, SC



- = Signalized Intersection
- = Unsignalized Intersection

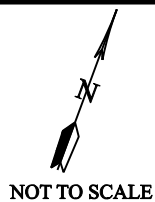
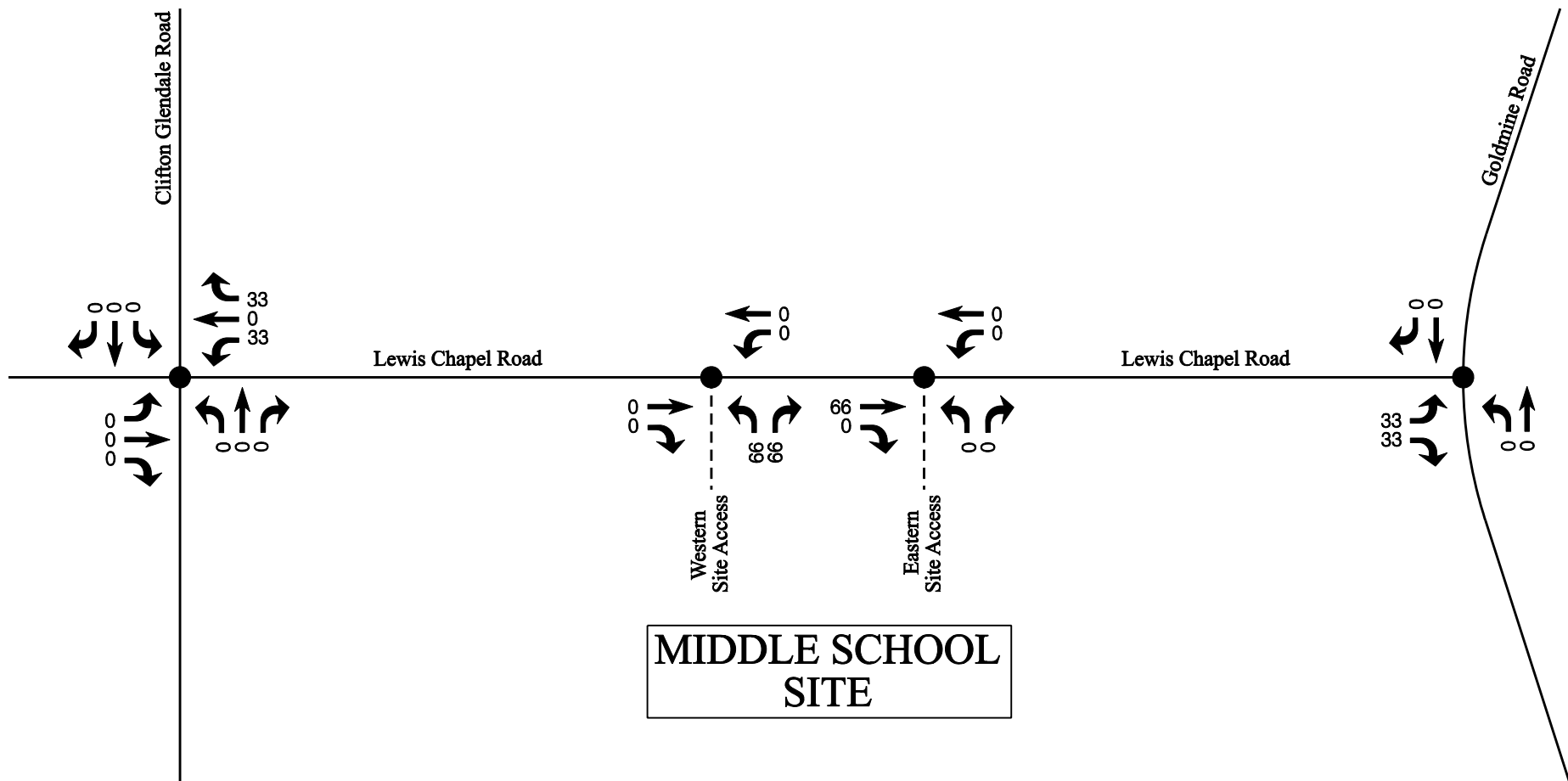


Figure 16
SITE TRAFFIC - BUSES
AM PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC



- = Signalized Intersection
- = Unsignalized Intersection

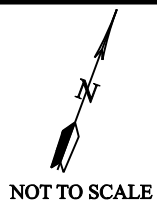
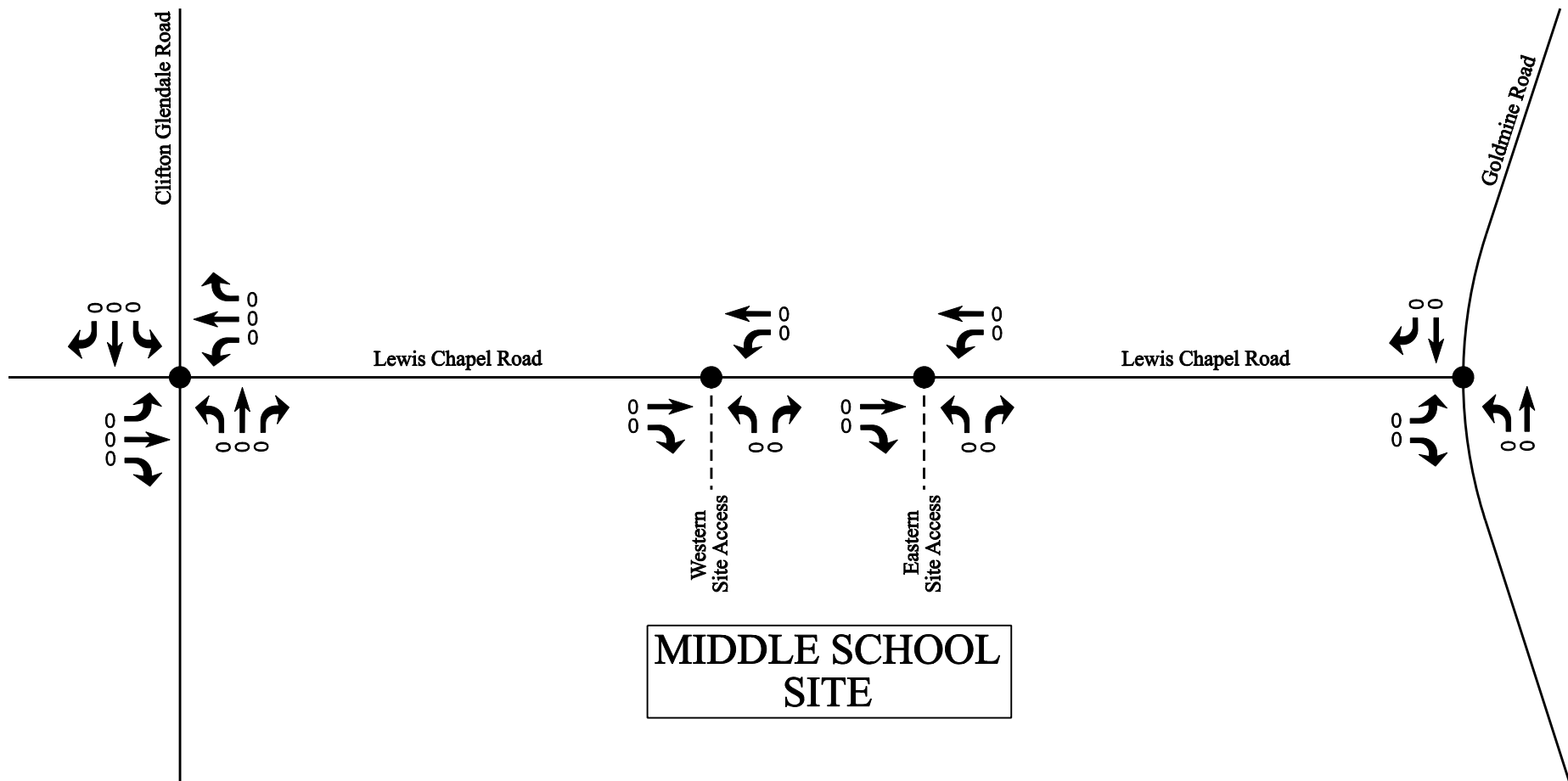


Figure 17
SITE TRAFFIC - BUSES
MIDDAY (SCHOOL EXIT) PEAK-HOUR
Spartanburg County School District Three Middle School Site : Spartanburg, SC



- = Signalized Intersection
- = Unsignalized Intersection

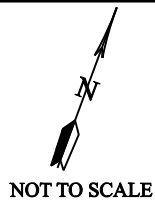
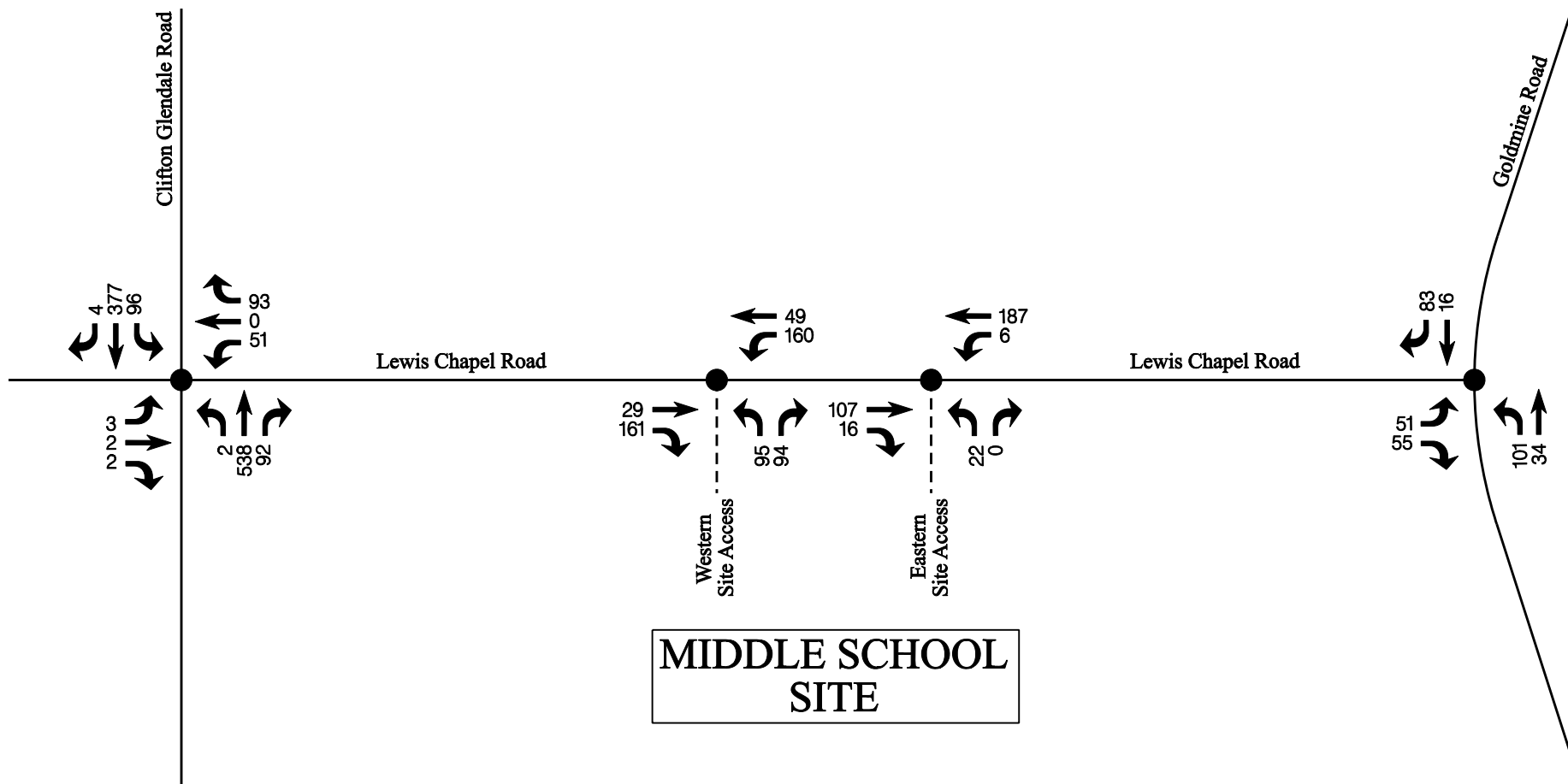


Figure 18
SITE TRAFFIC - BUSES
PM PEAK-HOUR

Spartanburg County School District Three Middle School Site : Spartanburg, SC



MIDDLE SCHOOL SITE

- = Signalized Intersection
- = Unsignalized Intersection

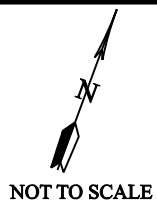


Figure 19
**2022 BUILD TRAFFIC VOLUMES
 AM PEAK-HOUR**
Spartanburg County School District Three Middle School Site : Spartanburg, SC

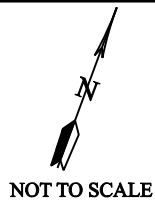
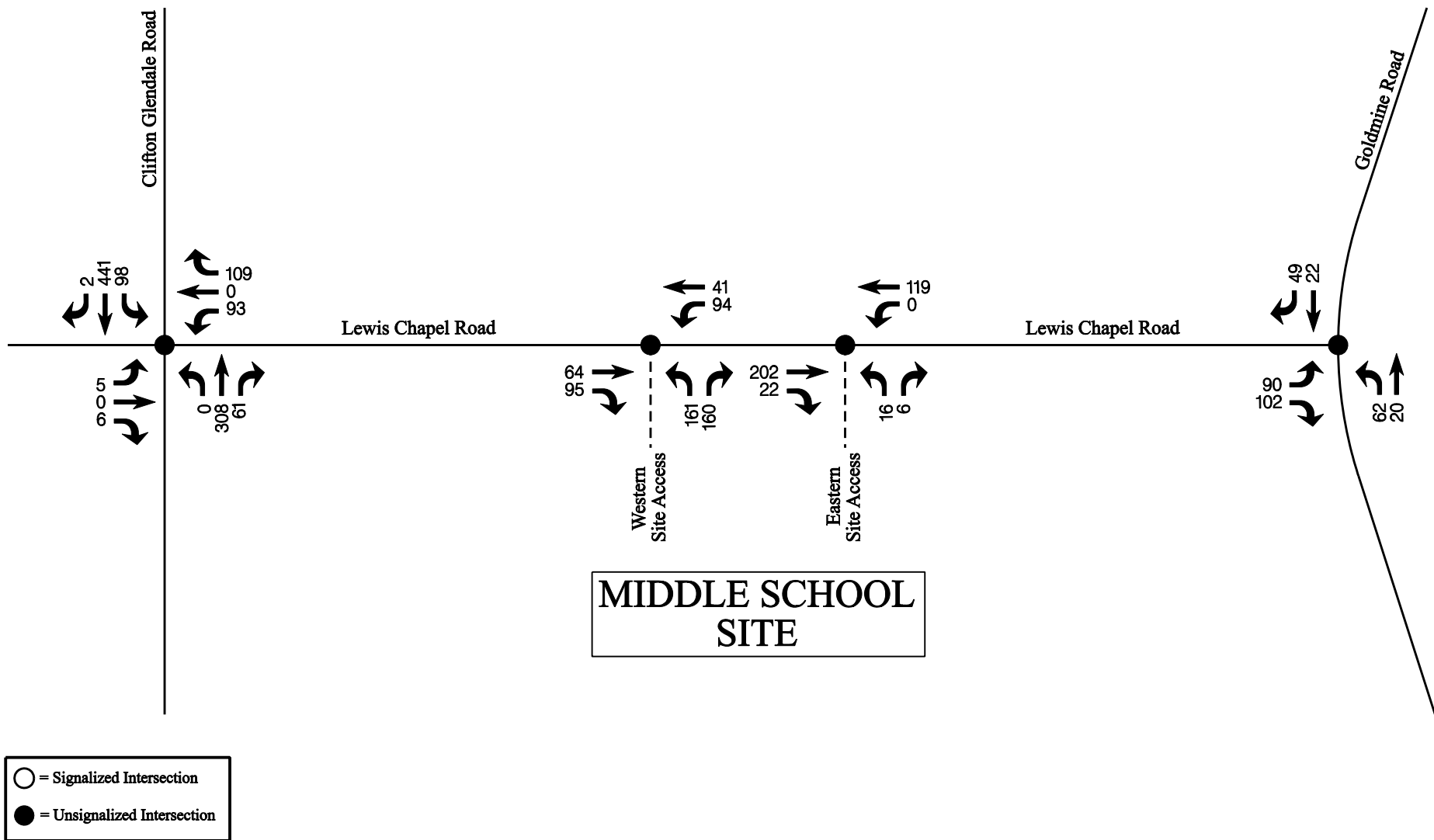


Figure 20

**2022 BUILD TRAFFIC VOLUMES
MIDDAY (SCHOOL EXIT) PEAK-HOUR**

Spartanburg County School District Three Middle School Site : Spartanburg, SC

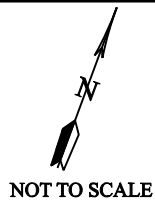
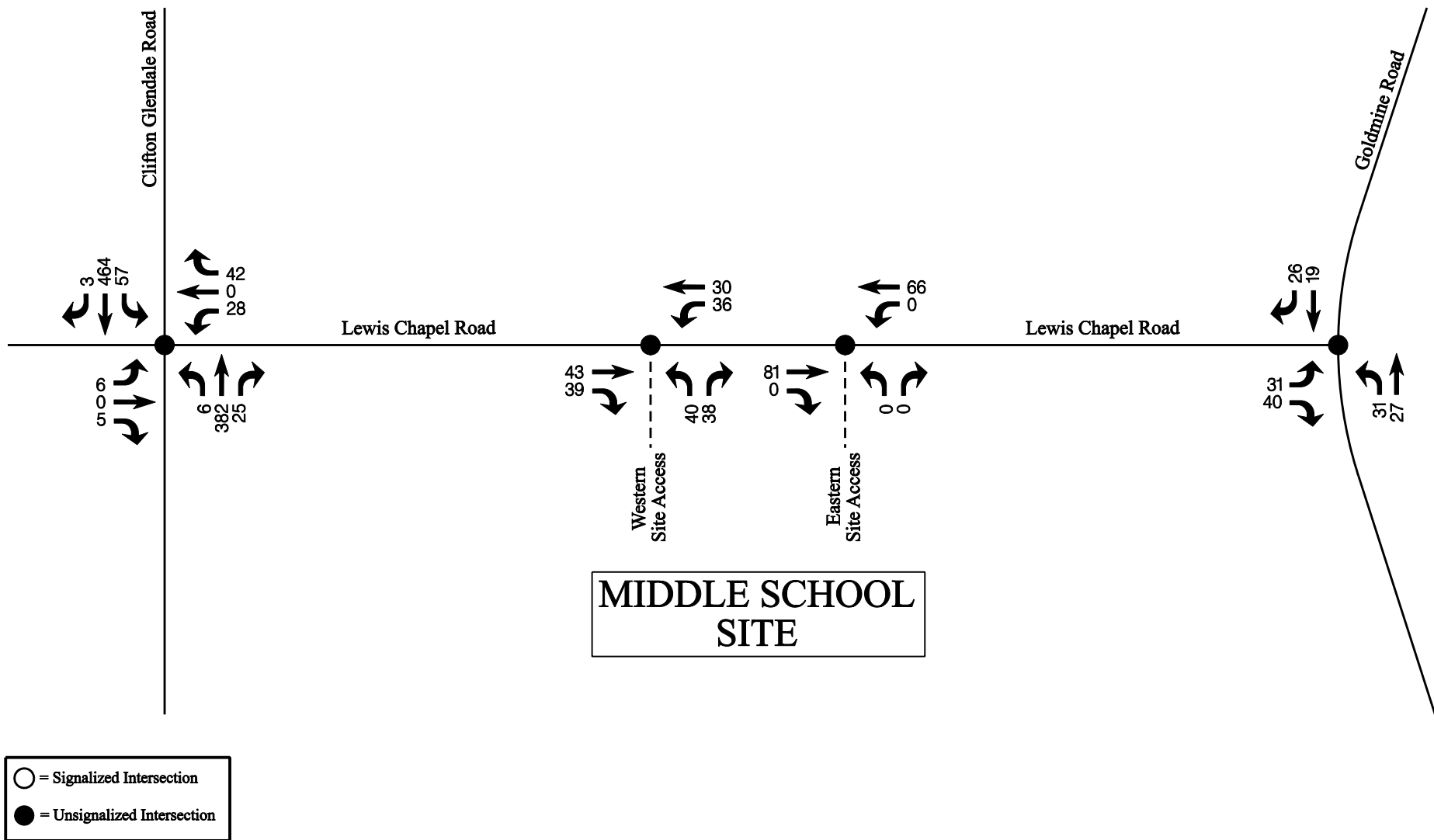


Figure 21
2022 BUILD TRAFFIC VOLUMES
PM PEAK-HOUR
Spartanburg County School District Three Middle School Site : Spartanburg, SC

COUNT DATA

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Clifton Glendale Rd @ Lewis Chapel Rd

Site Code :

Start Date : 01/16/2019

Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

Start Time	Clifton Glendale Rd Southbound				Lewis Chapel Rd Westbound				Clifton Glendale Rd Northbound				Lewis Chapel Rd Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:30	0	53	0	0	0	0	4	0	0	61	0	0	1	0	0	0	119
06:45	0	57	1	0	1	0	2	0	0	65	1	0	3	0	1	0	131
Total	0	110	1	0	1	0	6	0	0	126	1	0	4	0	1	0	250
07:00	1	69	1	0	2	0	1	0	0	97	1	0	1	0	0	0	173
07:15	0	83	0	0	1	0	5	0	1	131	1	0	0	0	0	0	222
07:30	2	94	0	0	0	0	10	0	0	170	0	0	1	1	0	0	278
07:45	3	99	2	0	0	0	5	0	0	94	1	0	0	0	1	0	205
Total	6	345	3	0	3	0	21	0	1	492	3	0	2	1	1	0	878
08:00	1	54	0	0	1	0	3	0	0	63	2	0	0	0	0	0	124
08:15	4	53	0	0	0	0	6	0	0	46	1	0	0	0	0	0	110
08:30	1	33	0	0	1	0	5	1	0	38	1	0	1	0	0	1	82
08:45	1	32	1	0	1	0	5	0	0	51	0	0	0	0	0	0	91
Total	7	172	1	0	3	0	19	1	0	198	4	0	1	0	0	1	407
14:00	2	81	1	0	1	1	6	0	0	58	2	0	1	0	0	0	153
14:15	6	66	0	0	2	1	3	0	0	60	0	0	0	0	1	0	139
14:30	4	84	0	0	1	0	3	0	1	68	3	0	0	0	0	0	164
14:45	6	65	0	0	1	0	5	0	0	76	4	0	1	0	1	0	159
Total	18	296	1	0	5	2	17	0	1	262	9	0	2	0	2	0	615
15:00	6	68	1	0	1	0	2	0	0	68	3	0	2	0	1	0	152
15:15	4	128	0	0	0	0	8	0	0	71	2	0	0	0	3	0	216
15:30	9	121	0	0	2	0	5	0	0	81	2	0	1	0	0	0	221
15:45	6	86	0	0	1	0	3	0	0	61	5	0	1	0	1	0	164
Total	25	403	1	0	4	0	18	0	0	281	12	0	4	0	5	0	753
16:00	5	95	1	0	2	0	3	0	0	84	4	0	0	0	1	0	195
16:15	7	87	0	0	2	0	4	0	3	82	3	0	0	0	0	0	188
16:30	8	84	1	0	5	0	0	0	1	90	4	0	1	0	0	0	194
16:45	4	92	1	0	4	0	3	0	2	80	2	0	1	0	0	0	189
Total	24	358	3	0	13	0	10	0	6	336	13	0	2	0	1	0	766
17:00	6	111	1	0	2	0	5	0	0	88	0	0	1	0	1	0	215
17:15	17	113	0	0	1	0	9	0	1	90	2	0	1	0	2	0	236
17:30	6	108	0	0	0	0	3	0	2	91	1	0	2	0	1	1	215
17:45	7	82	0	0	1	0	2	0	1	65	3	0	1	0	0	0	162
Total	36	414	1	0	4	0	19	0	4	334	6	0	5	0	4	1	828
Grand Total	116	2098	11	0	33	2	110	1	12	2029	48	0	20	1	14	2	4497
Apprch %	5.2	94.3	0.5	0	22.6	1.4	75.3	0.7	0.6	97.1	2.3	0	54.1	2.7	37.8	5.4	
Total %	2.6	46.7	0.2	0	0.7	0	2.4	0	0.3	45.1	1.1	0	0.4	0	0.3	0	
Passenger Vehicles	116	2037	11	0	33	2	109	1	12	1978	46	0	16	1	14	2	4378
% Passenger Vehicles	100	97.1	100	0	100	100	99.1	100	100	97.5	95.8	0	80	100	100	100	97.4
Heavy Vehicles	0	47	0	0	0	0	0	0	0	43	0	0	0	0	0	0	90
% Heavy Vehicles	0	2.2	0	0	0	0	0	0	0	2.1	0	0	0	0	0	0	2
Buses	0	14	0	0	0	0	1	0	0	8	2	0	4	0	0	0	29
% Buses	0	0.7	0	0	0	0	0.9	0	0	0.4	4.2	0	20	0	0	0	0.6

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

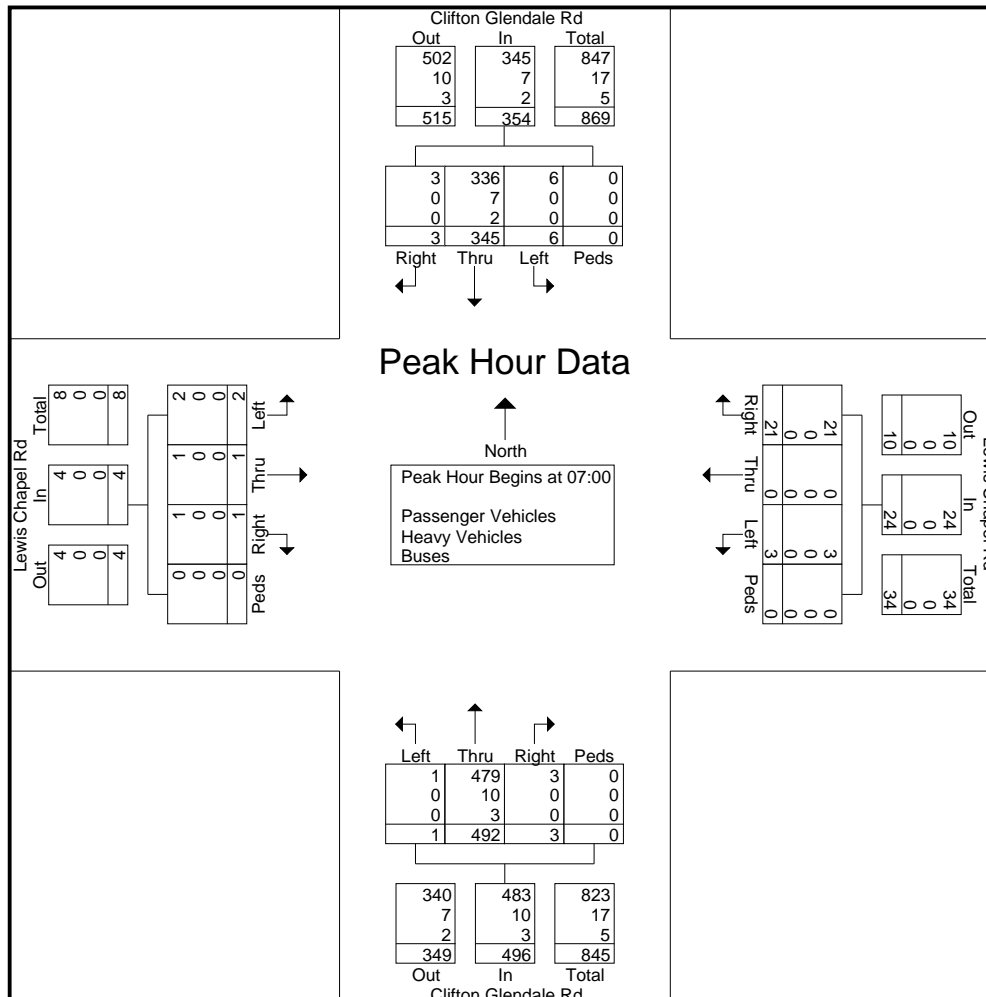
File Name : Clifton Glendale Rd @ Lewis Chapel Rd

Site Code :

Start Date : 01/16/2019

Page No : 3

	Clifton Glendale Rd Southbound					Lewis Chapel Rd Westbound					Clifton Glendale Rd Northbound					Lewis Chapel Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	1	69	1	0	71	2	0	1	0	3	0	97	1	0	98	1	0	0	0	1	173
07:15	0	83	0	0	83	1	0	5	0	6	1	131	1	0	133	0	0	0	0	0	222
07:30	2	94	0	0	96	0	0	10	0	10	0	170	0	0	170	1	1	0	0	2	278
07:45	3	99	2	0	104	0	0	5	0	5	0	94	1	0	95	0	0	1	0	1	205
Total Volume	6	345	3	0	354	3	0	21	0	24	1	492	3	0	496	2	1	1	0	4	878
% App. Total	1.7	97.5	0.8	0		12.5	0	87.5	0		0.2	99.2	0.6	0		50	25	25	0		
PHF	.500	.871	.375	.000	.851	.375	.000	.525	.000	.600	.250	.724	.750	.000	.729	.500	.250	.250	.000	.500	.790
Passenger Vehicles	6	336	3	0	345	3	0	21	0	24	1	479	3	0	483	2	1	1	0	4	856
% Passenger Vehicles																					
Heavy Vehicles	0	7	0	0	7	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	17
% Heavy Vehicles	0	2.0	0	0	2.0	0	0	0	0	0	0	2.0	0	0	2.0	0	0	0	0	0	1.9
Buses	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	5
% Buses	0	0.6	0	0	0.6	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0.6



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

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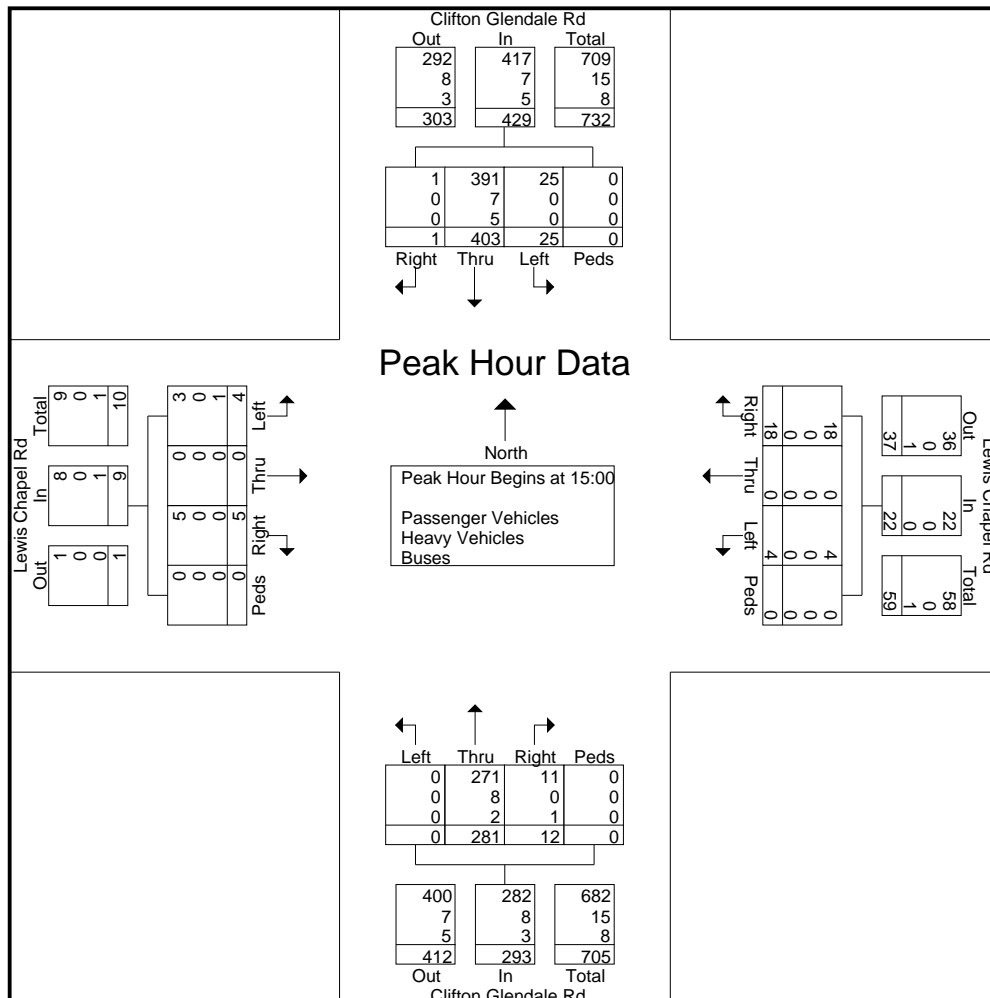
File Name : Clifton Glendale Rd @ Lewis Chapel Rd

Site Code :

Start Date : 01/16/2019

Page No : 4

	Clifton Glendale Rd Southbound					Lewis Chapel Rd Westbound					Clifton Glendale Rd Northbound					Lewis Chapel Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 15:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 15:00																					
15:00	6	68	1	0	75	1	0	2	0	3	0	68	3	0	71	2	0	1	0	3	152
15:15	4	128	0	0	132	0	0	8	0	8	0	71	2	0	73	0	0	3	0	3	216
15:30	9	121	0	0	130	2	0	5	0	7	0	81	2	0	83	1	0	0	0	1	221
15:45	6	86	0	0	92	1	0	3	0	4	0	61	5	0	66	1	0	1	0	2	164
Total Volume	25	403	1	0	429	4	0	18	0	22	0	281	12	0	293	4	0	5	0	9	753
% App. Total	5.8	93.9	0.2	0		18.2	0	81.8	0		0	95.9	4.1	0		44.4	0	55.6	0		
PHF	.694	.787	.250	.000	.813	.500	.000	.563	.000	.688	.000	.867	.600	.000	.883	.500	.000	.417	.000	.750	.852
Passenger Vehicles	25	391	1	0	417	4	0	18	0	22	0	271	11	0	282	3	0	5	0	8	729
% Passenger Vehicles																					
Heavy Vehicles	0	7	0	0	7	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	15
% Heavy Vehicles	0	1.7	0	0	1.6	0	0	0	0	0	0	2.8	0	0	2.7	0	0	0	0	0	2.0
Buses	0	5	0	0	5	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	9
% Buses	0	1.2	0	0	1.2	0	0	0	0	0	0	0.7	8.3	0	1.0	25.0	0	0	0	11.1	1.2



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

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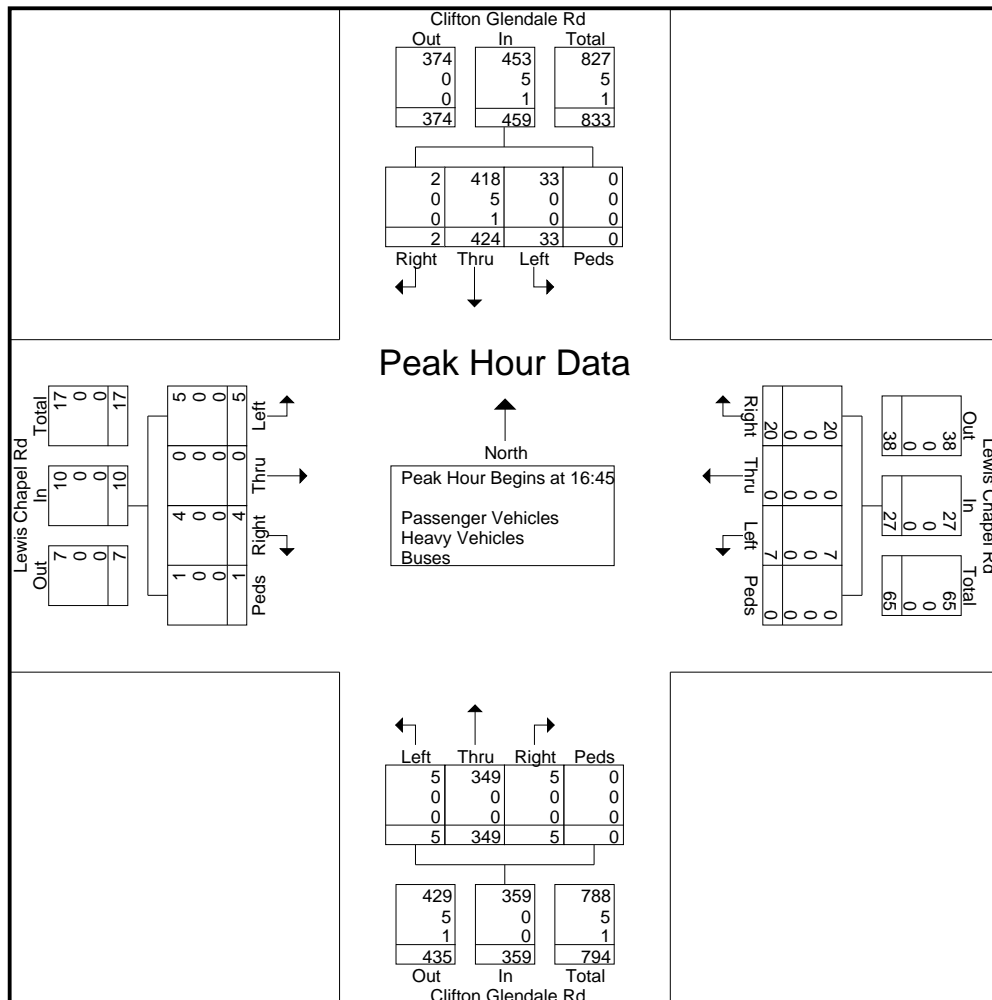
File Name : Clifton Glendale Rd @ Lewis Chapel Rd

Site Code :

Start Date : 01/16/2019

Page No : 5

	Clifton Glendale Rd Southbound					Lewis Chapel Rd Westbound					Clifton Glendale Rd Northbound					Lewis Chapel Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	4	92	1	0	97	4	0	3	0	7	2	80	2	0	84	1	0	0	0	1	189
17:00	6	111	1	0	118	2	0	5	0	7	0	88	0	0	88	1	0	1	0	2	215
17:15	17	113	0	0	130	1	0	9	0	10	1	90	2	0	93	1	0	2	0	3	236
17:30	6	108	0	0	114	0	0	3	0	3	2	91	1	0	94	2	0	1	1	4	215
Total Volume	33	424	2	0	459	7	0	20	0	27	5	349	5	0	359	5	0	4	1	10	855
% App. Total	7.2	92.4	0.4	0		25.9	0	74.1	0		1.4	97.2	1.4	0		50	0	40	10		
PHF	.485	.938	.500	.000	.883	.438	.000	.556	.000	.675	.625	.959	.625	.000	.955	.625	.000	.500	.250	.625	.906
Passenger Vehicles	33	418	2	0	453	7	0	20	0	27	5	349	5	0	359	5	0	4	1	10	849
% Passenger Vehicles																					
Heavy Vehicles	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
% Heavy Vehicles	0	1.2	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6
Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Buses	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Goldmine Rd @ Lewis Chapel Rd

Site Code :

Start Date : 01/16/2019

Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

Start Time	Goldmine Rd Southbound				Old Dirt Rd Westbound				Goldmine Rd Northbound				Lewis Chapel Rd Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:30	0	2	0	0	0	0	0	0	2	4	0	0	1	0	0	0	9
06:45	0	4	0	0	1	1	0	0	4	6	0	0	0	0	0	0	16
Total	0	6	0	0	1	1	0	0	6	10	0	0	1	0	0	0	25
07:00	0	4	0	0	0	0	0	0	4	9	0	0	2	0	2	0	21
07:15	0	3	0	0	0	0	0	0	6	10	0	0	1	0	2	0	22
07:30	0	3	0	0	0	0	0	0	2	6	0	0	0	0	3	0	14
07:45	0	7	0	0	0	0	0	0	5	2	0	0	1	0	1	0	16
Total	0	17	0	0	0	0	0	0	17	27	0	0	4	0	8	0	73
08:00	0	3	0	0	0	0	0	0	2	3	0	0	1	1	2	0	12
08:15	0	3	0	0	0	0	0	0	4	3	0	0	0	2	0	0	12
08:30	0	3	1	0	0	1	1	0	5	2	0	0	0	0	1	0	14
08:45	0	2	1	0	0	0	0	0	2	2	0	0	0	0	2	0	9
Total	0	11	2	0	0	1	1	0	13	10	0	0	1	3	5	0	47
14:00	0	0	0	0	2	0	0	0	2	6	0	0	1	0	3	0	14
14:15	0	9	0	0	0	0	0	0	3	6	0	0	0	0	3	0	21
14:30	0	3	0	0	0	0	0	0	2	3	0	0	3	0	4	0	15
14:45	0	4	1	0	0	0	0	0	2	3	0	0	3	0	6	0	19
Total	0	16	1	0	2	0	0	0	9	18	0	0	7	0	16	0	69
15:00	0	4	0	0	0	0	0	0	6	6	0	0	0	0	4	0	20
15:15	0	4	1	0	0	0	0	0	2	6	0	0	3	1	4	0	21
15:30	0	2	0	0	0	1	0	0	1	4	0	0	3	1	2	0	14
15:45	0	3	1	0	0	0	0	0	3	3	0	0	1	1	2	0	14
Total	0	13	2	0	0	1	0	0	12	19	0	0	7	3	12	0	69
16:00	0	7	2	0	0	0	0	0	1	2	0	0	2	0	9	0	23
16:15	0	4	3	0	0	0	0	0	1	5	0	0	2	1	4	0	20
16:30	0	7	2	0	0	0	0	0	2	5	0	0	3	0	5	0	24
16:45	0	4	0	0	0	1	0	0	4	8	0	0	2	0	3	0	22
Total	0	22	7	0	0	1	0	0	8	20	0	0	9	1	21	0	89
17:00	0	2	2	0	0	0	0	0	4	6	0	0	3	0	8	0	25
17:15	1	5	0	0	0	0	0	0	0	4	0	0	1	0	5	0	16
17:30	0	2	0	0	0	0	0	0	3	6	0	0	0	0	5	0	16
17:45	0	3	1	0	0	0	0	0	3	3	0	0	1	0	1	0	12
Total	1	12	3	0	0	0	0	0	10	19	0	0	5	0	19	0	69
Grand Total	1	97	15	0	3	4	1	0	75	123	0	0	34	7	81	0	441
Apprch %	0.9	85.8	13.3	0	37.5	50	12.5	0	37.9	62.1	0	0	27.9	5.7	66.4	0	
Total %	0.2	22	3.4	0	0.7	0.9	0.2	0	17	27.9	0	0	7.7	1.6	18.4	0	
Passenger Vehicles	1	95	15	0	2	4	1	0	74	116	0	0	34	7	80	0	429
% Passenger Vehicles	100	97.9	100	0	66.7	100	100	0	98.7	94.3	0	0	100	100	98.8	0	97.3
Heavy Vehicles	0	1	0	0	1	0	0	0	0	2	0	0	0	0	0	0	4
% Heavy Vehicles	0	1	0	0	33.3	0	0	0	0	1.6	0	0	0	0	0	0	0.9
Buses	0	1	0	0	0	0	0	0	1	5	0	0	0	0	1	0	8
% Buses	0	1	0	0	0	0	0	0	1.3	4.1	0	0	0	0	1.2	0	1.8

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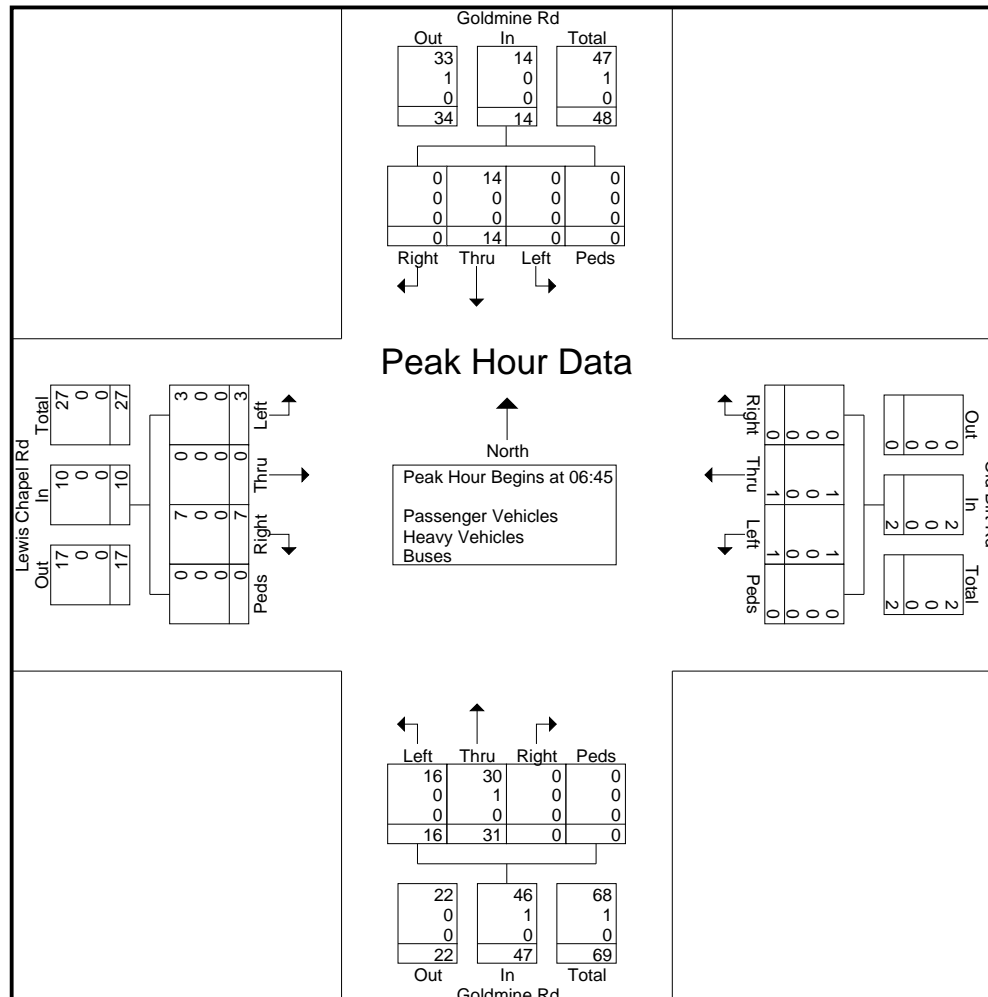
File Name : Goldmine Rd @ Lewis Chapel Rd

Site Code :

Start Date : 01/16/2019

Page No : 3

	Goldmine Rd Southbound					Old Dirt Rd Westbound					Goldmine Rd Northbound					Lewis Chapel Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45																					
06:45	0	4	0	0	4	1	1	0	0	2	4	6	0	0	10	0	0	0	0	0	16
07:00	0	4	0	0	4	0	0	0	0	0	4	9	0	0	13	2	0	2	0	4	21
07:15	0	3	0	0	3	0	0	0	0	0	6	10	0	0	16	1	0	2	0	3	22
07:30	0	3	0	0	3	0	0	0	0	0	2	6	0	0	8	0	0	3	0	3	14
Total Volume	0	14	0	0	14	1	1	0	0	2	16	31	0	0	47	3	0	7	0	10	73
% App. Total	0	100	0	0		50	50	0	0		34	66	0	0		30	0	70	0		
PHF	.000	.875	.000	.000	.875	.250	.250	.000	.000	.250	.667	.775	.000	.000	.734	.375	.000	.583	.000	.625	.830
Passenger Vehicles	0	14	0	0	14	1	1	0	0	2	16	30	0	0	46	3	0	7	0	10	72
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	3.2	0	0	2.1	0	0	0	0	0	1.4
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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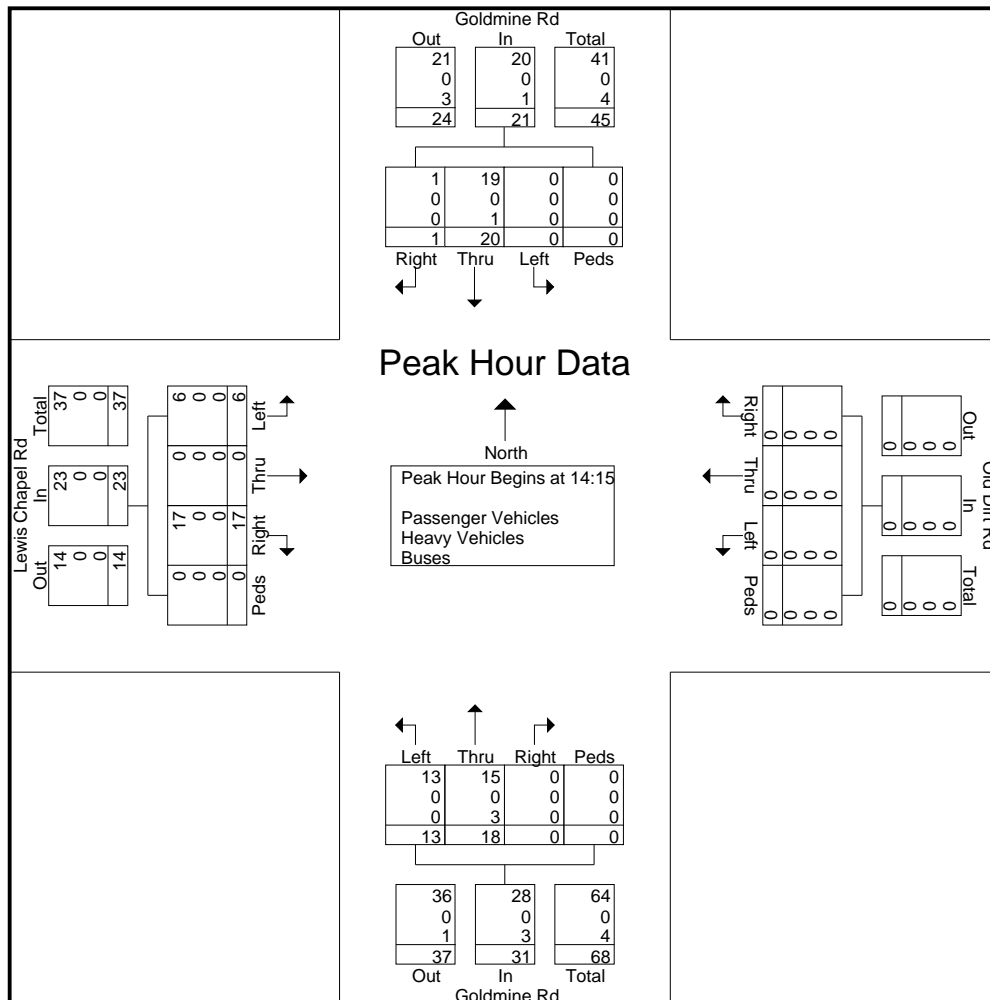
File Name : Goldmine Rd @ Lewis Chapel Rd

Site Code :

Start Date : 01/16/2019

Page No : 4

	Goldmine Rd Southbound					Old Dirt Rd Westbound					Goldmine Rd Northbound					Lewis Chapel Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 15:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 14:15																					
14:15	0	9	0	0	9	0	0	0	0	0	3	6	0	0	9	0	0	3	0	3	21
14:30	0	3	0	0	3	0	0	0	0	0	2	3	0	0	5	3	0	4	0	7	15
14:45	0	4	1	0	5	0	0	0	0	0	2	3	0	0	5	3	0	6	0	9	19
15:00	0	4	0	0	4	0	0	0	0	0	6	6	0	0	12	0	0	4	0	4	20
Total Volume	0	20	1	0	21	0	0	0	0	0	13	18	0	0	31	6	0	17	0	23	75
% App. Total	0	95.2	4.8	0		0	0	0	0	0	41.9	58.1	0	0		26.1	0	73.9	0		
PHF	.000	.556	.250	.000	.583	.000	.000	.000	.000	.000	.542	.750	.000	.000	.646	.500	.000	.708	.000	.639	.893
Passenger Vehicles	0	19	1	0	20	0	0	0	0	0	13	15	0	0	28	6	0	17	0	23	71
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
% Buses	0	5.0	0	0	4.8	0	0	0	0	0	0	16.7	0	0	9.7	0	0	0	0	0	5.3



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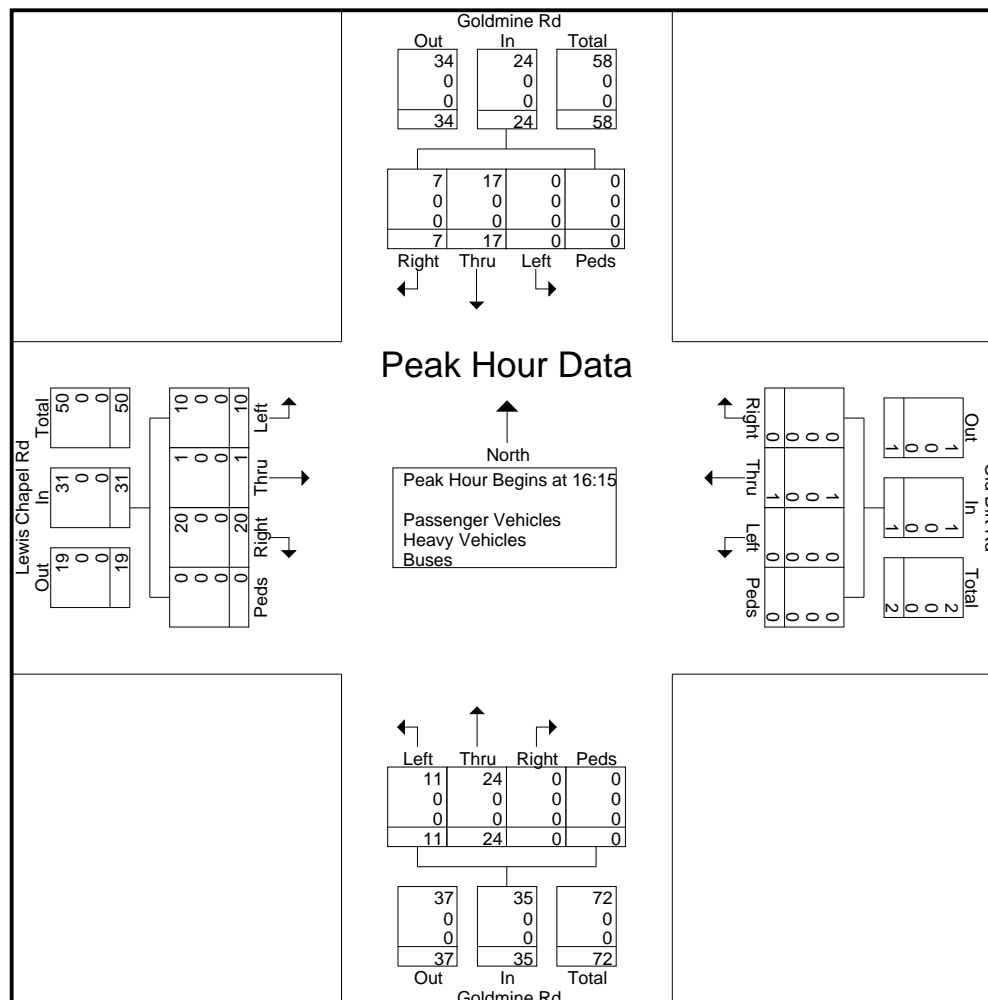
File Name : Goldmine Rd @ Lewis Chapel Rd

Site Code :

Start Date : 01/16/2019

Page No : 5

	Goldmine Rd Southbound					Old Dirt Rd Westbound					Goldmine Rd Northbound					Lewis Chapel Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	0	4	3	0	7	0	0	0	0	0	1	5	0	0	6	2	1	4	0	7	20
16:30	0	7	2	0	9	0	0	0	0	0	2	5	0	0	7	3	0	5	0	8	24
16:45	0	4	0	0	4	0	1	0	0	1	4	8	0	0	12	2	0	3	0	5	22
17:00	0	2	2	0	4	0	0	0	0	0	4	6	0	0	10	3	0	8	0	11	25
Total Volume	0	17	7	0	24	0	1	0	0	1	11	24	0	0	35	10	1	20	0	31	91
% App. Total	0	70.8	29.2	0		0	100	0	0		31.4	68.6	0	0		32.3	3.2	64.5	0		
PHF	.000	.607	.583	.000	.667	.000	.250	.000	.000	.250	.688	.750	.000	.000	.729	.833	.250	.625	.000	.705	.910
Passenger Vehicles	0	17	7	0	24	0	1	0	0	1	11	24	0	0	35	10	1	20	0	31	91
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



LOCAL EMPIRICAL DATA FOR TRIP GEN

Table 1
EXISTING TRIP GENERATION SUMMARY
AM (School Enter) PEAK-HOUR

Location #1 Middle School of Pacolet (MSP) = 213 Students					
	Student Drop	Faculty/Staff	Buses	Total	
Entering Trips	35	35	5	75	65% enter
Exiting Trips	35	0	5	40	35% exit
Total Trips	70	35	10	115	0.5399 trips/student
Location #2 Cowpens Middle School = 432 Students					
	Student Drop	Faculty/Staff	Buses	Total	
Entering Trips	100	60	11	171	61% enter
Exiting Trips	100	0	11	111	39% exit
Total Trips	200	60	22	282	0.6528 trips/student
Location #1 + Location #2 Total = 645 Students					
	Student Drop	Faculty/Staff	Buses	Total	
Entering Trips	135	95	16	246	62% enter
Exiting Trips	135	0	16	151	38% exit
Total Trips	270	95	32	397	0.6155 trips/student

Table 2
EXISTING TRIP GENERATION SUMMARY
PM (School Exit) PEAK-HOUR

Location #1 Middle School of Pacolet (MSP) = 213 Students					
	Student Drop	Faculty/Staff	Buses	Total	
Entering Trips	35	0	5	40	35% enter
Exiting Trips	35	35	5	75	65% exit
Total Trips	70	35	10	115	0.5399 trips/student
Location #2 Cowpens Middle School = 432 Students					
	Student Drop	Faculty/Staff	Buses	Total	
Entering Trips	100	0	11	111	39% enter
Exiting Trips	100	60	11	171	61% exit
Total Trips	200	60	22	282	0.6528 trips/student
Location #1 + Location #2 Total = 645 Students					
	Student Drop	Faculty/Staff	Buses	Total	
Entering Trips	135	0	16	151	38% enter
Exiting Trips	135	95	16	246	62% exit
Total Trips	270	95	32	397	0.6155 trips/student

INTERSECTION CAPACITY ANALYSES

2019 EXISTING
10: Lewis Chapel Rd & Clifton Glendale Rd

AM
03/14/2019

Intersection												
Int Delay, s/veh	0.5											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Vol, veh/h	2	1	1	3	0	21	6	345	3	1	492	3
Future Vol, veh/h	2	1	1	3	0	21	6	345	3	1	492	3
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	-	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	1	1	4	0	27	8	437	4	1	623	4




Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1096	1084	439	1083	1084	625	627	0	0	441	0	0
Stage 1	455	455	-	627	627	-	-	-	-	-	-	-
Stage 2	641	629	-	456	457	-	-	-	-	-	-	-
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	191	217	618	195	217	485	955	-	-	1119	-	-
Stage 1	585	569	-	471	476	-	-	-	-	-	-	-
Stage 2	463	475	-	584	568	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	179	215	618	192	215	485	955	-	-	1119	-	-
Mov Cap-2 Maneuver	179	215	-	192	215	-	-	-	-	-	-	-
Stage 1	580	564	-	467	476	-	-	-	-	-	-	-
Stage 2	437	475	-	577	563	-	-	-	-	-	-	-

Approach	NB		SB		SE		NW	
HCM Control Delay, s	21.1		14.6		0.1		0	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	229	1119	-	-	955	-	-	407
HCM Lane V/C Ratio	0.022	0.001	-	-	0.008	-	-	0.075
HCM Control Delay (s)	21.1	8.2	-	-	8.8	-	-	14.6
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

2019 EXISTING
5: Lewis Chapel Rd & Goldmine Rd

AM
03/14/2019

Intersection						
Int Delay, s/veh	2.9					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	14	0	16	31	3	7
Future Vol, veh/h	14	0	16	31	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	0	19	37	4	8
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	17	0	92	17
Stage 1	-	-	-	-	17	-
Stage 2	-	-	-	-	75	-
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	-	908	1062
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1600	-	897	1062
Mov Cap-2 Maneuver	-	-	-	-	897	-
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	937	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		2.5		8.6	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	1006	1600	-	-	-	
HCM Lane V/C Ratio	0.012	0.012	-	-	-	
HCM Control Delay (s)	8.6	7.3	0	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	0	-	-	-	

2019 EXISTING
10: Lewis Chapel Rd & Clifton Glendale Rd

Midday
03/14/2019

Intersection												
Int Delay, s/veh	0.8											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Vol, veh/h	4	0	5	4	0	18	25	403	1	0	281	12
Future Vol, veh/h	4	0	5	4	0	18	25	403	1	0	281	12
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	-	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	6	5	0	21	29	474	1	0	331	14




Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	882	878	475	874	871	338	345	0	0	475	0	0
Stage 1	533	533	-	338	338	-	-	-	-	-	-	-
Stage 2	349	345	-	536	533	-	-	-	-	-	-	-
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	287	590	270	289	704	1214	-	-	1087	-	-
Stage 1	531	525	-	676	641	-	-	-	-	-	-	-
Stage 2	667	636	-	529	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	254	280	590	262	282	704	1214	-	-	1087	-	-
Mov Cap-2 Maneuver	254	280	-	262	282	-	-	-	-	-	-	-
Stage 1	518	512	-	660	641	-	-	-	-	-	-	-
Stage 2	647	636	-	511	512	-	-	-	-	-	-	-

Approach	NB	SB	SE	NW
HCM Control Delay, s	15	12	0.5	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	372	1087	-	-	1214	-	-	539
HCM Lane V/C Ratio	0.028	-	-	-	0.024	-	-	0.048
HCM Control Delay (s)	15	0	-	-	8	-	-	12
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.2







2019 EXISTING
5: Lewis Chapel Rd & Goldmine Rd

Midday
03/14/2019

Intersection						
Int Delay, s/veh	3.9					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	20	1	13	18	6	17
Future Vol, veh/h	20	1	13	18	6	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	1	15	20	7	19
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	23	0	73	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	50	-
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	-	-	1592	-	931	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	972	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1592	-	922	1054
Mov Cap-2 Maneuver	-	-	-	-	922	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	962	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		3.1		8.6	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	1016	1592	-	-	-	
HCM Lane V/C Ratio	0.025	0.009	-	-	-	
HCM Control Delay (s)	8.6	7.3	0	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	0	-	-	-	

2019 EXISTING
10: Lewis Chapel Rd & Clifton Glendale Rd

PM
03/14/2019

Intersection												
Int Delay, s/veh	1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	5	0	4	7	0	20	33	424	2	5	349	5
Future Vol, veh/h	5	0	4	7	0	20	33	424	2	5	349	5
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	-	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	4	8	0	22	36	466	2	5	384	5




Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	947	938	467	938	937	387	389	0	0	468	0	0
Stage 1	539	539	-	397	397	-	-	-	-	-	-	-
Stage 2	408	399	-	541	540	-	-	-	-	-	-	-
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	241	264	596	244	265	661	1170	-	-	1094	-	-
Stage 1	527	522	-	629	603	-	-	-	-	-	-	-
Stage 2	620	602	-	525	521	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	227	254	596	236	255	661	1170	-	-	1094	-	-
Mov Cap-2 Maneuver	227	254	-	236	255	-	-	-	-	-	-	-
Stage 1	511	506	-	610	600	-	-	-	-	-	-	-
Stage 2	597	599	-	505	505	-	-	-	-	-	-	-

Approach	NB		SB		SE		NW	
HCM Control Delay, s	16.9		13.5		0.6		0.1	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	313	1094	-	-	1170	-	-	451
HCM Lane V/C Ratio	0.032	0.005	-	-	0.031	-	-	0.066
HCM Control Delay (s)	16.9	8.3	-	-	8.2	-	-	13.5
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.2

2019 EXISTING
5: Lewis Chapel Rd & Goldmine Rd

PM
03/14/2019

Intersection						
Int Delay, s/veh	3.8					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	17	7	11	24	10	20
Future Vol, veh/h	17	7	11	24	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	8	12	26	11	22
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	27	0	73	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	50	-
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	-	-	1587	-	931	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	972	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1587	-	924	1054
Mov Cap-2 Maneuver	-	-	-	-	924	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	964	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		2.3		8.7	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	1007	1587	-	-	-	
HCM Lane V/C Ratio	0.033	0.008	-	-	-	
HCM Control Delay (s)	8.7	7.3	0	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	0	-	-	-	

2022 NO-BUILD
10: Lewis Chapel Rd & Clifton Glendale Rd

AM
03/14/2019

Intersection												
Int Delay, s/veh	0.7											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Vol, veh/h	3	2	2	4	0	23	7	377	4	2	538	4
Future Vol, veh/h	3	2	2	4	0	23	7	377	4	2	538	4
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	-	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	3	3	5	0	29	9	477	5	3	681	5




Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1202	1190	480	1191	1190	684	686	0	0	482	0	0
Stage 1	498	498	-	690	690	-	-	-	-	-	-	-
Stage 2	704	692	-	501	500	-	-	-	-	-	-	-
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	161	188	586	164	188	449	908	-	-	1081	-	-
Stage 1	554	544	-	435	446	-	-	-	-	-	-	-
Stage 2	428	445	-	552	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	149	186	586	160	186	449	908	-	-	1081	-	-
Mov Cap-2 Maneuver	149	186	-	160	186	-	-	-	-	-	-	-
Stage 1	548	539	-	431	445	-	-	-	-	-	-	-
Stage 2	399	444	-	542	538	-	-	-	-	-	-	-

Approach	NB		SB		SE		NW	
HCM Control Delay, s	23.4		16.3		0.2		0	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	204	1081	-	-	908	-	-	354
HCM Lane V/C Ratio	0.043	0.002	-	-	0.01	-	-	0.097
HCM Control Delay (s)	23.4	8.3	-	-	9	-	-	16.3
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

2022 NO-BUILD
5: Lewis Chapel Rd & Goldmine Rd

AM
03/14/2019

Intersection						
Int Delay, s/veh	2.9					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	16	0	18	34	4	8
Future Vol, veh/h	16	0	18	34	4	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	0	22	41	5	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	19	0	104	19
Stage 1	-	-	-	-	19	-
Stage 2	-	-	-	-	85	-
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	-	-	1597	-	894	1059
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1597	-	881	1059
Mov Cap-2 Maneuver	-	-	-	-	881	-
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	925	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		2.5		8.7	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	992	1597	-	-	-	
HCM Lane V/C Ratio	0.015	0.014	-	-	-	
HCM Control Delay (s)	8.7	7.3	0	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	0	-	-	-	

2022 NO-BUILD
10: Lewis Chapel Rd & Clifton Glendale Rd

Midday
03/14/2019

Intersection												
Int Delay, s/veh	0.9											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Vol, veh/h	5	0	6	5	0	20	28	441	2	0	308	14
Future Vol, veh/h	5	0	6	5	0	20	28	441	2	0	308	14
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	-	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	0	7	6	0	24	33	519	2	0	362	16




Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	968	964	520	960	957	370	378	0	0	521	0	0
Stage 1	586	586	-	370	370	-	-	-	-	-	-	-
Stage 2	382	378	-	590	587	-	-	-	-	-	-	-
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	233	255	556	236	258	676	1180	-	-	1045	-	-
Stage 1	496	497	-	650	620	-	-	-	-	-	-	-
Stage 2	640	615	-	494	497	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	220	248	556	228	251	676	1180	-	-	1045	-	-
Mov Cap-2 Maneuver	220	248	-	228	251	-	-	-	-	-	-	-
Stage 1	482	483	-	632	620	-	-	-	-	-	-	-
Stage 2	618	615	-	474	483	-	-	-	-	-	-	-

Approach	NB	SB	SE	NW
HCM Control Delay, s	16.4	12.9	0.5	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	328	1045	-	-	1180	-	-	485
HCM Lane V/C Ratio	0.039	-	-	-	0.028	-	-	0.061
HCM Control Delay (s)	16.4	0	-	-	8.1	-	-	12.9
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.2

2022 NO-BUILD
5: Lewis Chapel Rd & Goldmine Rd

Midday
03/14/2019

Intersection						
Int Delay, s/veh	3.9					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	22	2	15	20	7	19
Future Vol, veh/h	22	2	15	20	7	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	2	17	22	8	21
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	27	0	82	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	56	-
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	-	-	1587	-	920	1050
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	967	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1587	-	910	1050
Mov Cap-2 Maneuver	-	-	-	-	910	-
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	956	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		3.1		8.7	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	1008	1587	-	-	-	
HCM Lane V/C Ratio	0.029	0.011	-	-	-	
HCM Control Delay (s)	8.7	7.3	0	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	0	-	-	-	

2022 NO-BUILD
10: Lewis Chapel Rd & Clifton Glendale Rd

PM
03/14/2019

Intersection												
Int Delay, s/veh	1.1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Vol, veh/h	6	0	5	8	0	22	37	464	3	6	382	6
Future Vol, veh/h	6	0	5	8	0	22	37	464	3	6	382	6
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	-	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	5	9	0	24	41	510	3	7	420	7




Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1044	1035	512	1034	1033	424	427	0	0	513	0	0
Stage 1	594	594	-	438	438	-	-	-	-	-	-	-
Stage 2	450	441	-	596	595	-	-	-	-	-	-	-
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	207	232	562	210	232	630	1132	-	-	1052	-	-
Stage 1	491	493	-	597	579	-	-	-	-	-	-	-
Stage 2	589	577	-	490	492	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	193	222	562	201	222	630	1132	-	-	1052	-	-
Mov Cap-2 Maneuver	193	222	-	201	222	-	-	-	-	-	-	-
Stage 1	473	475	-	576	575	-	-	-	-	-	-	-
Stage 2	563	573	-	468	474	-	-	-	-	-	-	-

Approach	NB		SB		SE		NW	
HCM Control Delay, s	18.7		14.8		0.6		0.1	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	275	1052	-	-	1132	-	-	401
HCM Lane V/C Ratio	0.044	0.006	-	-	0.036	-	-	0.082
HCM Control Delay (s)	18.7	8.4	-	-	8.3	-	-	14.8
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.3







2022 NO-BUILD
5: Lewis Chapel Rd & Goldmine Rd

PM
03/14/2019

Intersection						
Int Delay, s/veh	3.8					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	19	8	13	27	11	22
Future Vol, veh/h	19	8	13	27	11	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	9	14	30	12	24
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	30	0	84	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	58	-
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	-	918	1050
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	965	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1583	-	910	1050
Mov Cap-2 Maneuver	-	-	-	-	910	-
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	956	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		2.4		8.7	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	999	1583	-	-	-	
HCM Lane V/C Ratio	0.036	0.009	-	-	-	
HCM Control Delay (s)	8.7	7.3	0	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	0	-	-	-	

2022 BUILD
10: Lewis Chapel Rd & Clifton Glendale Rd

AM
03/14/2019

Intersection												
Int Delay, s/veh	15.6											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	3	2	2	51	0	93	96	377	4	2	538	92
Future Vol, veh/h	3	2	2	51	0	93	96	377	4	2	538	92
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	-	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	24	8	2	2	2	2	8
Mvmt Flow	4	3	3	65	0	118	122	477	5	3	681	116




Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1528	1527	480	1472	1471	739	797	0	0	482	0	0
Stage 1	724	724	-	745	745	-	-	-	-	-	-	-
Stage 2	804	803	-	727	726	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.44	4.18	-	-	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	3.516	2.272	-	-	2.218	-	-
Pot Cap-1 Maneuver	96	117	586	105	127	383	799	-	-	1081	-	-
Stage 1	417	430	-	406	421	-	-	-	-	-	-	-
Stage 2	377	396	-	415	430	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	59	99	586	90	107	383	799	-	-	1081	-	-
Mov Cap-2 Maneuver	59	99	-	90	107	-	-	-	-	-	-	-
Stage 1	353	364	-	344	420	-	-	-	-	-	-	-
Stage 2	260	395	-	348	364	-	-	-	-	-	-	-

Approach	NB		SB		SE		NW	
HCM Control Delay, s	47.2		127.3		2.1		0	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	94	1081	-	-	799	-	-	178
HCM Lane V/C Ratio	0.094	0.002	-	-	0.152	-	-	1.024
HCM Control Delay (s)	47.2	8.3	-	-	10.3	-	-	127.3
HCM Lane LOS	E	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.3	0	-	-	0.5	-	-	8.5

2022 BUILD
5: Lewis Chapel Rd & Goldmine Rd

AM
03/14/2019




Intersection						
Int Delay, s/veh	5.6					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	16	83	101	34	51	55
Future Vol, veh/h	16	83	101	34	51	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	4	3	2	2	2
Mvmt Flow	19	100	122	41	61	66
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	119	0	354	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	285	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1463	-	644	994
Stage 1	-	-	-	-	954	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1463	-	589	994
Mov Cap-2 Maneuver	-	-	-	-	589	-
Stage 1	-	-	-	-	954	-
Stage 2	-	-	-	-	698	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		5.7		10.8	
HCM LOS	B					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	747	1463	-	-	-	
HCM Lane V/C Ratio	0.171	0.083	-	-	-	
HCM Control Delay (s)	10.8	7.7	0	-	-	
HCM Lane LOS	B	A	A	-	-	
HCM 95th %tile Q(veh)	0.6	0.3	-	-	-	

Intersection												
Int Delay, s/veh	14.8											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Vol, veh/h	5	0	6	93	0	109	98	441	2	0	308	61
Future Vol, veh/h	5	0	6	93	0	109	98	441	2	0	308	61
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	-	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	8	2	8	22	2	2	2	2	2
Mvmt Flow	6	0	7	109	0	128	115	519	2	0	362	72

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1212	1184	520	1152	1149	398	434	0	0	521	0	0
Stage 1	750	750	-	398	398	-	-	-	-	-	-	-
Stage 2	462	434	-	754	751	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.18	6.52	6.28	4.32	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.18	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.18	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.572	4.018	3.372	2.398	-	-	2.218	-	-
Pot Cap-1 Maneuver	159	189	556	170	198	639	1027	-	-	1045	-	-
Stage 1	403	419	-	616	603	-	-	-	-	-	-	-
Stage 2	580	581	-	392	418	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	116	168	556	154	176	639	1027	-	-	1045	-	-
Mov Cap-2 Maneuver	116	168	-	154	176	-	-	-	-	-	-	-
Stage 1	358	372	-	547	603	-	-	-	-	-	-	-
Stage 2	464	581	-	344	371	-	-	-	-	-	-	-

Approach	NB	SB	SE	NW
HCM Control Delay, s	23.8	76.5	1.6	0
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	204	1045	-	-	1027	-	-	261
HCM Lane V/C Ratio	0.063	-	-	-	0.112	-	-	0.911
HCM Control Delay (s)	23.8	0	-	-	8.9	-	-	76.5
HCM Lane LOS	C	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.2	0	-	-	0.4	-	-	8.1

Intersection						
Int Delay, s/veh	7.3					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	22	49	62	20	90	102
Future Vol, veh/h	22	49	62	20	90	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	3	3
Mvmt Flow	25	55	70	22	101	115
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	80	0	215	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	162	-
Critical Hdwy	-	-	4.12	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.218	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1518	-	771	1012
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	865	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1518	-	735	1012
Mov Cap-2 Maneuver	-	-	-	-	735	-
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	824	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		5.7		10.6	
HCM LOS	B					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	860	1518	-	-	-	
HCM Lane V/C Ratio	0.251	0.046	-	-	-	
HCM Control Delay (s)	10.6	7.5	0	-	-	
HCM Lane LOS	B	A	A	-	-	
HCM 95th %tile Q(veh)	1	0.1	-	-	-	

2022 BUILD
10: Lewis Chapel Rd & Clifton Glendale Rd

PM
03/14/2019

Intersection												
Int Delay, s/veh	2.1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Vol, veh/h	6	0	5	28	0	42	57	464	3	6	382	25
Future Vol, veh/h	6	0	5	28	0	42	57	464	3	6	382	25
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	-	-	-	-	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	5	31	0	46	63	510	3	7	420	27




Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1109	1099	512	1088	1087	434	447	0	0	513	0	0
Stage 1	638	638	-	448	448	-	-	-	-	-	-	-
Stage 2	471	461	-	640	639	-	-	-	-	-	-	-
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	187	212	562	193	216	622	1113	-	-	1052	-	-
Stage 1	465	471	-	590	573	-	-	-	-	-	-	-
Stage 2	573	565	-	464	470	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	165	198	562	182	202	622	1113	-	-	1052	-	-
Mov Cap-2 Maneuver	165	198	-	182	202	-	-	-	-	-	-	-
Stage 1	438	444	-	556	569	-	-	-	-	-	-	-
Stage 2	527	561	-	433	443	-	-	-	-	-	-	-

Approach	NB		SB		SE		NW	
HCM Control Delay, s	20.6		20		0.9		0.1	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBLn1	NWL	NWT	NWR	SEL	SET	SER	SBLn1
Capacity (veh/h)	243	1052	-	-	1113	-	-	316
HCM Lane V/C Ratio	0.05	0.006	-	-	0.056	-	-	0.243
HCM Control Delay (s)	20.6	8.4	-	-	8.4	-	-	20
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.2	-	-	0.9

2022 BUILD
5: Lewis Chapel Rd & Goldmine Rd

PM
03/14/2019

Intersection						
Int Delay, s/veh	5.1					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	19	26	31	27	31	40
Future Vol, veh/h	19	26	31	27	31	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	29	34	30	34	44
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	50	0	134	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	98	-
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	-	-	1557	-	860	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	926	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1557	-	841	1037
Mov Cap-2 Maneuver	-	-	-	-	841	-
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	906	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		3.9		9.2	
HCM LOS					A	
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	941	1557	-	-	-	
HCM Lane V/C Ratio	0.083	0.022	-	-	-	
HCM Control Delay (s)	9.2	7.4	0	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.3	0.1	-	-	-	

2022 BUILD MITIGATED
15: West Access & Lewis Chapel Rd

AM
03/14/2019

Intersection						
Int Delay, s/veh	5.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	29	161	160	49	95	94
Future Vol, veh/h	29	161	160	49	95	94
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	200	-	0	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	32	175	174	53	103	102
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	207	0	433	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	401	-
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	-	-	1364	-	580	1042
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1364	-	506	1042
Mov Cap-2 Maneuver	-	-	-	-	506	-
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	589	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		6.1		11.4	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	506	1042	-	-	1364	-
HCM Lane V/C Ratio	0.204	0.098	-	-	0.128	-
HCM Control Delay (s)	13.9	8.8	-	-	8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.8	0.3	-	-	0.4	-

2022 BUILD MITIGATED
13: East Access & Lewis Chapel Rd

AM
03/14/2019

Intersection

Int Delay, s/veh 1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	107	16	6	187	22	0
Future Vol, veh/h	107	16	6	187	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	100	100	2	100	100
Mvmt Flow	116	17	7	203	24	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	133
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	5.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	3.1
Pot Cap-1 Maneuver	-	-	1018
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1018
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	498	-	-	-	1018	-
HCM Lane V/C Ratio	0.048	-	-	-	0.006	-
HCM Control Delay (s)	12.6	0	-	-	8.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	0	-

2022 BUILD MITIGATED
15: West Access & Lewis Chapel Rd

Midday
03/14/2019

Intersection

Int Delay, s/veh 7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	64	95	94	41	161	160
Future Vol, veh/h	64	95	94	41	161	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	35	2	2	39	2	2
Mvmt Flow	70	103	102	45	175	174

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	173
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1404
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1404
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.4	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	625	993	-	-	1404	-
HCM Lane V/C Ratio	0.28	0.175	-	-	0.073	-
HCM Control Delay (s)	13	9.4	-	-	7.8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	1.1	0.6	-	-	0.2	-

2022 BUILD MITIGATED
13: East Access & Lewis Chapel Rd

Midday
03/14/2019

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	202	22	0	119	16	6
Future Vol, veh/h	202	22	0	119	16	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	100	100	2	100	100
Mvmt Flow	220	24	0	129	17	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	244	0	349	220
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	129	-
Critical Hdwy	-	-	5.1	-	7.4	7.2
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	-	-	3.1	-	4.4	4.2
Pot Cap-1 Maneuver	-	-	911	-	490	626
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	703	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	911	-	490	626
Mov Cap-2 Maneuver	-	-	-	-	490	-
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	703	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.1	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	490	626	-	-	911	-
HCM Lane V/C Ratio	0.035	0.01	-	-	-	-
HCM Control Delay (s)	12.6	10.8	-	-	0	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

2022 BUILD MITIGATED
15: West Access & Lewis Chapel Rd

PM
03/14/2019

Intersection						
Int Delay, s/veh	4.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Vol, veh/h	43	39	36	30	40	38
Future Vol, veh/h	43	39	36	30	40	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	200	-	0	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	47	42	39	33	43	41
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	89	0	158	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	111	-
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	-	-	1506	-	833	1022
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1506	-	811	1022
Mov Cap-2 Maneuver	-	-	-	-	811	-
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	890	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.1		9.2	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	811	1022	-	-	1506	-
HCM Lane V/C Ratio	0.054	0.04	-	-	0.026	-
HCM Control Delay (s)	9.7	8.7	-	-	7.5	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-

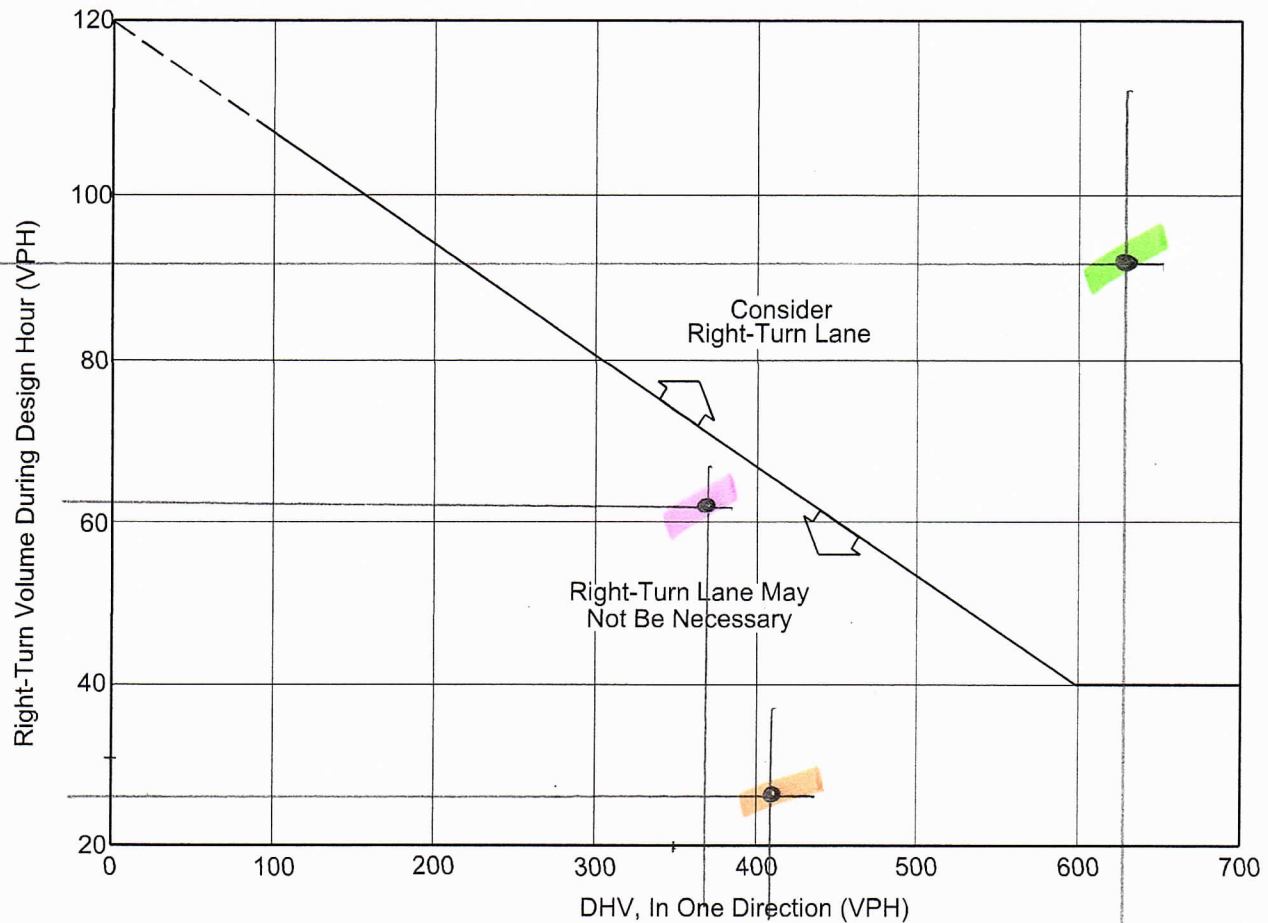
2022 BUILD MITIGATED
13: East Access & Lewis Chapel Rd

PM
03/14/2019

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↖	↗
Traffic Vol, veh/h	81	0	0	66	0	0
Future Vol, veh/h	81	0	0	66	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	200	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	100	100	2	100	100
Mvmt Flow	88	0	0	72	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	88	0	160	88
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	72	-
Critical Hdwy	-	-	5.1	-	7.4	7.2
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	-	-	3.1	-	4.4	4.2
Pot Cap-1 Maneuver	-	-	1065	-	648	756
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1065	-	648	756
Mov Cap-2 Maneuver	-	-	-	-	648	-
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	752	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		0	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1065	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

TURN LANE CALCULATIONS

CLIFTON GLENDALE ROAD @ LEWIS CHAPEL ROAD



Note: For highways with a design speed below 50 miles per hour with a DHV < 300 and where right turns > 40, an adjustment should be used. To read the vertical axis of the chart, subtract 20 from the actual number of right turns.

Example

Given: Design Speed = 35 miles per hour
 DHV = 250 vehicles per hour
 Right Turns = 100 vehicles per hour

	DHV	#RT	CONSIDER?
AM	630	92	YES
MIDDAY	369	61	CLOSE
PM	407	25	NO

Problem: Determine if a right-turn lane is necessary.

Solution: To read the vertical axis, use $100 - 20 = 80$ vehicles per hour. The figure indicates that a right-turn lane is not necessary, unless other factors (e.g., high crash rate) indicate a lane is needed.

GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS

Figure 9.5-A