Attachment 7

TRAFFIC IMPACT STUDY

for the

Cornerstone Church

Located in
Town of Bluffton, South Carolina

Prepared for
Cornerstone Church

Prepared by
Ramey Kemp Associates

Moving forward.
RKA
RAMEY KEMP ASSOCIATES

October 2023
RKA Project #23100

TRAFFIC IMPACT STUDY

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Cornerstone Church

Located in
Town of Bluffton, South Carolina

Prepared for
Cornerstone Church
11 Grassey Lane
Bluffton, SC 29910

Prepared by
Ramey Kemp Associates
1411 Gervais Street, Suite 150
Columbia, South Carolina 29201

Moving forward.
RKA
RAMEY KEMP ASSOCIATES

October 2023
RKA Project #23100

SOUTH CAROLINA
INFRASTRUCTURE CONSULTING SERVICES INC
DBA: RAMEY KEMP ASSOCIATES
NO. 6878
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 38742
GRADY P. VAUGHAN
10/24/23

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EXECUTIVE SUMMARY

A traffic impact study was conducted for the proposed Cornerstone Church development in accordance with SCDOT and Town of Bluffton guidelines. The development is proposed to be located on Meadow Drive south of SC 46 in the Town of Bluffton, South Carolina. The development is planned to consist of up to 800 seats and a Monday through Thursday day care with 120 students enrolled. Access to the site will be provided via one existing full access on Meadow Drive and via Grassey Lane.

The proposed accesses are expected to operate adequately with the existing one ingress and one egress lane. The site accesses should be designed to provide proper sight distances and should meet Town of Bluffton design criteria.

Based on the anticipated build out volumes, a left-turn lane and right-turn lane are warranted and recommended along SC 46 at Meadow Drive. The mainline of the existing intersection of SC 46 & Meadow Drive is expected to operate adequately with the proposed project in the 2025 Build conditions. The Meadow Drive approach is expected to experience delays, however this is typical of minor approaches of two-way stop-controlled intersections. The Meadow Drive approach to SC 46 is recommended to provide two egress lanes and one ingress lane. The Meadow Drive approach to SC 46 should to be designed to provide proper sight distances and should meet SCDOT design criteria.

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1. INTRODUCTION

The purpose of this report is to document a traffic impact study conducted for the proposed Cornerstone Church development in the Town of Bluffton, South Carolina in accordance with SCDOT and Town of Bluffton guidelines. This report summarizes the procedures and findings of the traffic impact study. Scoping is attached in Appendix A.

1.1. Project Background

The development will be located on the east side of Meadow Drive south of SC 46. The development is planned to consist of up to 800 seats and a Monday through Thursday day care with 120 students enrolled. Access to the site will be provided via one existing full access on Meadow Drive and via Grassey Lane.

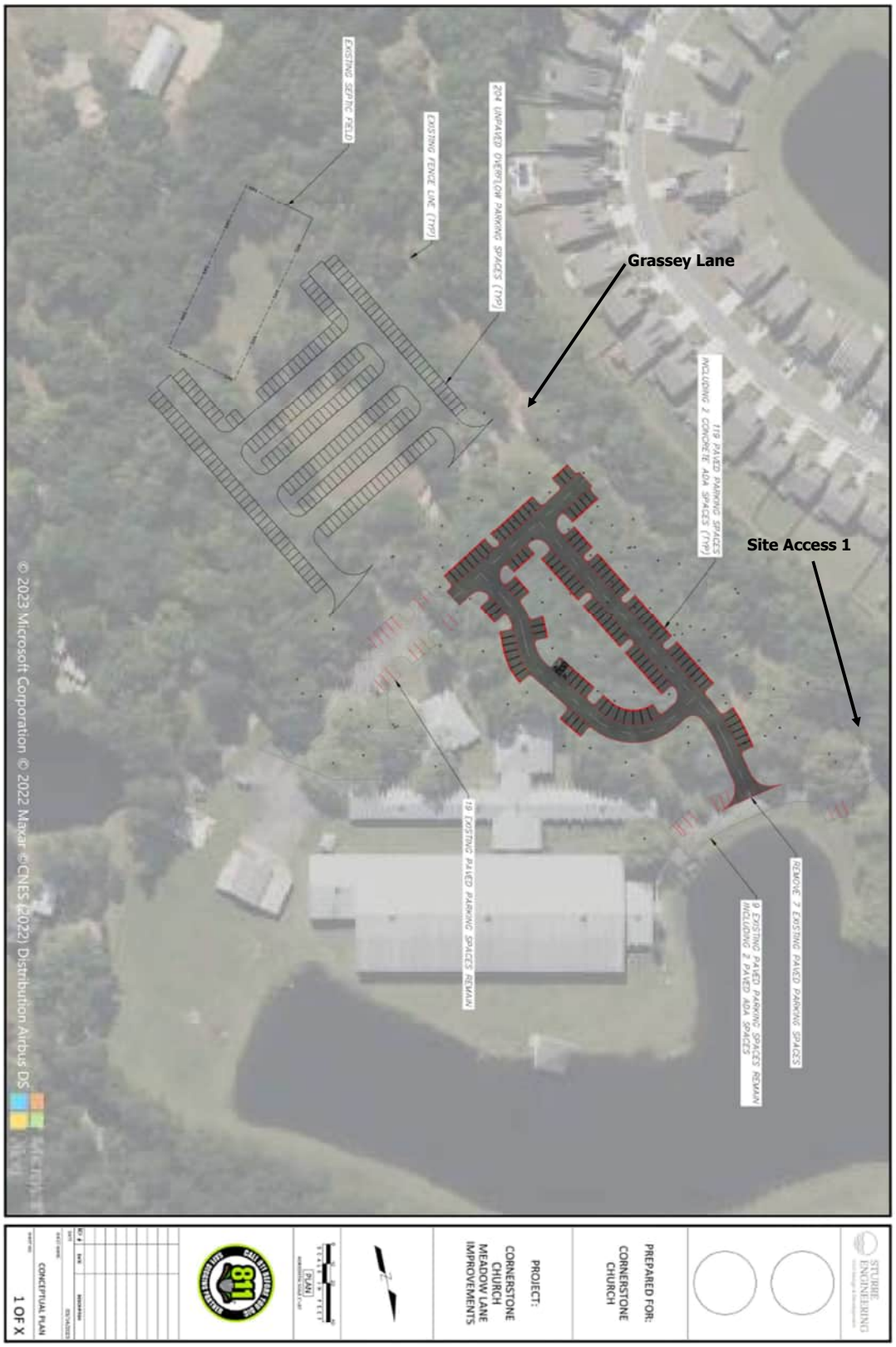
The traffic impact study considered the weekday AM peak period (between 7:00 AM and 9:00 AM) and the weekday PM peak period (between 4:00 PM and 6:00 PM), and the Sunday peak hour (between 8:30 AM and 12:30 PM) as the study time frames. The following intersections were studied:

- May River Road (S-46) & Meadow Drive

Future-year analyses assume 2025 conditions as the Build scenario. Figure 1 shows the location of the project site, and Figure 2 illustrates the conceptual site plan.

Moving forward.
RKA
RAMEY KEMP ASSOCIATES

Cornerstone Church - Traffic Impact Study
Figure 1 - Project Location Map


Grassey Lane
Site Access 1
204 UNPAVED OVERFLOW PARKING SPACES (TYP)
EXISTING FENCE LINE (TYP)
EXISTING SEPTIC FIELD
119 PAVED PARKING SPACES INCLUDING 2 CONCRETE ADA SPACES (TYP)
REMOVE 7 EXISTING PAVED PARKING SPACES
9 EXISTING PAVED PARKING SPACES REMAIN INCLUDING 2 PAVED ADA SPACES
19 EXISTING PAVED PARKING SPACES REMAIN
© 2023 Microsoft Corporation © 2022 Maxar ©CNES (2022) Distribution Airbus DS
STUBBE ENGINEERING
PREPARED FOR:
CORNERSTONE CHURCH
PROJECT:
CORNERSTONE CHURCH
MEADOW LANE IMPROVEMENTS
811
CONCEPTUAL PLAN
1 OF X

1.2. Existing Roadway Conditions

A review of the existing roadway conditions in the study area was conducted and is summarized in Table 1. Figure 3 illustrates the existing lane geometry.

Table 1 – Street Inventory

Facility Name	Route #	Typical Cross Section	Posted Speed Limit	Maintained By	2022 AADT
May River Road	S-46	2-lane undivided	35 MPH	SCDOT	14,000[1]
Meadow Drive	-	2-lane undivided	15 MPH	Local	-

[1] SCDOT Count Station #07-0155

1.3. Existing Traffic Count

Vehicle turning movement counts were collected by in May 2023 for the Sunday peak period (8:30 AM to 12:30 PM) and PM peak period (4:00 PM to 6:00 PM) at the intersection of:

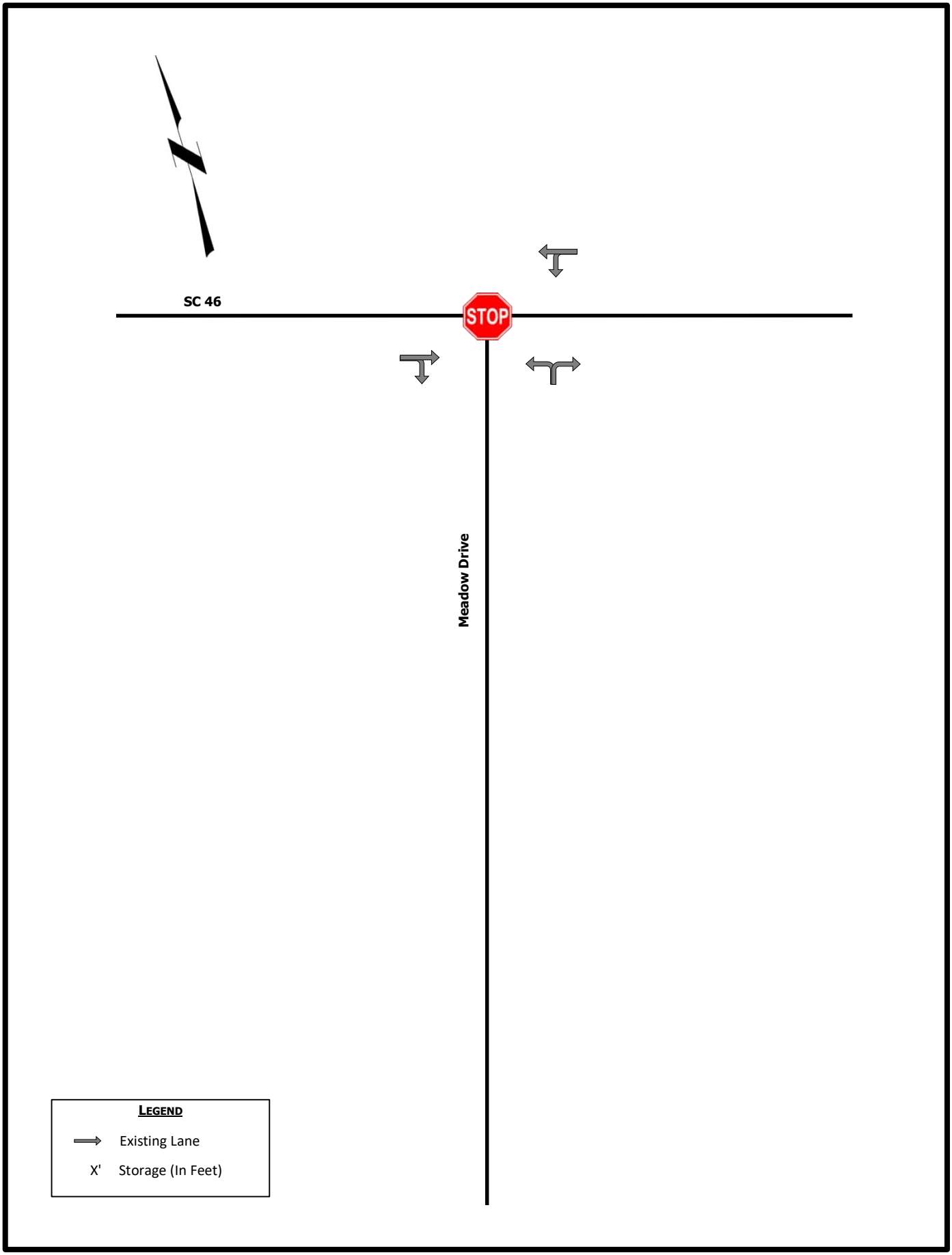
- SC 46 & Meadow Drive

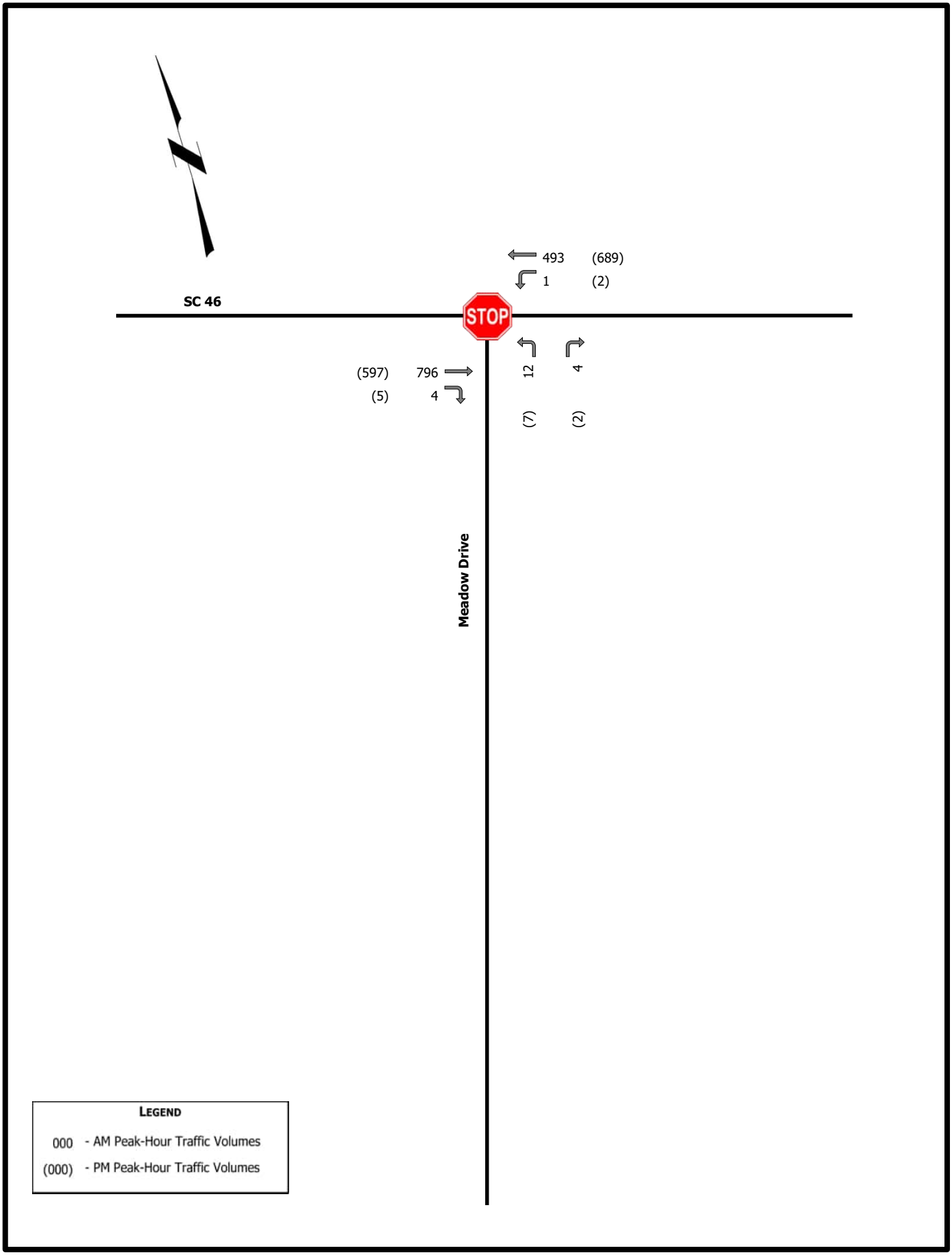
The AM peak volumes were developed utilizing a prior 2022 count along SC 46 and grown to 2023 by applying a 2.0% growth rate. Volumes along the Meadow Drive approach for the AM peak period were estimated based on trip generation for 25 homes.

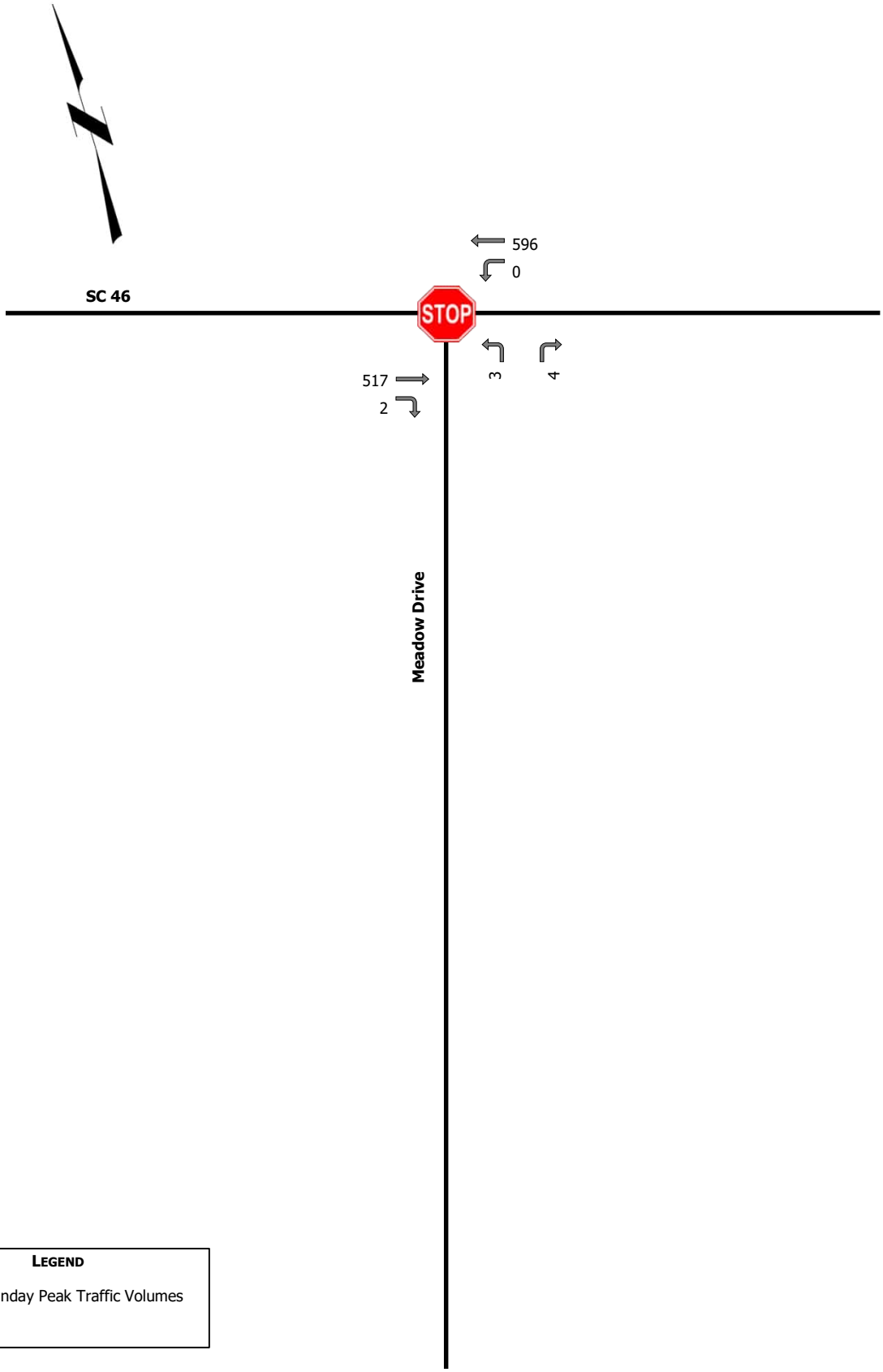
The counts were conducted while the local school district was in session. The raw traffic volumes are provided in Appendix B. The 2023 AM and PM traffic volumes are illustrated in Figure 4. The existing 2023 Sunday peak volumes are illustrated in Figure 5.

1.4. Driveway Location

Access points are proposed to be at an existing full access driveway located along Meadow Drive approximately 2,460 feet south of the intersection with SC 46 and also via Grassy Lane. Since existing accesses are proposed to be utilized, there are no recommendations.


SC 46
STOP
Meadow Drive
LEGEND
Existing Lane
X' Storage (In Feet)


493 (689)
1 (2)
SC 46
STOP
(597) 796
(5) 4
12 4
(7) (2)
Meadow Drive
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


596
0
SC 46
STOP
3
4
517
2
Meadow Drive
LEGEND
000 - Sunday Peak Traffic Volumes

2. PROJECT TRAFFIC

2.1. Proposed Land Uses

The Cornerstone Church development is proposed to have 800 seats and a day care with 120 students enrolled. The project site location is currently a horse farm.

2.2. Trip Generation Estimates

The trip generation potential was estimated using information contained in ITE's *Trip Generation Manual*, 11th Edition (2021) for land use code (LUC) 560 – Church and LUC 565 – Day Care Center. The trip generation estimates for of the weekday daily, the Sunday peak hour of generator, the weekday AM peak-hour of the adjacent street, and the weekday PM peak-hour of the adjacent street time periods are shown in Table 2. ITE trip generation sheets are provided in Appendix C.

Table 2 – Trip Generation Estimates

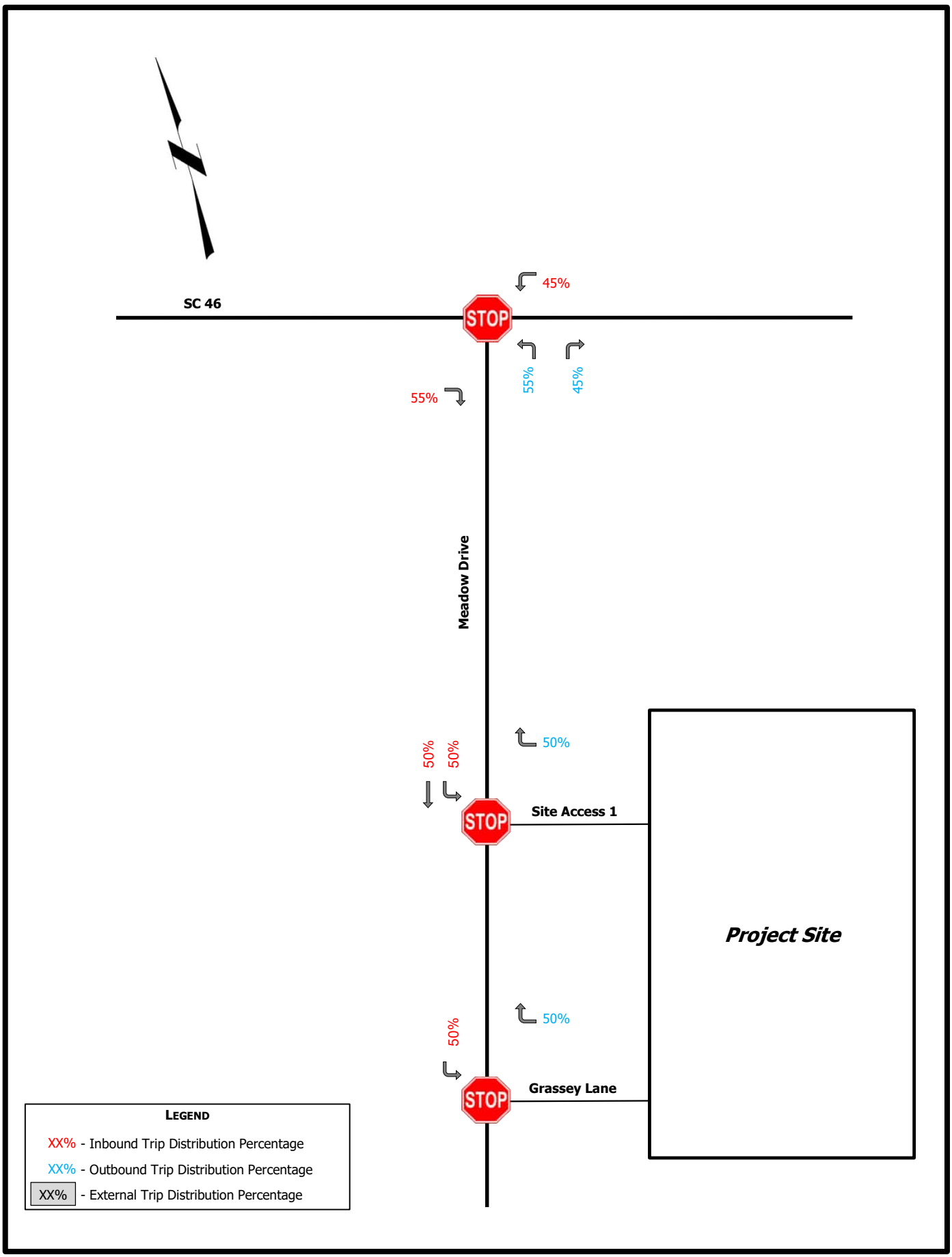
Land Use	ITE LUC	Size	Daily Traffic	Sunday			AM Peak			PM Peak		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Church	560	800 seats	727	197	205	402	34	22	56	36	44	80
Day Care Center	565	120 students	474	7	6	13	46	42	88	40	46	86
New, External Traffic				**204**	**211**	**415**	**80**	**64**	**144**	**76**	**90**	**166**
LUC 560 Daily Trips: T = 5.40(X)+ 50.83 (50% In; 50% Out) Sunday Peak Hour of Generator: T = 7.87(X) + 93.13 (48% In; 52% Out) AM Peak-Hour: T = 0.37(X) – 1.84 (62% In; 38% Out) PM Peak-Hour: T = 0.36(X) + 4.70 (44% In; 56% Out)												
LUC 565 Daily Trips: T = 3.56 (X)+ 47.23 (50% In; 50% Out) Sunday Peak Hour of Generator: T = 0.11(X) (54% In; 46% Out) AM Peak-Hour: T = 0.66(X) + 8.42 (53% In; 47% Out) PM Peak-Hour: Ln(T) = 0.87Ln(X) + 0.29 (47% In; 53% Out)												

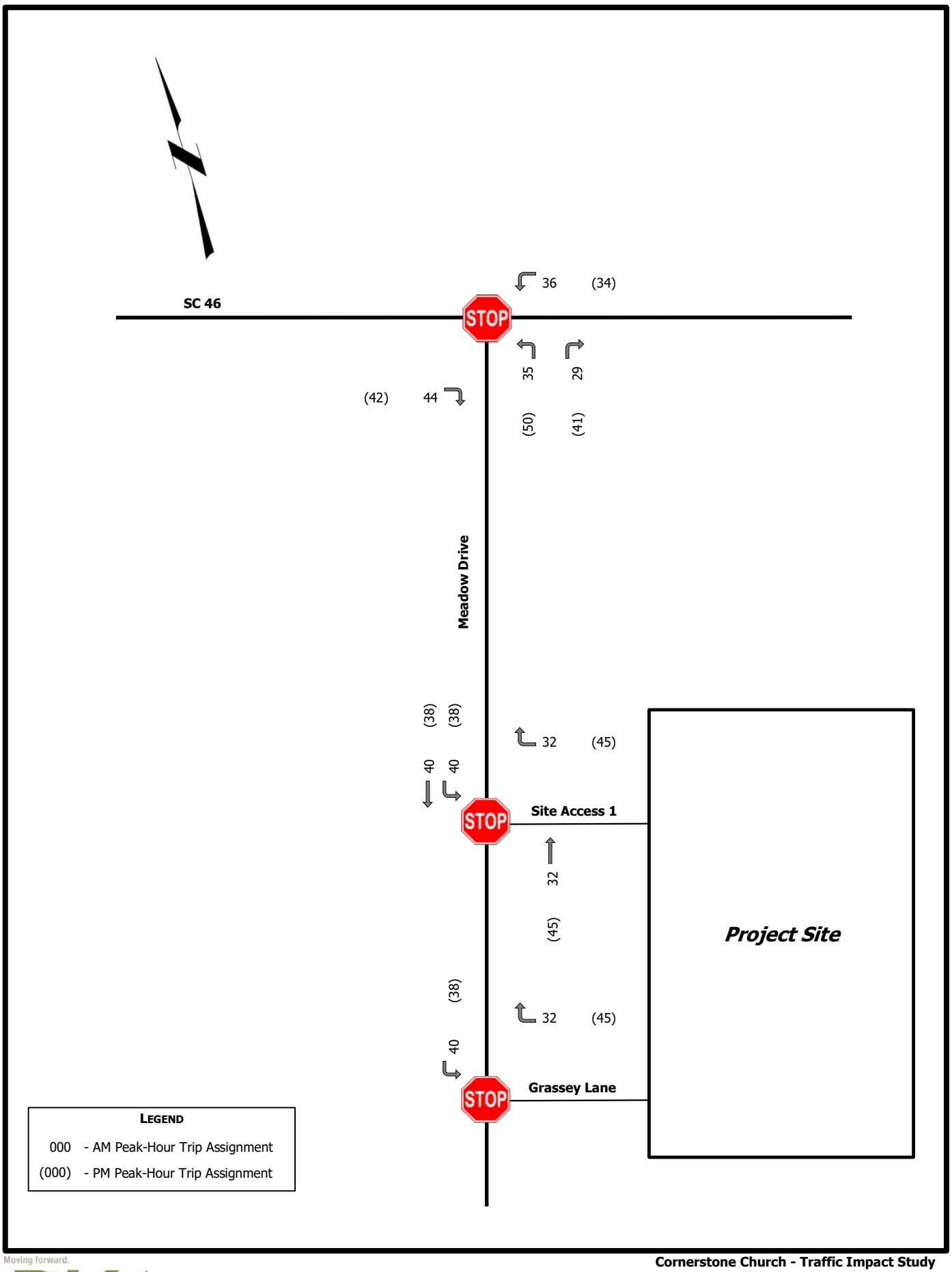
2.3. Trip Distribution & Assignment

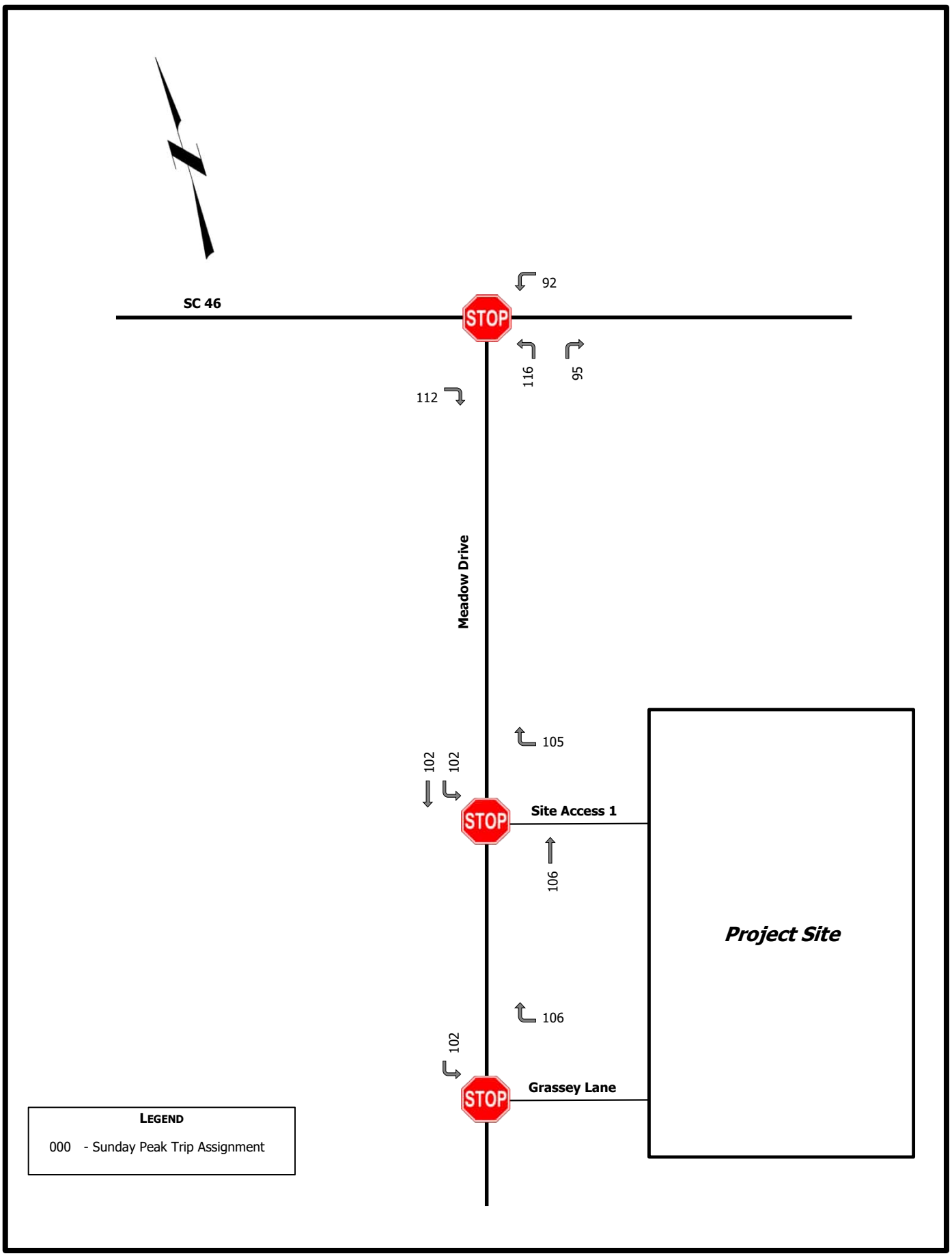
New external traffic expected to be generated was distributed and assigned to the roadway network based on the surrounding land uses and current patterns. The general distribution of new external project trips was assumed to be:

- 55% to/from the west via SC 46
- 45% to/from the east via SC 46

The directional distribution assumptions are shown in Figure 6. The assignment of the new project traffic during the AM and PM peaks are shown in Figure 7. The Sunday assignment of the new project traffic is illustrated in Figure 8


SC 46
45%
STOP
55%
45%
55%
Meadow Drive
50%
50%
50%
STOP
Site Access 1
Project Site
50%
50%
STOP
Grassey Lane
LEGEND
XX% - Inbound Trip Distribution Percentage
XX% - Outbound Trip Distribution Percentage
XX% - External Trip Distribution Percentage


SC 46
STOP
36 (34)
35 29
(42) 44
(50) (41)
Meadow Drive
(38) (38)
32 (45)
40 40
STOP
Site Access 1
32
(45)
Project Site
(38)
32 (45)
40
STOP
Grassey Lane
LEGEND
000 - AM Peak-Hour Trip Assignment
(000) - PM Peak-Hour Trip Assignment


SC 46
92
STOP
116
95
112
Meadow Drive
105
102
102
STOP
Site Access 1
106
Project Site
106
102
STOP
Grassey Lane
LEGEND
000 - Sunday Peak Trip Assignment

3. TRAFFIC VOLUME DEVELOPMENT

3.1. Future No-Build Traffic Volumes

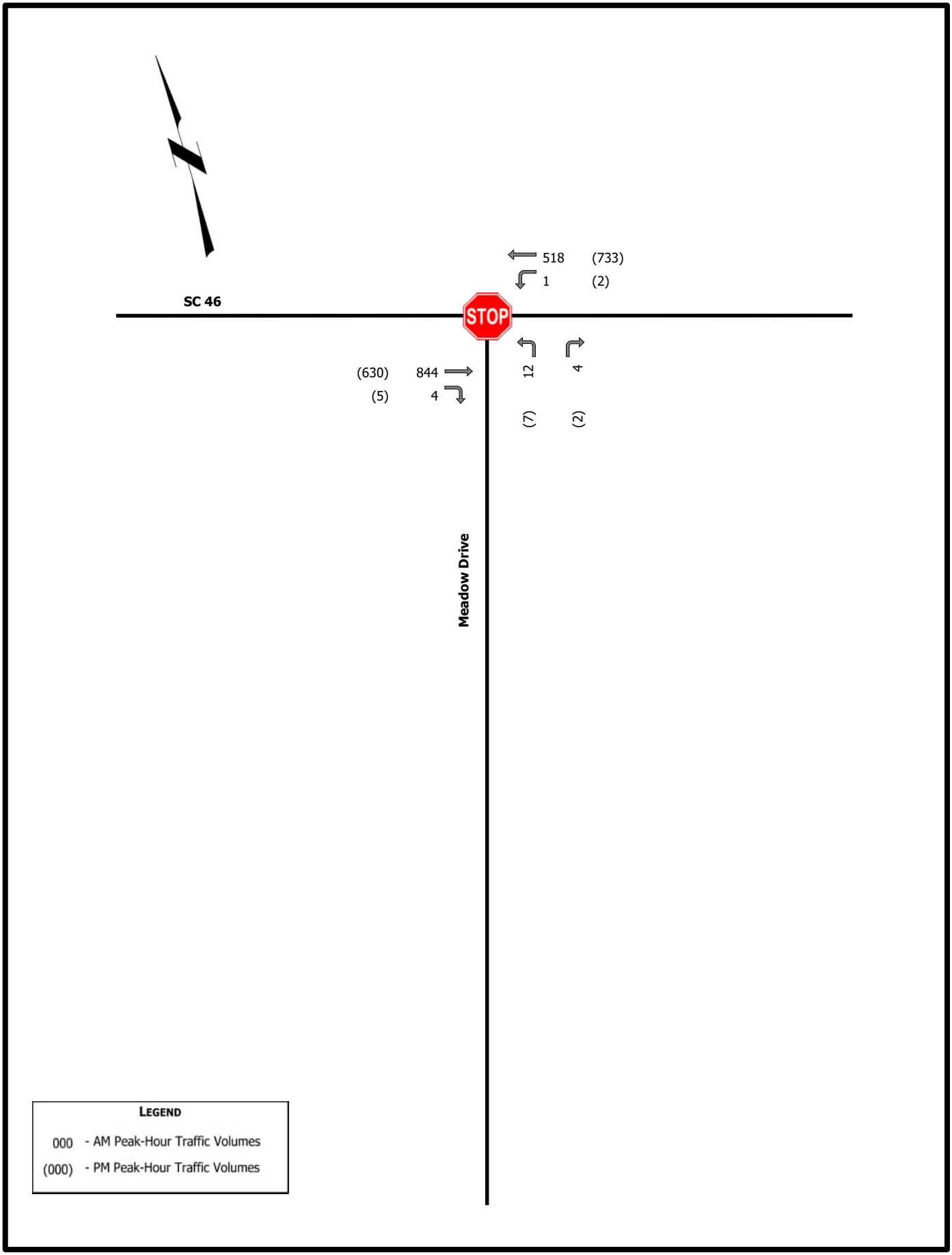
To develop the No-Build volumes, an annual background growth rate of 2.0% was applied to the 2023 traffic volumes. The annual growth rate was based on SCDOT count station data, existing traffic patterns, and expected growth in the area.

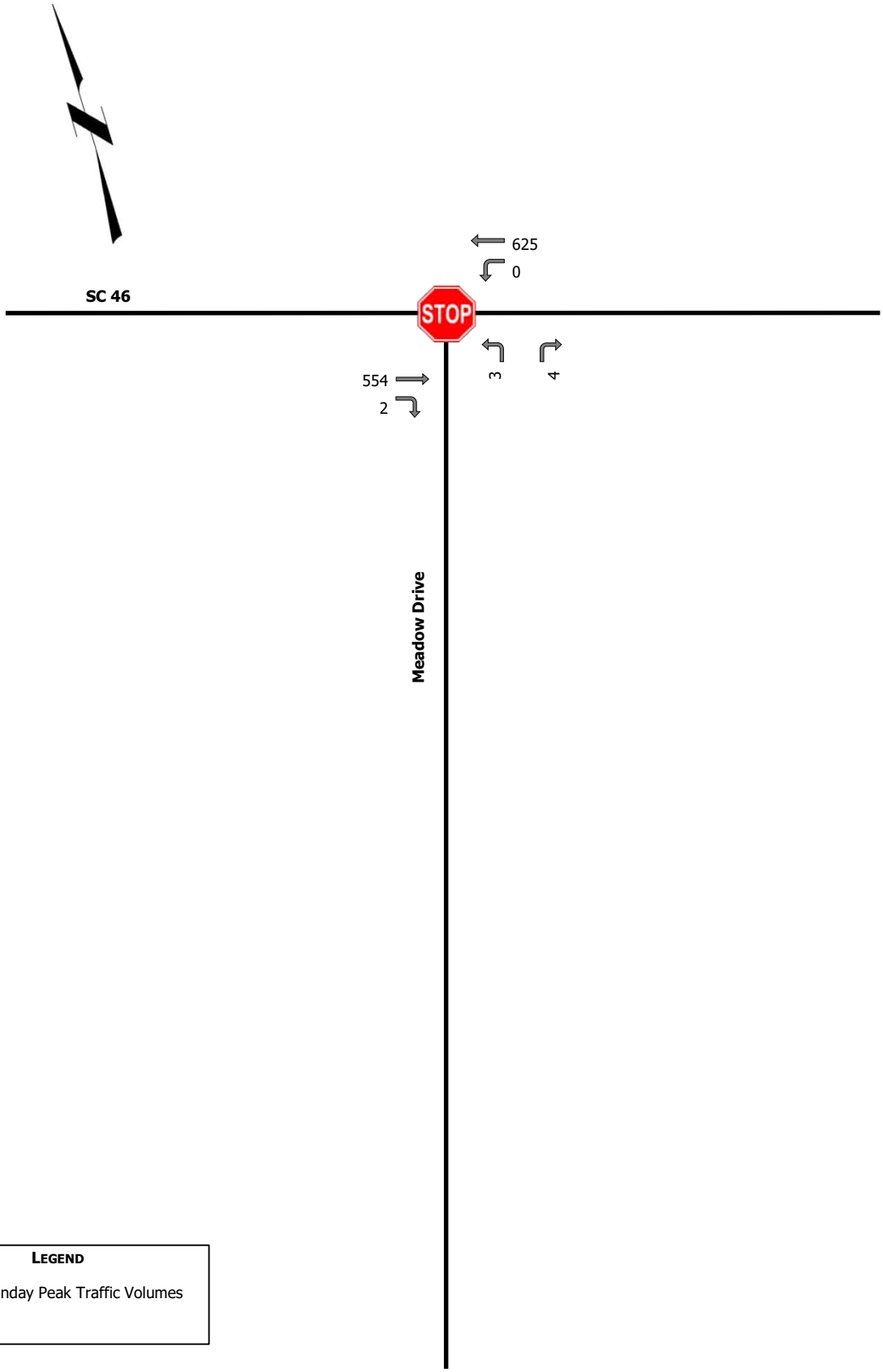
An adjacent development, *The May River Townhomes TIS*, was considered as vested traffic which considered 79 townhomes. The traffic volumes from the proposed development were included in the future volumes along SC 46.

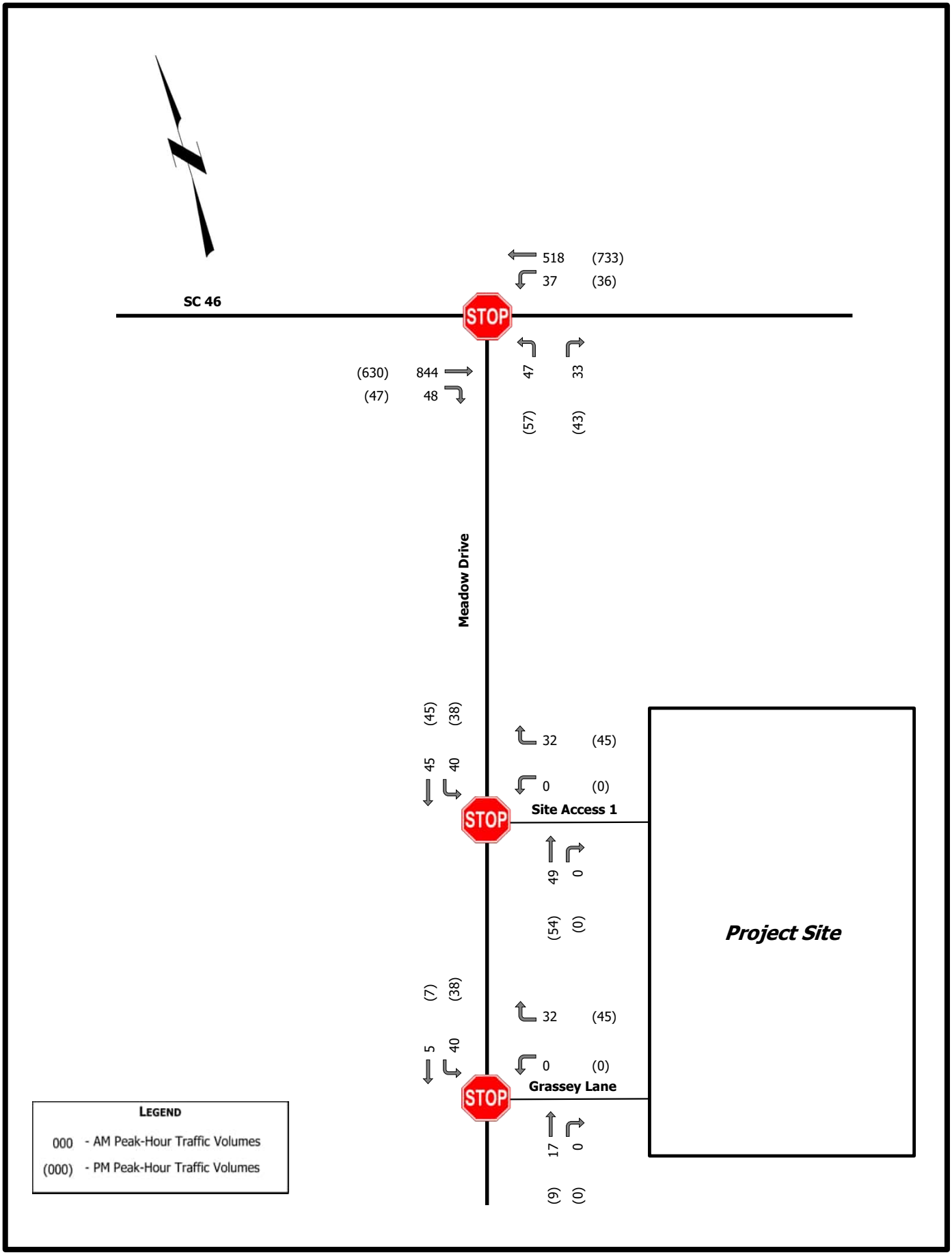
The 2025 AM and PM No-Build volumes are illustrated in Figure 9. The 2025 Sunday No-Build volumes are illustrated in Figure 10.

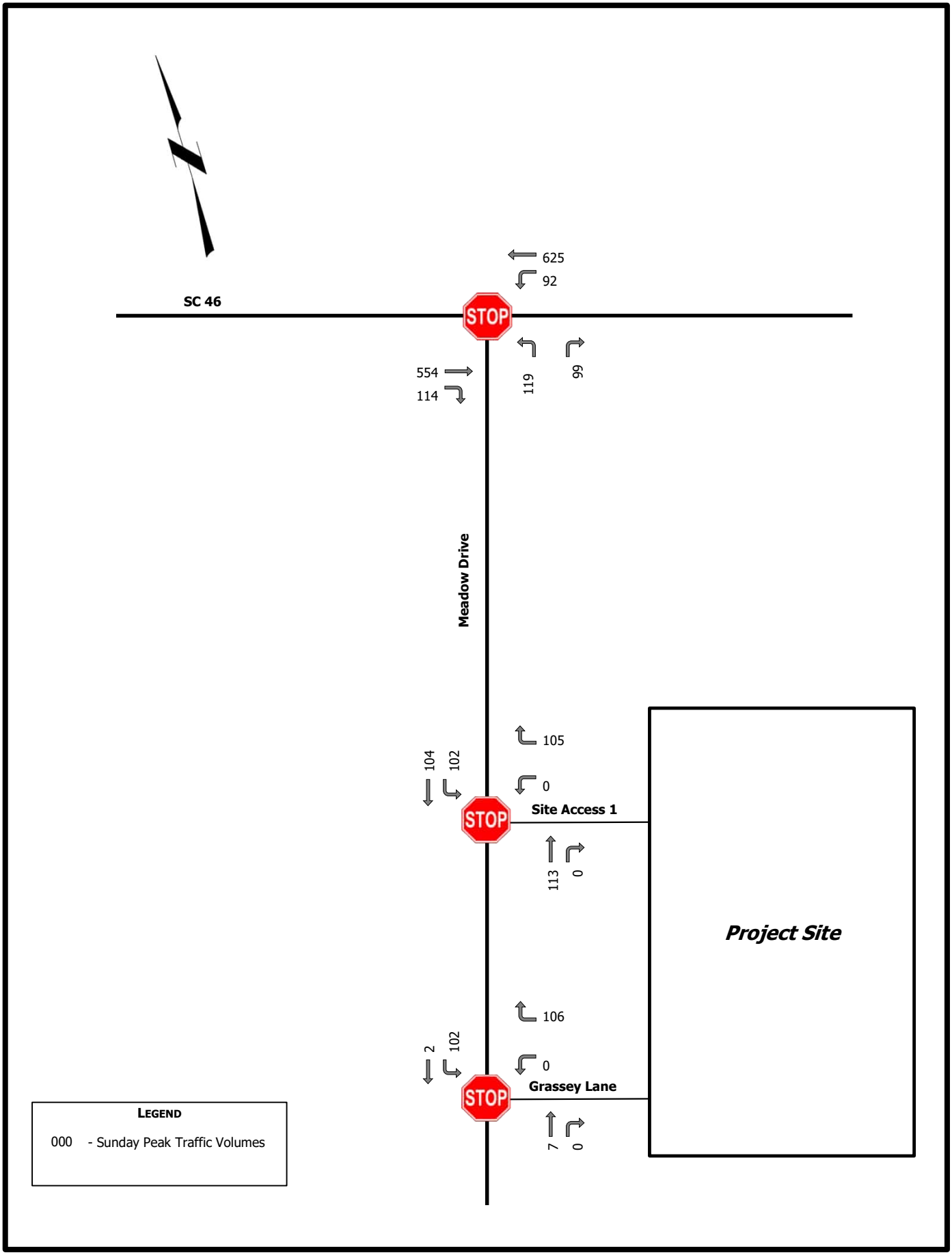
3.2. Build-Out Traffic Volumes

The site generated traffic volumes were added to the 2025 No-Build traffic volumes to determine the future Build volumes. The 2025 AM and PM Build volumes and 2025 Sunday Build volumes are illustrated respectively in Figure 11 and Figure 12. Volume development worksheets are included in Appendix C.


SC 46
STOP
518 (733)
1 (2)
(630) 844
(5) 4
12 4
(7) (2)
Meadow Drive
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


625
0
SC 46
STOP
3
4
554
2
Meadow Drive
LEGEND
000 - Sunday Peak Traffic Volumes


SC 46
518 (733)
37 (36)
STOP
(630) 844
(47) 48
47 33
(57) (43)
Meadow Drive
(45) (38)
45 40
32 (45)
0 (0)
STOP
Site Access 1
49 0
(54) (0)
Project Site
(7) (38)
5 40
32 (45)
0 (0)
STOP
Grassey Lane
17 0
(9) (0)
LEGEND
000 - AM Peak-Hour Traffic Volumes
(000) - PM Peak-Hour Traffic Volumes


SC 46
625
92
STOP
554
114
119
99
Meadow Drive
105
104
102
0
STOP
Site Access 1
113
0
Project Site
106
2
102
0
STOP
Grassey Lane
7
0
LEGEND
000 - Sunday Peak Traffic Volumes

4. TRAFFIC IMPACT ANALYSIS

4.1. Turn Lane Analysis

Auxiliary turn-lane analyses were conducted for the SC 46 & Meadow Drive intersection using the 2025 Build volumes. Turn lane analyses were considered based on the SCDOT Roadway Design Manual (RDM) Section 9.5.1.

Based on the anticipated build out volumes, a left-turn lane and a right-turn lane are warranted and recommended along SC 46 at Meadow Drive. Turn lane analyses are provided in Appendix D.

4.2. Intersection LOS Analysis

Intersection analyses were conducted for the study intersections considering 2023 Existing conditions, 2025 No-Build conditions, and 2025 Build conditions. This analysis was conducted using the Transportation Research Board's *Highway Capacity Manual 6th Edition (HCM 6th Edition)* methodologies of the *Synchro*, Version 11 software.

Intersection level of service (LOS) grades range from LOS A to LOS F, which are directly related to the level of control delay at the intersection and characterize the operational conditions of the intersection traffic flow. LOS A operations typically represent ideal, free-flow conditions where vehicles experience little to no delays, and LOS F operations typically represent poor, forced-flow (bumper-to-bumper) conditions with high vehicular delays and are generally considered undesirable. Table 3 summarizes the *HCM 6th Edition* control delay thresholds associated with each LOS grade for unsignalized intersections.

As part of the intersection analysis, SCDOT's default *Synchro* parameters were utilized. A constant PHF of 0.92 was applied for future year analysis. Existing heavy vehicle percentages were utilized for all analysis scenarios, with a minimum percentage of 2% considered.

Table 3 – *HCM 6th Edition* LOS Criteria for Unsignalized Intersections

Unsignalized Intersections	
LOS	**Control Delay per Vehicle (seconds)**
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Using the *Synchro* software, intersection analyses were conducted for the weekday AM peak-hour, weekday PM peak-hour, and Sunday peak time periods. The recommended turn lanes were considered in the build conditions. The results of the intersection AM and PM analyses results are summarized in Table 4. The Sunday peak intersection analyses results are summarized in Table 5.

Table 4 – Intersection Analysis Results

Intersection	Approach	LOS/Delay (seconds)					
		2023 Existing Conditions		2025 No-Build Conditions		2025 Build Conditions	
		AM	PM	AM	PM	AM	PM
SC 46 & Meadow Drive	WB[1]	A/9.7	A/8.9	A/9.9	A/9.0	B/10.4	A/9.3
	NB[2]	D/26.7	D/25.8	D/29.4	D/28.4	E/41.5	E/43.7
Meadow Drive & Site Access #1	WB[2]	-	-	-	-	A/8.7	A/8.8
	SB[1]	-	-	-	-	A/7.4	A/7.4
Meadow Drive & Grassey Lane	WB[2]	-	-	-	-	A/8.5	A/8.5
	SB[1]	-	-	-	-	A/7.3	A/7.3

[1]LOS for major street left turn movement; [2]LOS for minor street approach

Table 5 – Sunday Intersection Analysis Results

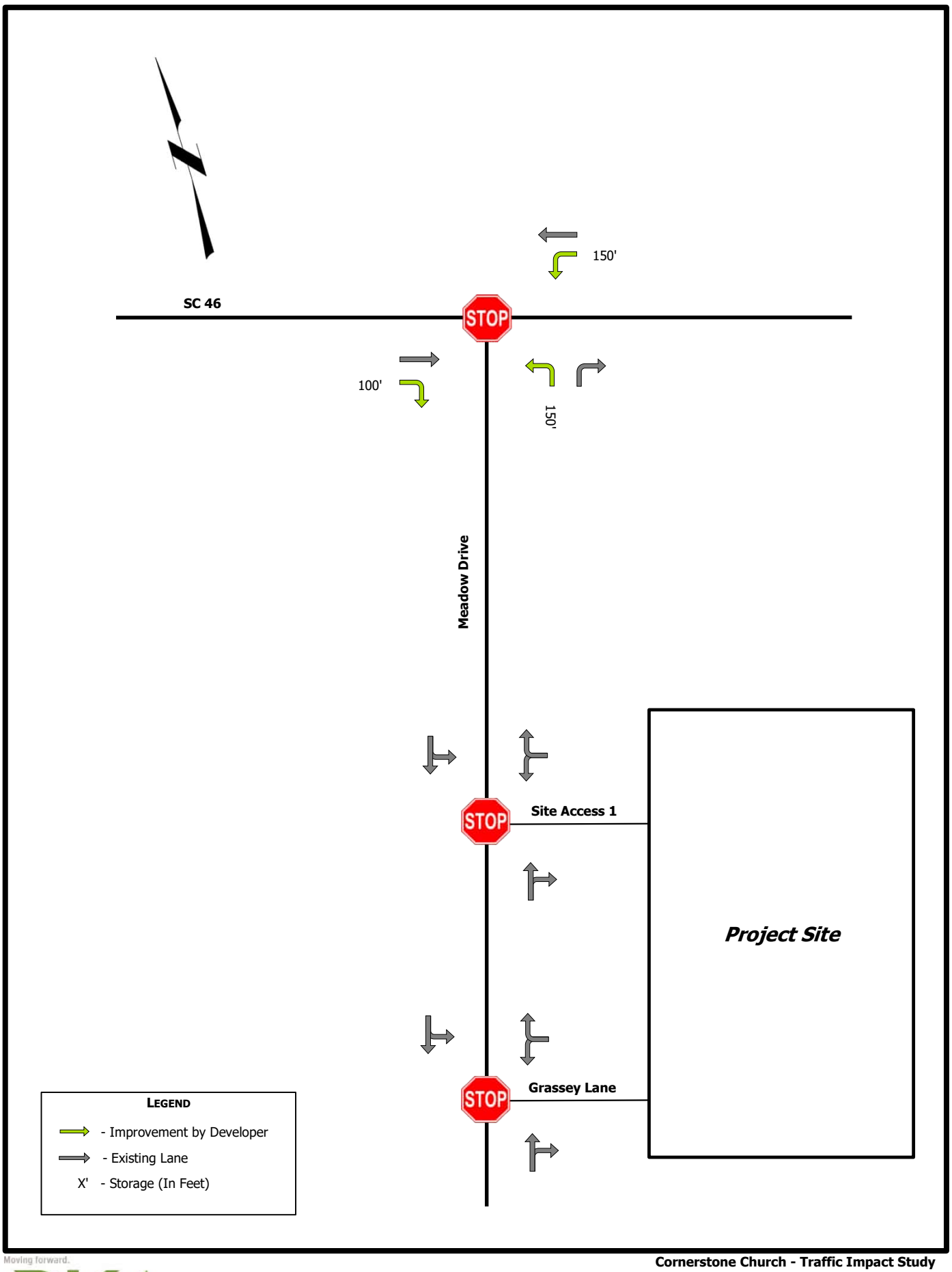
Intersection	Approach	LOS/Delay (seconds)		
		2023 Existing Conditions	2025 No-Build Conditions	2025 Build Conditions
		Sunday Peak		
SC 46 & Meadow Drive	WB[1]	A/0.0	A/0.0	A/9.6
	NB[2]	C/16.7	C/17.7	F/97.9
Meadow Drive & Site Access #1	WB[2]	-	-	A/9.4
	SB[1]	-	-	A/7.7
Meadow Drive & Grassey Lane	WB[2]	-	-	A/8.8
	SB[1]	-	-	A/7.4

[1]LOS for major street left turn movement; [2]LOS for minor street approach

The mainline of the existing intersection of SC 46 & Meadow Drive is expected to operate adequately with the proposed project in the 2025 Build conditions. The Meadow Drive approach is expected to experience delays, however this is typical of minor approaches of two-way stop-controlled intersections. The Meadow Drive approach to SC 46 is recommended to provide two egress lanes and one ingress lane. The Meadow Drive approach should be designed to provide proper sight distances and should meet SCDOT design criteria.

The proposed accesses are expected to operate adequately with one ingress and one egress lane. The site accesses should be designed to provide proper sight distances and should meet Town of Bluffton design criteria.

Figure 13 shows the proposed lane configuration for the Build conditions. The capacity analysis worksheets are provided in Appendix E.


150'
SC 46
STOP
100'
150'
Meadow Drive
STOP
Site Access 1
Project Site
STOP
Grassey Lane
LEGEND
- Improvement by Developer
- Existing Lane
X' - Storage (In Feet)

5. SUMMARY OF FINDINGS AND RECOMMENDATIONS

A traffic impact study was conducted for the proposed Cornerstone Church development in accordance with SCDOT and Town of Bluffton guidelines. The development is proposed to be located on Meadow Drive south of SC 46 in the Town of Bluffton, South Carolina. The development is planned to consist of up to 800 seats and a Monday through Thursday day care with 120 students enrolled. Access to the site will be provided via one existing full access on Meadow Drive and via Grassey Lane.

The proposed accesses are expected to operate adequately with the existing one ingress and one egress lane. The site accesses should be designed to provide proper sight distances and should meet Town of Bluffton design criteria.

Based on the anticipated build out volumes, a left-turn lane and right-turn lane are warranted and recommended along SC 46 at Meadow Drive. The mainline of the existing intersection of SC 46 & Meadow Drive is expected to operate adequately with the proposed project in the 2025 Build conditions. The Meadow Drive approach is expected to experience delays, however this is typical of minor approaches of two-way stop-controlled intersections. The Meadow Drive approach to SC 46 is recommended to provide two egress lanes and one ingress lane. The Meadow Drive approach to SC 46 should to be designed to provide proper sight distances and should meet SCDOT design criteria.

APPENDIX A

Scoping

Katelyn Love

From: Katelyn Love
Sent: Monday, August 14, 2023 4:31 PM
To: Johnson, Joshua A.
Cc: Jeff Ingham
Subject: RE: Cornerstone Church TIS

Thank you, Josh. I reached out to Dillon today. He confirmed with the developer we could use their counts. We will proceed with the AM estimates on Meadow Drive.

Have a good evening,
Katelyn

Katelyn Love, PE, PTOE
Traffic Project Manager
C 803 385 7494

From: Johnson, Joshua A. <JohnsonJA@scdot.org>
Sent: Monday, August 14, 2023 11:40 AM
To: Katelyn Love <klove@rameykemp.com>
Cc: Jeff Ingham <jingham@rameykemp.com>
Subject: RE: Cornerstone Church TIS

Katelyn, I can't authorize you to use counts from someone else's TIA. You'll have to coordinate this with them directly. However, if they permit you to use the counts then I agree to allow an existing traffic estimate for Meadow Drive.

Josh Johnson, PE, PTOE
District Traffic Engineer | SCDOT District 6

From: Katelyn Love <klove@rameykemp.com>
Sent: Friday, July 21, 2023 12:04 PM
To: Johnson, Joshua A. <JohnsonJA@scdot.org>
Cc: Jeff Ingham <jingham@rameykemp.com>
Subject: RE: Cornerstone Church TIS

There are 80 children each day with a total enrollment of 120. I don't think the client was aware of the May River TH development but thank you for looking into the projects.

Since we will need a weekday AM analysis and Meadow Drive serves ~25 single family homes would it be acceptable to use the May River TH mainline counts on SC 46 and use trip generation to estimate the ins/outs for Meadow Drive? I compared the PM counts as well as the PM trip gen to our counts and I think this could be a viable approach without waiting until the end of August for a count.

Let me know your thoughts.

Thank you,
Katelyn

Katelyn Love, PE, PTOE
Traffic Project Manager
C 803 385 7494

From: Johnson, Joshua A. <JohnsonJA@scdot.org>
Sent: Wednesday, July 19, 2023 10:32 AM
To: Katelyn Love <klove@rameykemp.com>
Cc: Jeff Ingham <jingham@rameykemp.com>
Subject: RE: Cornerstone Church TIS

What is the size of the daycare? If 70 students or less, I am not concerned. If larger, please include but you will need to get the AM traffic counts. If there is objection, you can submit a trip generation and distribution for my review and determination of necessary mitigation. I will need to see where the access is planned to SC 46 to include dimensions to nearby intersections/drives.

I have searched my records and found the "May River Townhomes" TIA from Kimley Horn which I did not technically review but I approved the mitigation because that was what I was recommending anyway. I have attached it here. This may be what you are referring to. There are no SCDOT projects in the area that I am aware of.

Thanks,
Josh Johnson, PE, PTOE
District Traffic Engineer | SCDOT District 6

From: Katelyn Love <klove@rameykemp.com>
Sent: Wednesday, July 12, 2023 8:28 AM
To: Johnson, Joshua A. <JohnsonJA@scdot.org>
Cc: Jeff Ingham <jingham@rameykemp.com>
Subject: Cornerstone Church TIS

Josh,

The client for Cornerstone Church has asked for a Monday – Thursday day care be included now. We initially collected Sunday counts and Wednesday PM counts for the church analysis. Do we need to consider a weekday AM peak now with the day care? If so, to keep the project progressing would using the 2021 hourly site data from Station 07-0157 be acceptable?

The client mentioned SCDOT had a current project on SC 46 that included this study area. I do not see a project near Meadow Drive, but one that appears to terminate at SC 170. Is there another project I haven't found?

Thanks,
Katelyn

Katelyn Love, PE, PTOE
Traffic Project Manager
C 803 385 7494

RAMEY KEMP ASSOCIATES
TOGETHER WE ARE LIMITLESS

APPENDIX B

Traffic Count Data

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

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

File Name : SC 46 @ Meadow Dr Wednesday
Site Code :
Start Date : 04/19/2023
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

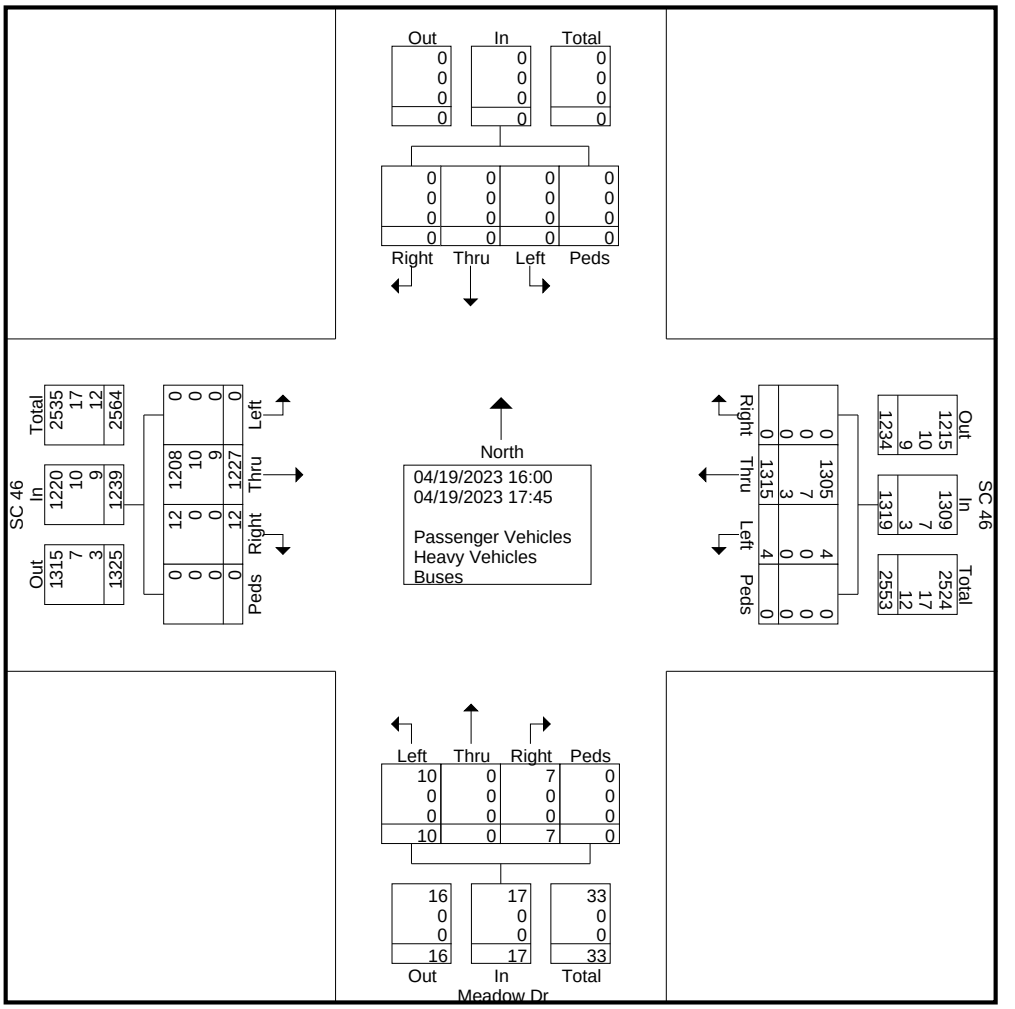
	Southbound				SC 46 Westbound				Meadow Dr Northbound				SC 46 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	0	0	0	0	1	188	0	0	2	0	1	0	0	162	3	0	357
16:15	0	0	0	0	0	181	0	0	2	0	1	0	0	137	0	0	321
16:30	0	0	0	0	1	155	0	0	1	0	0	0	0	161	1	0	319
16:45	0	0	0	0	0	165	0	0	2	0	0	0	0	137	1	0	305
Total	0	0	0	0	2	689	0	0	7	0	2	0	0	597	5	0	1302
17:00	0	0	0	0	0	146	0	0	1	0	2	0	0	188	1	0	338
17:15	0	0	0	0	1	166	0	0	2	0	2	0	0	141	2	0	314
17:30	0	0	0	0	0	139	0	0	0	0	0	0	0	152	2	0	293
17:45	0	0	0	0	1	175	0	0	0	0	1	0	0	149	2	0	328
Total	0	0	0	0	2	626	0	0	3	0	5	0	0	630	7	0	1273
Grand Total	0	0	0	0	4	1315	0	0	10	0	7	0	0	1227	12	0	2575
Apprch %	0	0	0	0	0.3	99.7	0	0	58.8	0	41.2	0	0	99	1	0	
Total %	0	0	0	0	0.2	51.1	0	0	0.4	0	0.3	0	0	47.7	0.5	0	
Passenger Vehicles	0	0	0	0	4	1305	0	0	10	0	7	0	0	1208	12	0	2546
% Passenger Vehicles	0	0	0	0	100	99.2	0	0	100	0	100	0	0	98.5	100	0	98.9
Heavy Vehicles	0	0	0	0	0	7	0	0	0	0	0	0	0	10	0	0	17
% Heavy Vehicles	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0.8	0	0	0.7
Buses	0	0	0	0	0	3	0	0	0	0	0	0	0	9	0	0	12
% Buses	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0.7	0	0	0.5

Attachment 7

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201
We can't say we're the Best, but you Can!

File Name : SC 46 @ Meadow Dr Wednesday
Site Code :
Start Date : 04/19/2023
Page No : 2



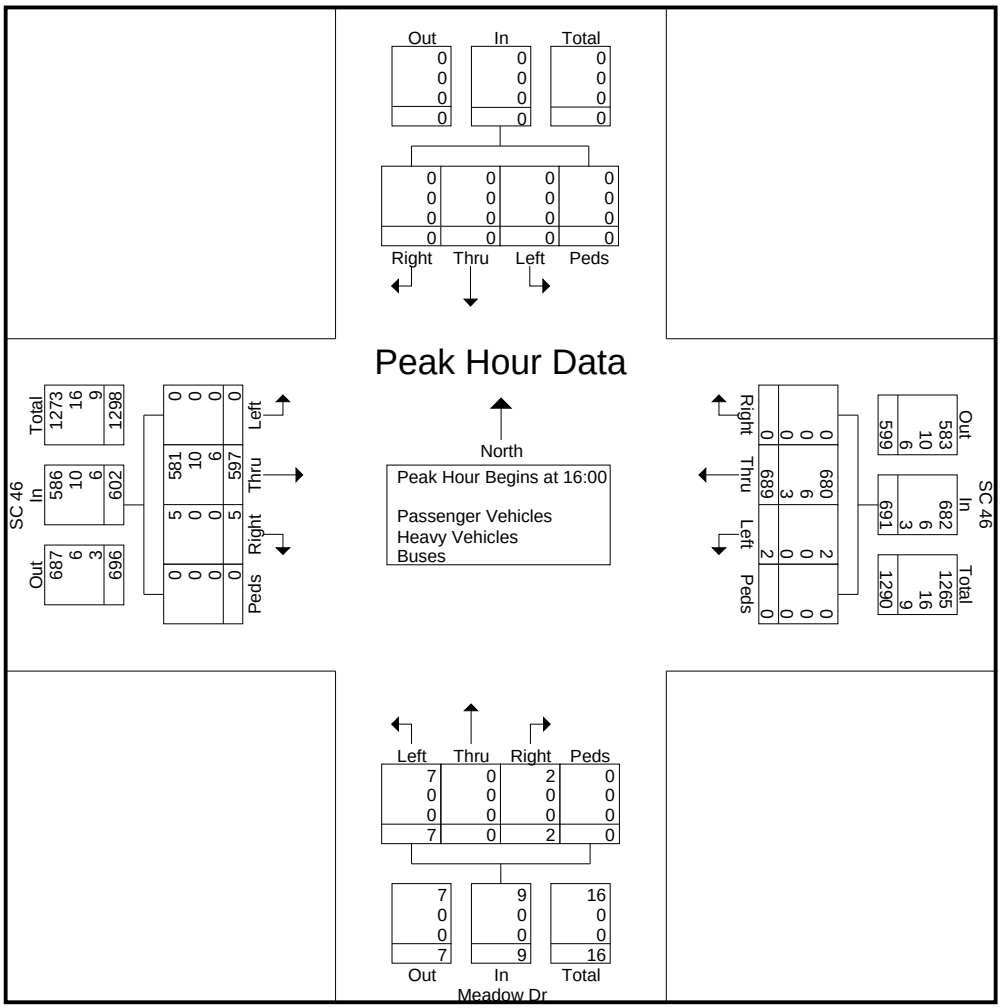
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

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

File Name : SC 46 @ Meadow Dr Wednesday
Site Code :
Start Date : 04/19/2023
Page No : 3

	Southbound					SC 46 Westbound					Meadow Dr Northbound					SC 46 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 16:00																					
16:00	0	0	0	0	0	**1**	**188**	0	0	**189**	**2**	0	**1**	0	**3**	0	**162**	**3**	0	**165**	**357**
16:15	0	0	0	0	0	0	181	0	0	181	2	0	1	0	3	0	137	0	0	137	321
16:30	0	0	0	0	0	1	155	0	0	156	1	0	0	0	1	0	161	1	0	162	319
16:45	0	0	0	0	0	0	165	0	0	165	2	0	0	0	2	0	137	1	0	138	305
Total Volume	0	0	0	0	0	2	689	0	0	691	7	0	2	0	9	0	597	5	0	602	1302
% App. Total	0	0	0	0		0.3	99.7	0	0		77.8	0	22.2	0		0	99.2	0.8	0		
PHF	.000	.000	.000	.000	.000	.500	.916	.000	.000	.914	.875	.000	.500	.000	.750	.000	.921	.417	.000	.912	.912
Passenger Vehicles	0	0	0	0	0	2	680	0	0	682	7	0	2	0	9	0	581	5	0	586	1277
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	10	0	0	10	16
% Heavy Vehicles	0	0	0	0	0	0	0.9	0	0	0.9	0	0	0	0	0	0	1.7	0	0	1.7	1.2
Buses	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	9
% Buses	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0	1.0	0	0	1.0	0.7



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

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

File Name : SC 46 @ Meadow Dr Sunday
Site Code :
Start Date : 04/23/2023
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

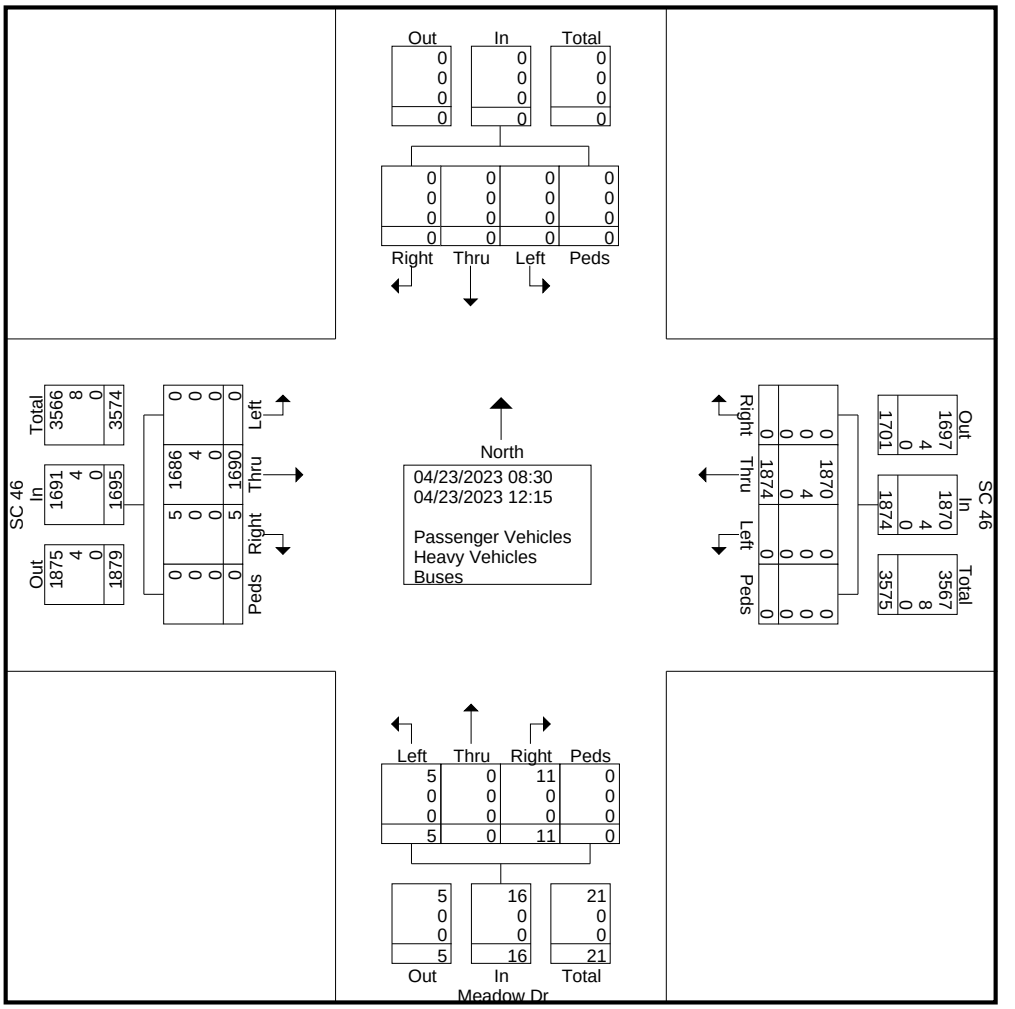
	Southbound				SC 46 Westbound				Meadow Dr Northbound				SC 46 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
08:30	0	0	0	0	0	53	0	0	1	0	1	0	0	83	0	0	138
08:45	0	0	0	0	0	57	0	0	0	0	0	0	0	84	0	0	141
Total	0	0	0	0	0	110	0	0	1	0	1	0	0	167	0	0	279
09:00	0	0	0	0	0	74	0	0	0	0	0	0	0	62	1	0	137
09:15	0	0	0	0	0	91	0	0	0	0	0	0	0	105	0	0	196
09:30	0	0	0	0	0	108	0	0	0	0	1	0	0	103	0	0	212
09:45	0	0	0	0	0	99	0	0	0	0	0	0	0	94	0	0	193
Total	0	0	0	0	0	372	0	0	0	0	1	0	0	364	1	0	738
10:00	0	0	0	0	0	109	0	0	1	0	0	0	0	108	0	0	218
10:15	0	0	0	0	0	131	0	0	0	0	1	0	0	116	1	0	249
10:30	0	0	0	0	0	135	0	0	0	0	0	0	0	95	0	0	230
10:45	0	0	0	0	0	140	0	0	0	0	0	0	0	95	1	0	236
Total	0	0	0	0	0	515	0	0	1	0	1	0	0	414	2	0	933
11:00	0	0	0	0	0	146	0	0	0	0	4	0	0	97	0	0	247
11:15	0	0	0	0	0	135	0	0	0	0	0	0	0	131	0	0	266
11:30	0	0	0	0	0	160	0	0	1	0	0	0	0	117	1	0	279
11:45	0	0	0	0	0	139	0	0	2	0	1	0	0	128	1	0	271
Total	0	0	0	0	0	580	0	0	3	0	5	0	0	473	2	0	1063
12:00	0	0	0	0	0	143	0	0	0	0	1	0	0	127	0	0	271
12:15	0	0	0	0	0	154	0	0	0	0	2	0	0	145	0	0	301
Grand Total	0	0	0	0	0	1874	0	0	5	0	11	0	0	1690	5	0	3585
Apprch %	0	0	0	0	0	100	0	0	31.2	0	68.8	0	0	99.7	0.3	0	
Total %	0	0	0	0	0	52.3	0	0	0.1	0	0.3	0	0	47.1	0.1	0	
Passenger Vehicles	0	0	0	0	0	1870	0	0	5	0	11	0	0	1686	5	0	3577
% Passenger Vehicles	0	0	0	0	0	99.8	0	0	100	0	100	0	0	99.8	100	0	99.8
Heavy Vehicles	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0	8
% Heavy Vehicles	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0.2	0	0	0.2
Buses	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

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

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

File Name : SC 46 @ Meadow Dr Sunday
Site Code :
Start Date : 04/23/2023
Page No : 2



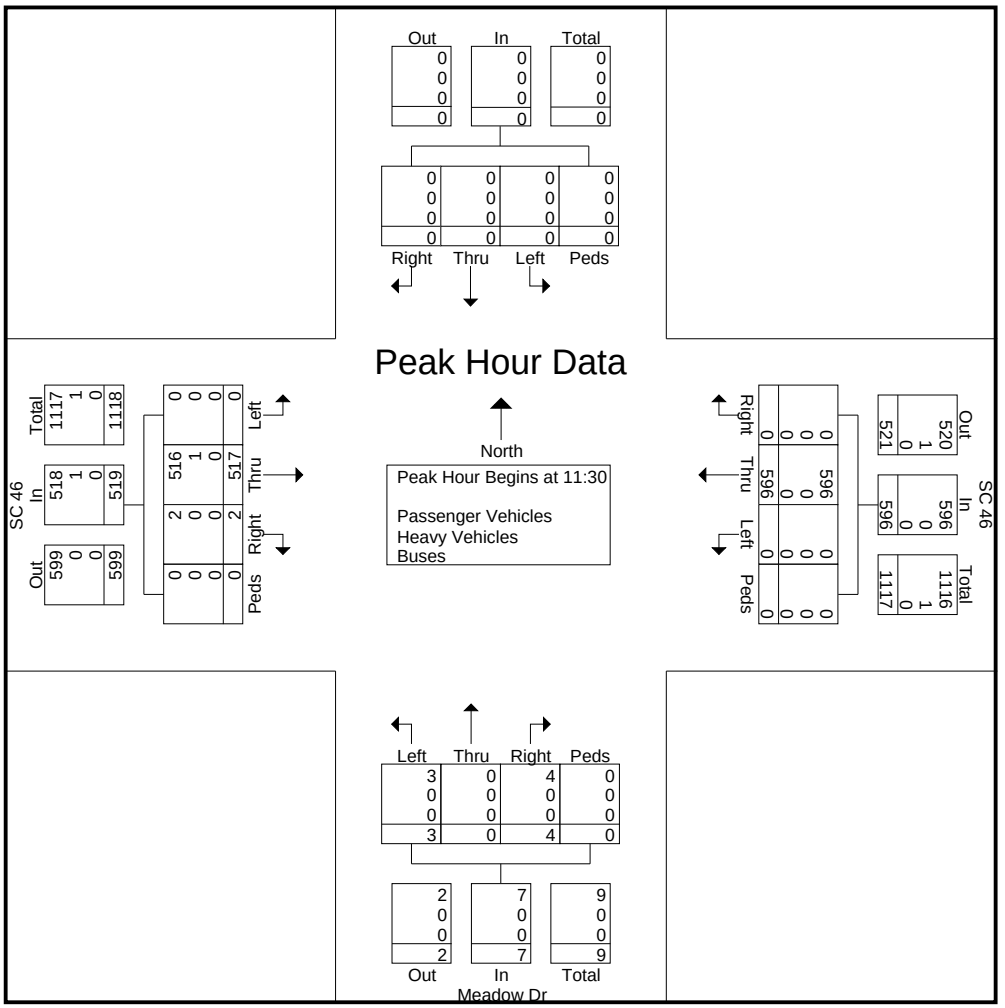
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

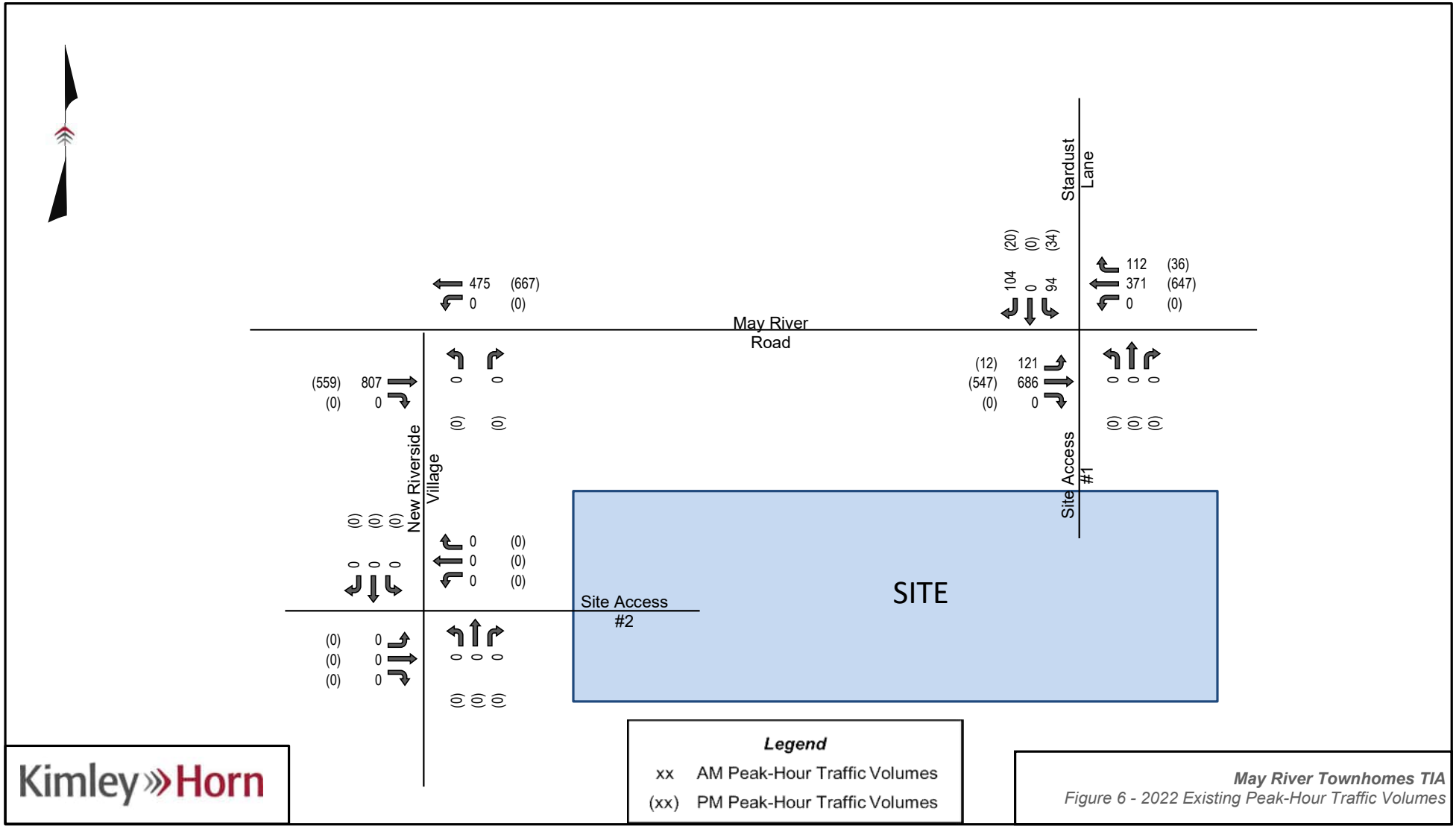
We can't say we're the Best, but you Can!

File Name : SC 46 @ Meadow Dr Sunday
Site Code :
Start Date : 04/23/2023
Page No : 3

	Southbound					SC 46 Westbound					Meadow Dr Northbound					SC 46 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 08:30 to 12:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30																					
11:30	0	0	0	0	0	0	**160**	0	0	**160**	1	0	0	0	1	0	117	**1**	0	118	279
11:45	0	0	0	0	0	0	139	0	0	139	**2**	0	1	0	**3**	0	128	1	0	129	271
12:00	0	0	0	0	0	0	143	0	0	143	0	0	1	0	1	0	127	0	0	127	271
12:15	0	0	0	0	0	0	154	0	0	154	0	0	**2**	0	2	0	**145**	0	0	**145**	**301**
Total Volume	0	0	0	0	0	0	596	0	0	596	3	0	4	0	7	0	517	2	0	519	1122
% App. Total	0	0	0	0		0	100	0	0		42.9	0	57.1	0		0	99.6	0.4	0		
PHF	.000	.000	.000	.000	.000	.000	.931	.000	.000	.931	.375	.000	.500	.000	.583	.000	.891	.500	.000	.895	.932
Passenger Vehicles	0	0	0	0	0	0	596	0	0	596	3	0	4	0	7	0	516	2	0	518	1121
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0.1
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



Attachment 7



Kimley»Horn

May River Townhomes TIA

Figure 6 - 2022 Existing Peak-Hour Traffic Volumes

APPENDIX C

Traffic Volume Development Worksheets &
ITE Trip Generation Sheets

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

SC 46 & Meadow Drive

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Wednesday, April 19, 2023

AM PEAK HOUR (7:00-8:00 AM)	NBL	NBT	NBR	SBL	SBT	SBR	WBL	WBT	WBR	EBL	EBT	EBR
2022 Traffic Volumes	**12**		**4**				**1**	**483**			**780**	**4**
Years To Current Year (2023)	1	1	1	1	1	1	1	1	1	1	1	1
Yearly Growth Rate	2.0%		2.0%				2.0%	2.0%			2.0%	2.0%
Background Traffic Growth	0		0				0	10			16	0
2023 TRAFFIC VOLUMES	**12**		**4**				**1**	**493**			**796**	**4**
Years To Buildout (2025)	2		2				2	2			2	2
Yearly Growth Rate	2.0%		2.0%				2.0%	2.0%			2.0%	2.0%
Background Traffic Growth	0		0				0	20			32	0
Vested New Trips								5			16	
Vested Traffic Volumes								5			16	
2025 NO-BUILD TRAFFIC VOLUMES	**12**		**4**				**1**	**518**			**844**	**4**
Inbound Trip Distribution Percentage							45%					55%
Outbound Trip Distribution Percentage	55%		45%									
Inbound New Project Traffic							36					44
Outbound New Project Traffic	35		29									
Total New Project Traffic	35		29				36					44
2025 BUILD TRAFFIC VOLUMES	**47**		**33**				**37**	**518**			**844**	**48**

PM PEAK HOUR (4:00-5:00 PM)	NBL	NBT	NBR	SBL	SBT	SBR	WBL	WBT	WBR	EBL	EBT	EBR
2023 TRAFFIC VOLUMES	**7**		**2**				**2**	**689**			**597**	**5**
Years To Current Year (2023)	0		0				0	0			0	0
Yearly Growth Rate	2.0%		2.0%				2.0%	2.0%			2.0%	2.0%
Background Traffic Growth	0		0				0	0			0	0
2023 TRAFFIC VOLUMES	**7**		**2**				**2**	**689**			**597**	**5**
Years To Buildout (2025)	2		2				2	2			2	2
Yearly Growth Rate	2.0%		2.0%				2.0%	2.0%			2.0%	2.0%
Background Traffic Growth	0		0				0	28			24	0
Vested New Trips								16			9	
Vested Traffic Volumes								16			9	
2025 NO-BUILD TRAFFIC VOLUMES	**7**		**2**				**2**	**733**			**630**	**5**
Inbound Trip Distribution Percentage							45%					55%
Outbound Trip Distribution Percentage	55%		45%									
Inbound New Project Traffic							34					42
Outbound New Project Traffic	50		41									
Total New Project Traffic	50		41				34					42
2025 BUILD TRAFFIC VOLUMES	**57**		**43**				**36**	**733**			**630**	**47**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Meadow Drive & Site Access 1

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: N/A

SUNDAY PEAK HOUR	NBL	NBT	NBR	SBL	SBT	SBR	WBL	WBT	WBR	EBL	EBT	EBR
2021 Traffic Volumes		**16**	**0**	**0**	**5**		**0**		**0**			
Years To Current Year (2023)		0	0	0	0		0		0			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
2023 TRAFFIC VOLUMES		**16**	**0**	**0**	**5**		**0**		**0**			
Years To Buildout (2025)		2	2	2	2		2		2			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		1	0	0	0		0		0			
Vested New Trips												
Vested Traffic Volumes												
2025 NO-BUILD TRAFFIC VOLUMES		**17**	**0**	**0**	**5**		**0**		**0**			
Inbound Trip Distribution Percentage				**50%**	**50%**							
Outbound Trip Distribution Percentage		**50%**							50%			
Inbound New Project Traffic				40	40							
Outbound New Project Traffic		32							32			
Total New Project Traffic		32		40	40				32			
2025 BUILD TRAFFIC VOLUMES		**49**	**0**	**40**	**45**		**0**		**32**			

PM PEAK HOUR	NBL	NBT	NBR	SBL	SBT	SBR	WBL	WBT	WBR	EBL	EBT	EBR
2023 TRAFFIC VOLUMES		**9**	**0**	**0**	**7**		**0**		**0**			
Years To Current Year (2023)		0	0	0	0		0		0			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
2023 TRAFFIC VOLUMES		**9**	**0**	**0**	**7**		**0**		**0**			
Years To Buildout (2025)		2	2	2	2		2		2			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
2025 NO-BUILD TRAFFIC VOLUMES		**9**	**0**	**0**	**7**		**0**		**0**			
Inbound Trip Distribution Percentage				**50%**	**50%**							
Outbound Trip Distribution Percentage		**50%**							50%			
Inbound New Project Traffic				38	38							
Outbound New Project Traffic		45							45			
Total New Project Traffic		45		38	38				45			
2025 BUILD TRAFFIC VOLUMES		**54**	**0**	**38**	**45**		**0**		**45**			

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Meadow Drive & Grassey Lane

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: N/A

SUNDAY PEAK HOUR	NBL	NBT	NBR	SBL	SBT	SBR	WBL	WBT	WBR	EBL	EBT	EBR
2021 Traffic Volumes		**16**	**0**	**0**	**5**		**0**		**0**			
Years To Current Year (2023)		0	0	0	0		0		0			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
2023 TRAFFIC VOLUMES		**16**	**0**	**0**	**5**		**0**		**0**			
Years To Buildout (2025)		2	2	2	2		2		2			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		1	0	0	0		0		0			
Vested New Trips												
Vested Traffic Volumes												
2025 NO-BUILD TRAFFIC VOLUMES		**17**	**0**	**0**	**5**		**0**		**0**			
Inbound Trip Distribution Percentage				**50%**								
Outbound Trip Distribution Percentage									50%			
Inbound New Project Traffic				40								
Outbound New Project Traffic									32			
Total New Project Traffic				40					32			
2025 BUILD TRAFFIC VOLUMES		**17**	**0**	**40**	**5**		**0**		**32**			

PM PEAK HOUR	NBL	NBT	NBR	SBL	SBT	SBR	WBL	WBT	WBR	EBL	EBT	EBR
2023 TRAFFIC VOLUMES		**9**	**0**	**0**	**7**		**0**		**0**			
Years To Current Year (2023)		0	0	0	0		0		0			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
2023 TRAFFIC VOLUMES		**9**	**0**	**0**	**7**		**0**		**0**			
Years To Buildout (2025)		2	2	2	2		2		2			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
2025 NO-BUILD TRAFFIC VOLUMES		**9**	**0**	**0**	**7**		**0**		**0**			
Inbound Trip Distribution Percentage				**50%**								
Outbound Trip Distribution Percentage									50%			
Inbound New Project Traffic				38								
Outbound New Project Traffic									45			
Total New Project Traffic				38					45			
2025 BUILD TRAFFIC VOLUMES		**9**	**0**	**38**	**7**		**0**		**45**			

Attachment 7

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

SC 46 & Meadow Drive

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: Sunday, April 23, 2023

SUNDAY PEAK HOUR (11:30 AM-12:30 PM)	NBL	NBT	NBR	SBL	SBT	SBR	WBL	WBT	WBR	EBL	EBT	EBR
2023 Traffic Volumes	**3**		**4**				**0**	**596**			**517**	**2**
Years To Current Year (2023)	0	0	0	0	0	0	0	0	0	0	0	0
Yearly Growth Rate	2.0%		2.0%				2.0%	2.0%			2.0%	2.0%
Background Traffic Growth	0		0				0	0			0	0
2023 TRAFFIC VOLUMES	**3**		**4**				**0**	**596**			**517**	**2**
Years To Buildout (2025)	2		2				2	2			2	2
Yearly Growth Rate	2.0%		2.0%				2.0%	2.0%			2.0%	2.0%
Background Traffic Growth	0		0				0	24			21	0
Vested New Trips								5			16	
Vested Traffic Volumes								5			16	
2025 NO-BUILD TRAFFIC VOLUMES	**3**		**4**				**0**	**625**			**554**	**2**
Inbound Trip Distribution Percentage							45%					55%
Outbound Trip Distribution Percentage	55%		45%									
Inbound New Project Traffic							92					112
Outbound New Project Traffic	116		95									
Total New Project Traffic	116		95				92					112
2025 BUILD TRAFFIC VOLUMES	**119**		**99**				**92**	**625**			**554**	**114**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Meadow Drive & Site Access 1

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: N/A

SUNDAY PEAK HOUR	NBL	NBT	NBR	SBL	SBT	SBR	WBL	WBT	WBR	EBL	EBT	EBR
2023 Traffic Volumes		**7**	**0**	**0**	**2**		**0**		**0**			
Years To Current Year (2023)	0	0	0	0	0	0	0	0	0	0	0	0
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
2023 TRAFFIC VOLUMES		**7**	**0**	**0**	**2**		**0**		**0**			
Years To Buildout (2025)		2	2	2	2		2		2			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
Vested New Trips												
Vested Traffic Volumes												
2025 NO-BUILD TRAFFIC VOLUMES		**7**	**0**	**0**	**2**		**0**		**0**			
Inbound Trip Distribution Percentage				**50%**	**50%**							
Outbound Trip Distribution Percentage		**50%**							50%			
Inbound New Project Traffic				102	102							
Outbound New Project Traffic		106							105			
Total New Project Traffic		106		102	102				105			
2025 BUILD TRAFFIC VOLUMES		**113**	**0**	**102**	**104**		**0**		**105**			

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Meadow Drive & Grassey Lane

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: N/A

SUNDAY PEAK HOUR	NBL	NBT	NBR	SBL	SBT	SBR	WBL	WBT	WBR	EBL	EBT	EBR
2023 Traffic Volumes		**7**	**0**	**0**	**2**		**0**		**0**			
Years To Current Year (2023)	0	0	0	0	0	0	0	0	0	0	0	0
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
2023 TRAFFIC VOLUMES		**7**	**0**	**0**	**2**		**0**		**0**			
Years To Buildout (2025)		2	2	2	2		2		2			
Yearly Growth Rate		2.0%	2.0%	2.0%	2.0%		2.0%		2.0%			
Background Traffic Growth		0	0	0	0		0		0			
Vested New Trips												
Vested Traffic Volumes												
2025 NO-BUILD TRAFFIC VOLUMES		**7**	**0**	**0**	**2**		**0**		**0**			
Inbound Trip Distribution Percentage				**50%**								
Outbound Trip Distribution Percentage									50%			
Inbound New Project Traffic				102								
Outbound New Project Traffic									106			
Total New Project Traffic				102					106			
2025 BUILD TRAFFIC VOLUMES		**7**	**0**	**102**	**2**		**0**		**106**			

Attachment 7

ITETripGen **Web-based App**

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Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use *ITETripGen*

TGM Desk Reference

TGM Appendices

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Add-ons to do more

Try OTISS Pro

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
210

LAND USE GROUP:
(200-299) Residential

LAND USE :
210 - Single-Family Detached Housing

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

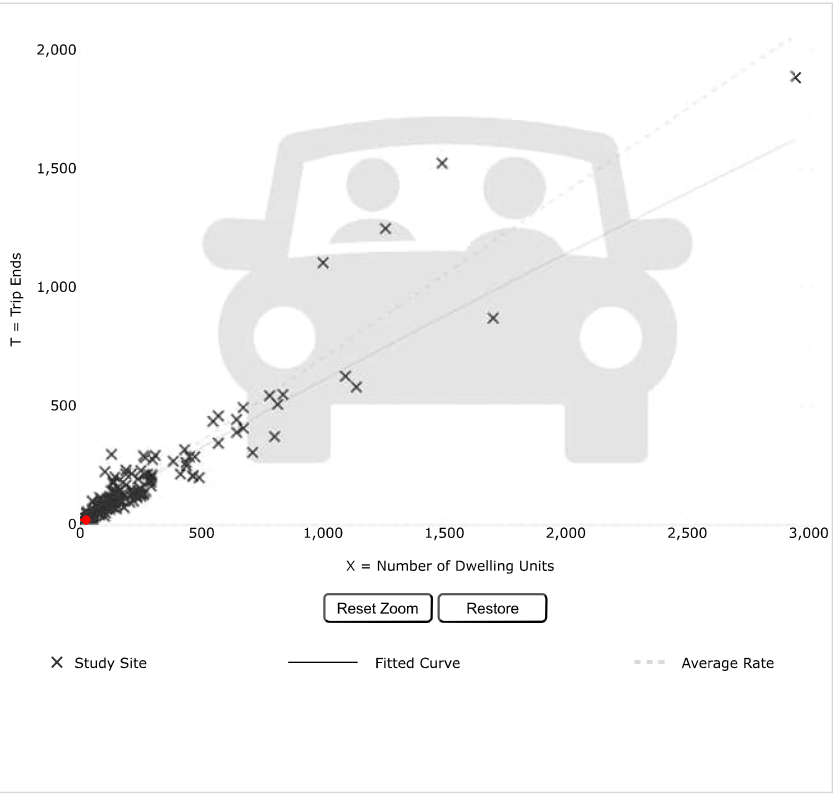
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Tr

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
25 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
192

Avg. Num. of Dwelling Units:
226

Average Rate:
0.70

Range of Rates:
0.27 - 2.27

Standard Deviation:
0.24

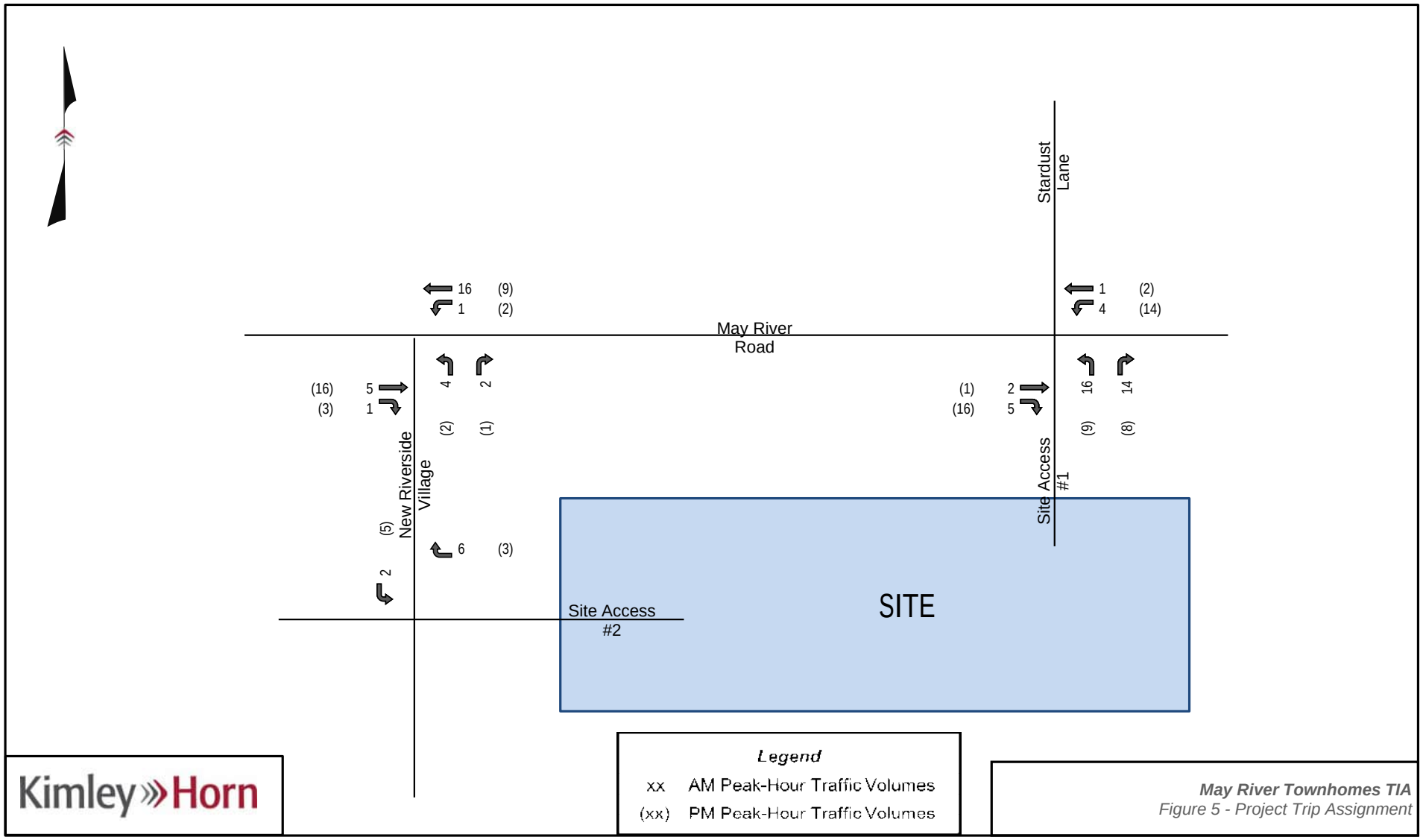
Fitted Curve Equation:
Ln(T) = 0.91 Ln(X) + 0.12

R^2:
0.90

Directional Distribution:
25% entering, 75% exiting

Calculated Trip Ends:
Average Rate: 18 (Total), 4 (Entry), 14 (Exit)
Fitted Curve: 21 (Total), 5 (Entry), 16 (Exit)

Attachment 7



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Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
560

LAND USE GROUP:
(500-599) Institutional

LAND USE :
560 - Church

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

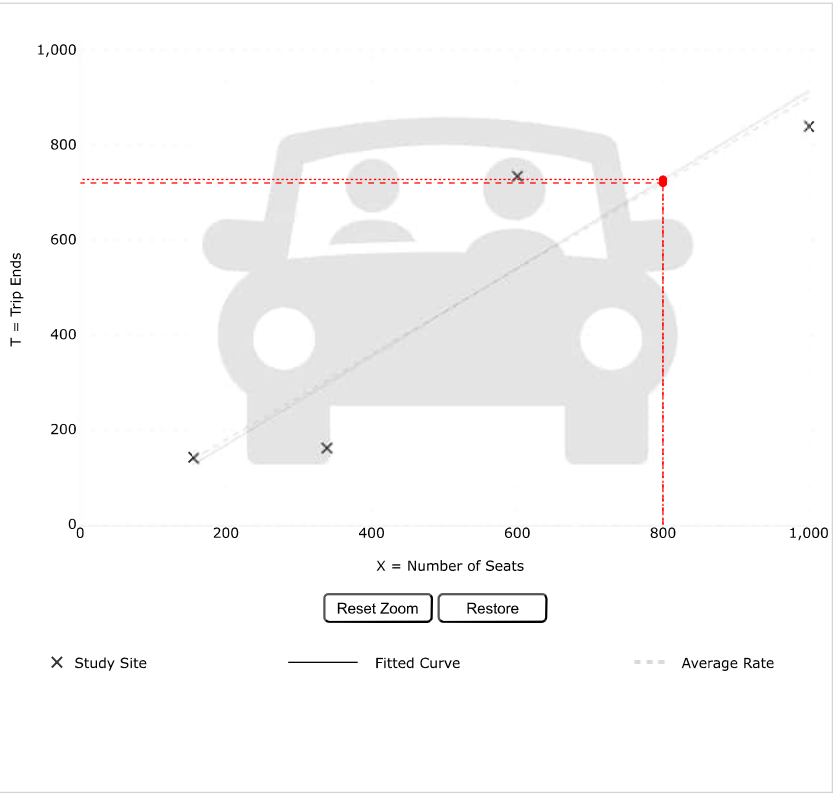
INDEPENDENT VARIABLE (IV):
Seats

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
800 Calculate

Data Plot and Equation *Caution – Small Sample Size*



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Church (560) Click for Description and Data Plots

Independent Variable:
Seats

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
4

Avg. Num. of Seats:
524

Average Rate:
0.90

Range of Rates:
0.48 - 1.22

Standard Deviation:
0.28

Fitted Curve Equation:
T = 0.93(X) - 16.74

R^2:
0.85

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 720 (Total), 360 (Entry), 360 (Exit)
Fitted Curve: 727 (Total), 364 (Entry), 363 (Exit)

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Query Filter

DATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE: 560

LAND USE GROUP: (500-599) Institutional

LAND USE : 560 - Church

LAND USE SUBCATEGORY: All Sites

SETTING/LOCATION: General Urban/Suburban

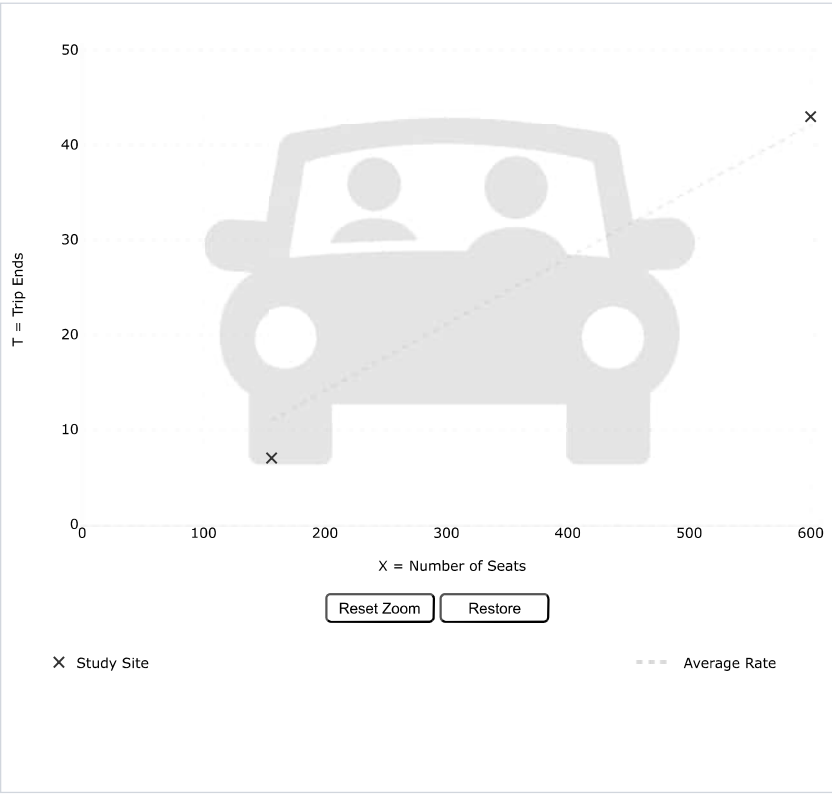
INDEPENDENT VARIABLE (IV): Seats

TIME PERIOD: Weekday, Peak Hour of Adjacent Street Tr

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 800 Calculate

Data Plot and Equation *Caution – Small Sample Size*



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Church (560) Click for Description and Data Plots

Independent Variable:
Seats

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
2

Avg. Num. of Seats:
378

Average Rate:
0.07

Range of Rates:
0.04 - 0.07

Standard Deviation:
****

Fitted Curve Equation:
Not Given

R^2:
****

Directional Distribution:
60% entering, 40% exiting

Calculated Trip Ends:
Average Rate: 56 (Total), 34 (Entry), 22 (Exit)

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Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
560

LAND USE GROUP:
(500-599) Institutional

LAND USE :
560 - Church

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

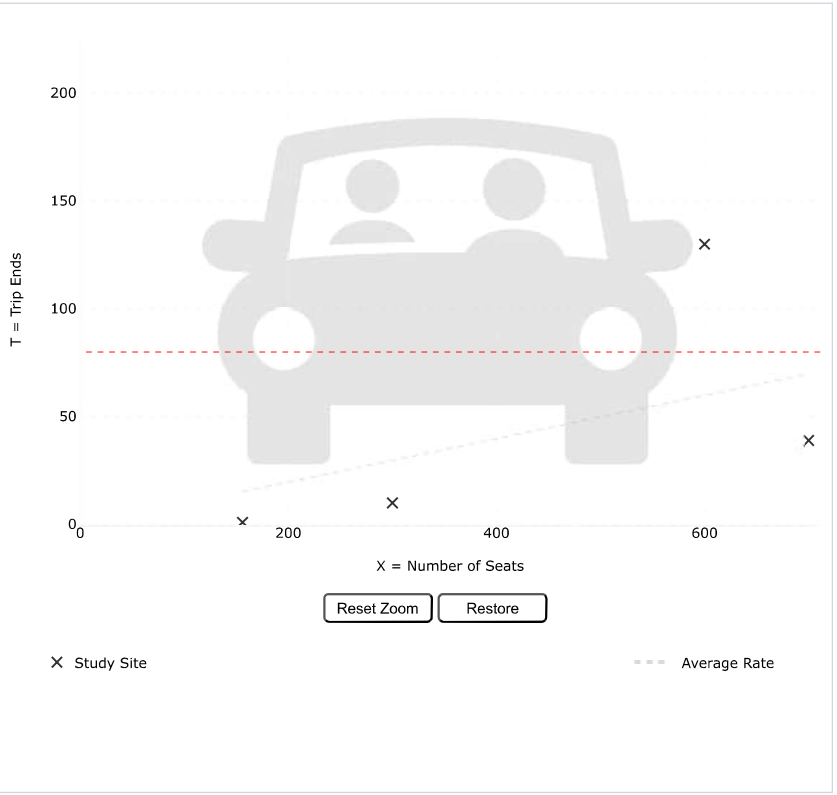
INDEPENDENT VARIABLE (IV):
Seats

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Tr

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
800 Calculate

Data Plot and Equation *Caution – Small Sample Size*



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Church (560) Click for Description and Data Plots

Independent Variable:
Seats

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
4

Avg. Num. of Seats:
439

Average Rate:
0.10

Range of Rates:
0.01 - 0.22

Standard Deviation:
0.10

Fitted Curve Equation:
Not Given

R^2:
****

Directional Distribution:
45% entering, 55% exiting

Calculated Trip Ends:
Average Rate: 80 (Total), 36 (Entry), 44 (Exit)

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- Support Documents
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- Comments
- Add-ons to do more
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Query Filter

DATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE: 560

LAND USE GROUP: (500-599) Institutional

LAND USE : 560 - Church

LAND USE SUBCATEGORY: All Sites

SETTING/LOCATION: General Urban/Suburban

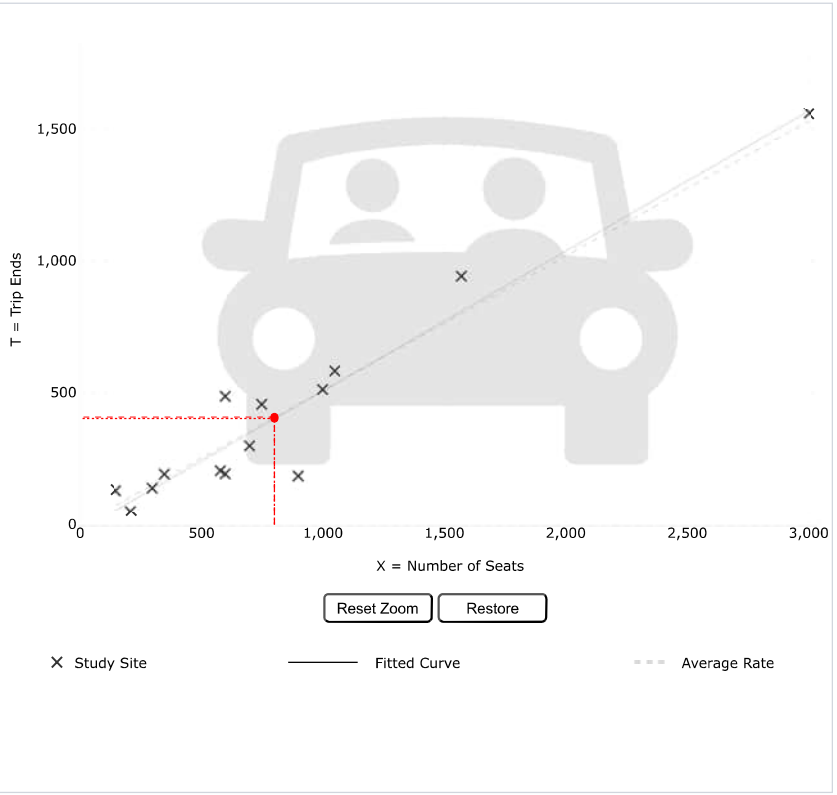
INDEPENDENT VARIABLE (IV): Seats

TIME PERIOD: Sunday, Peak Hour of Generator

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 800 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Church (560) Click for Description and Data Plots

Independent Variable:
Seats

Time Period:
Sunday
Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
14

Avg. Num. of Seats:
840

Average Rate:
0.51

Range of Rates:
0.21 - 0.89

Standard Deviation:
0.15

Fitted Curve Equation:
T = 0.53(X) - 21.83

R^2:
0.92

Directional Distribution:
49% entering, 51% exiting

Calculated Trip Ends:
Average Rate: 408 (Total), 200 (Entry), 208 (Exit)
Fitted Curve: 402 (Total), 197 (Entry), 205 (Exit)

Attachment 7

Graph Look Up

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
565

LAND USE GROUP:
(500-599) Institutional

LAND USE :
565 - Day Care Center

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

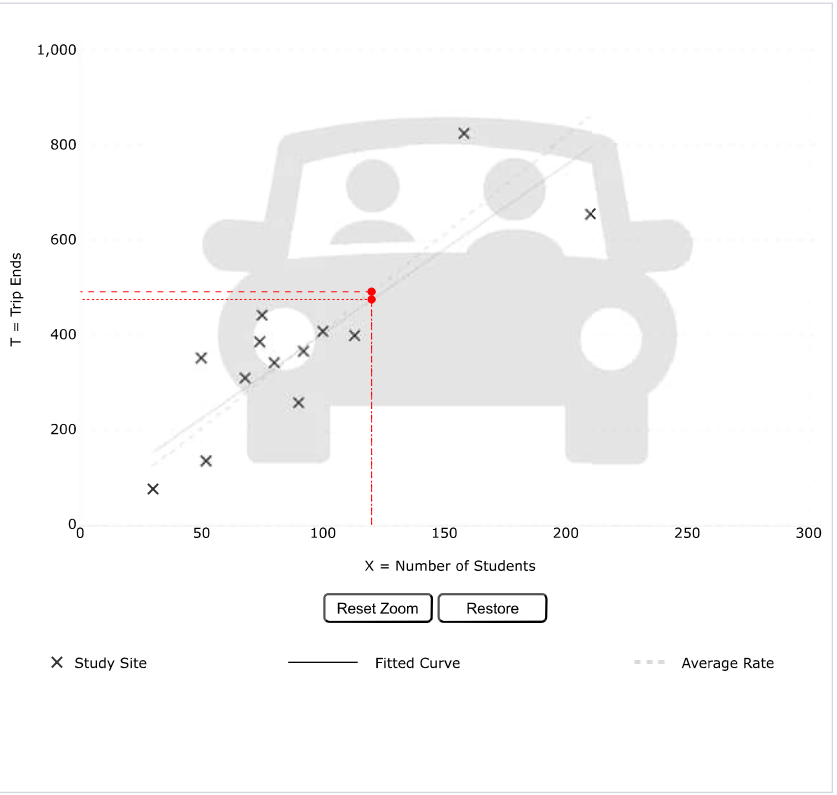
INDEPENDENT VARIABLE (IV):
Students

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
120 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Day Care Center (565) Click for Description and Data Plots

Independent Variable:
Students

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
14

Avg. Num. of Students:
89

Average Rate:
4.09

Range of Rates:
2.50 - 7.06

Standard Deviation:
1.21

Fitted Curve Equation:
T = 3.56(X) + 47.23

R^2:
0.72

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 491 (Total), 245 (Entry), 246 (Exit)
Fitted Curve: 474 (Total), 237 (Entry), 237 (Exit)

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Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
565

LAND USE GROUP:
(500-599) Institutional

LAND USE :
565 - Day Care Center

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

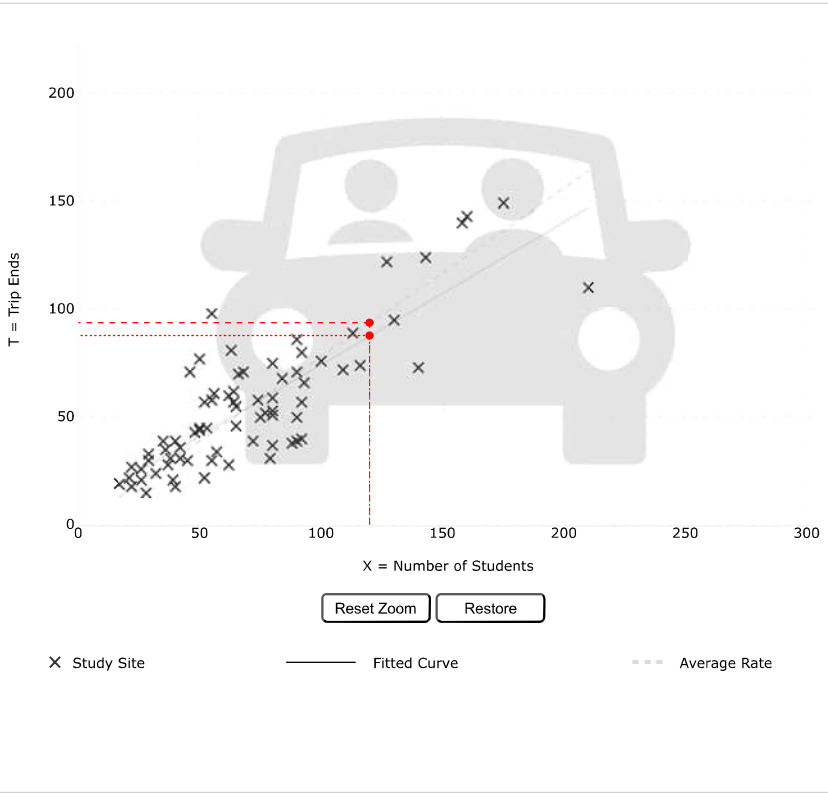
INDEPENDENT VARIABLE (IV):
Students

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Tr

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
120 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Day Care Center (565) Click for Description and Data Plots

Independent Variable:
Students

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
75

Avg. Num. of Students:
71

Average Rate:
0.78

Range of Rates:
0.39 - 1.78

Standard Deviation:
0.25

Fitted Curve Equation:
T = 0.66(X) + 8.42

R^2:
0.69

Directional Distribution:
53% entering, 47% exiting

Calculated Trip Ends:
Average Rate: 94 (Total), 50 (Entry), 44 (Exit)
Fitted Curve: 88 (Total), 46 (Entry), 42 (Exit)

Attachment 7

Graph Look Up

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
565

LAND USE GROUP:
(500-599) Institutional

LAND USE :
565 - Day Care Center

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

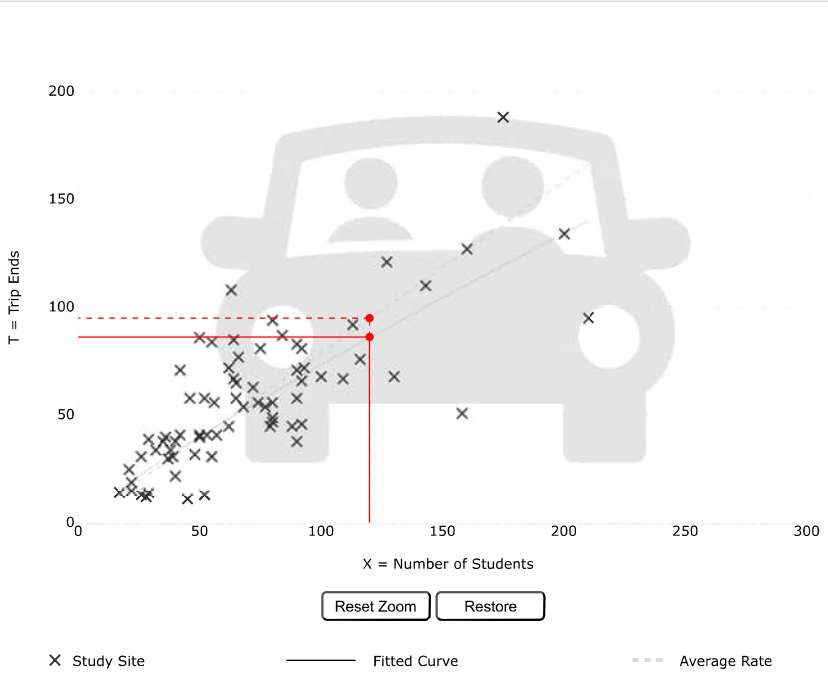
INDEPENDENT VARIABLE (IV):
Students

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Tr

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
120 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Day Care Center (565) Click for Description and Data Plots

Independent Variable:
Students

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
75

Avg. Num. of Students:
72

Average Rate:
0.79

Range of Rates:
0.24 - 1.72

Standard Deviation:
0.30

Fitted Curve Equation:
Ln(T) = 0.87 Ln(X) + 0.29

R^2:
0.57

Directional Distribution:
47% entering, 53% exiting

Calculated Trip Ends:
Average Rate: 95 (Total), 45 (Entry), 50 (Exit)
Fitted Curve: 86 (Total), 40 (Entry), 46 (Exit)

Attachment 7

Graph Look Up

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
565

LAND USE GROUP:
(500-599) Institutional

LAND USE :
565 - Day Care Center

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

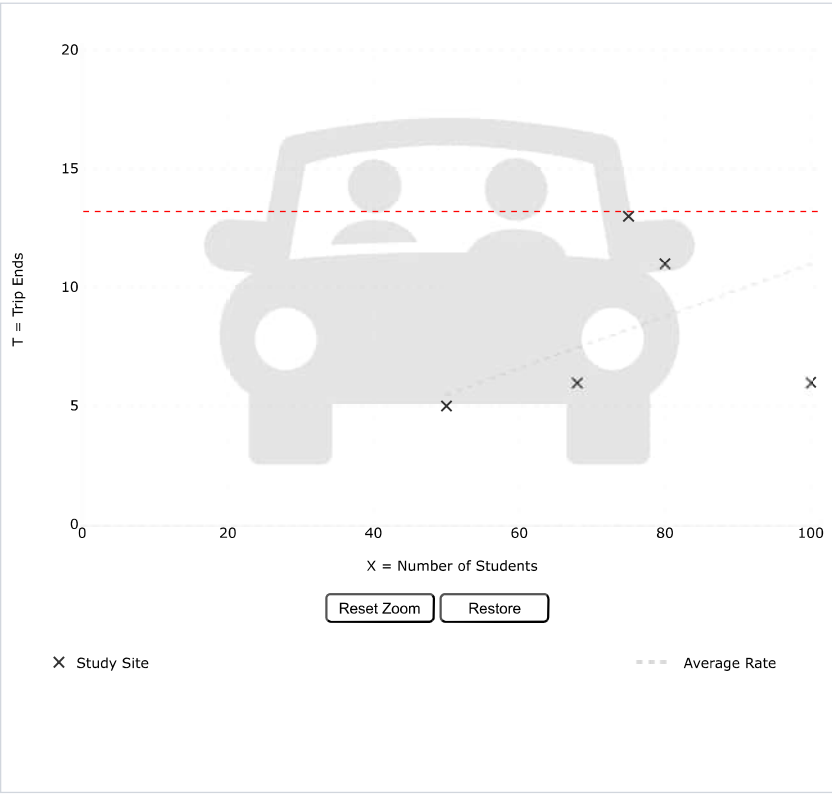
INDEPENDENT VARIABLE (IV):
Students

TIME PERIOD:
Sunday, Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
120 Calculate

Data Plot and Equation *Caution – Small Sample Size*



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Day Care Center (565) Click for Description and Data Plots

Independent Variable:
Students

Time Period:
Sunday
Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
5

Avg. Num. of Students:
75

Average Rate:
0.11

Range of Rates:
0.06 - 0.17

Standard Deviation:
0.05

Fitted Curve Equation:
Not Given

R^2:
****

Directional Distribution:
54% entering, 46% exiting

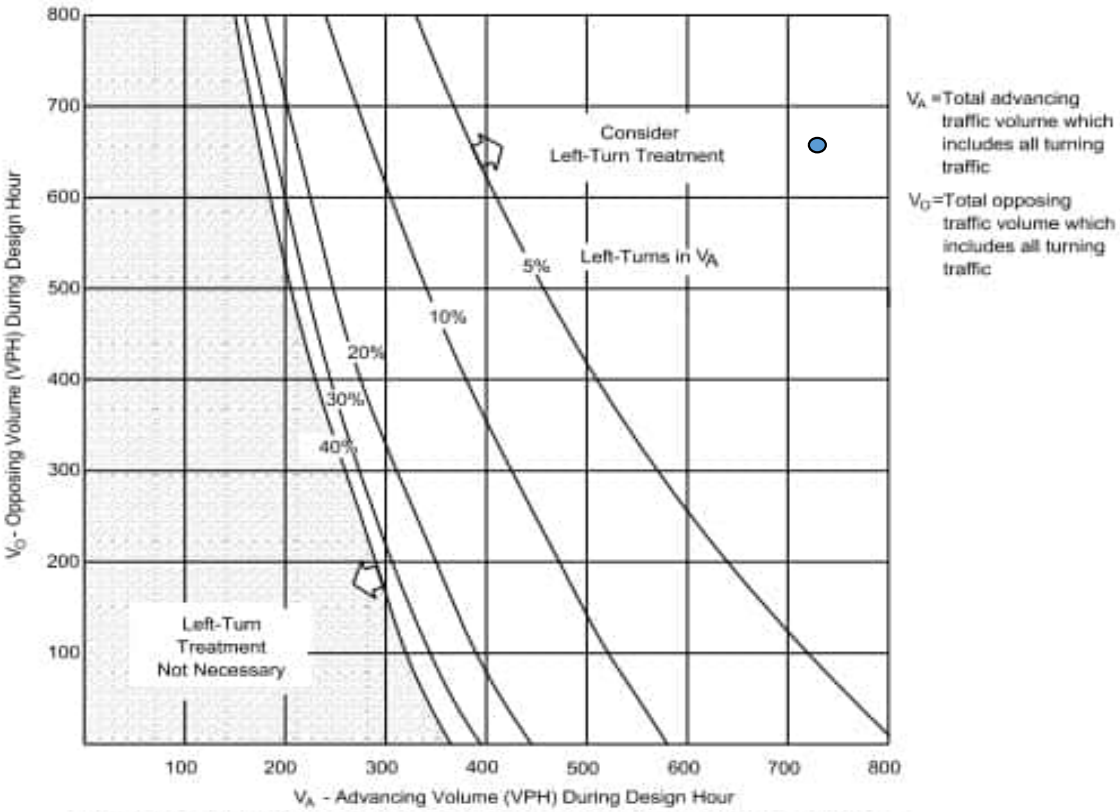
Calculated Trip Ends:
Average Rate: 13 (Total), 7 (Entry), 6 (Exit)

APPENDIX D

Turn Lane Analysis Worksheets

Cornerstone Church TIS

LEFT-TURN LANE WARRANT REVIEW



VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS (40 mph)
Figure 9.5-G

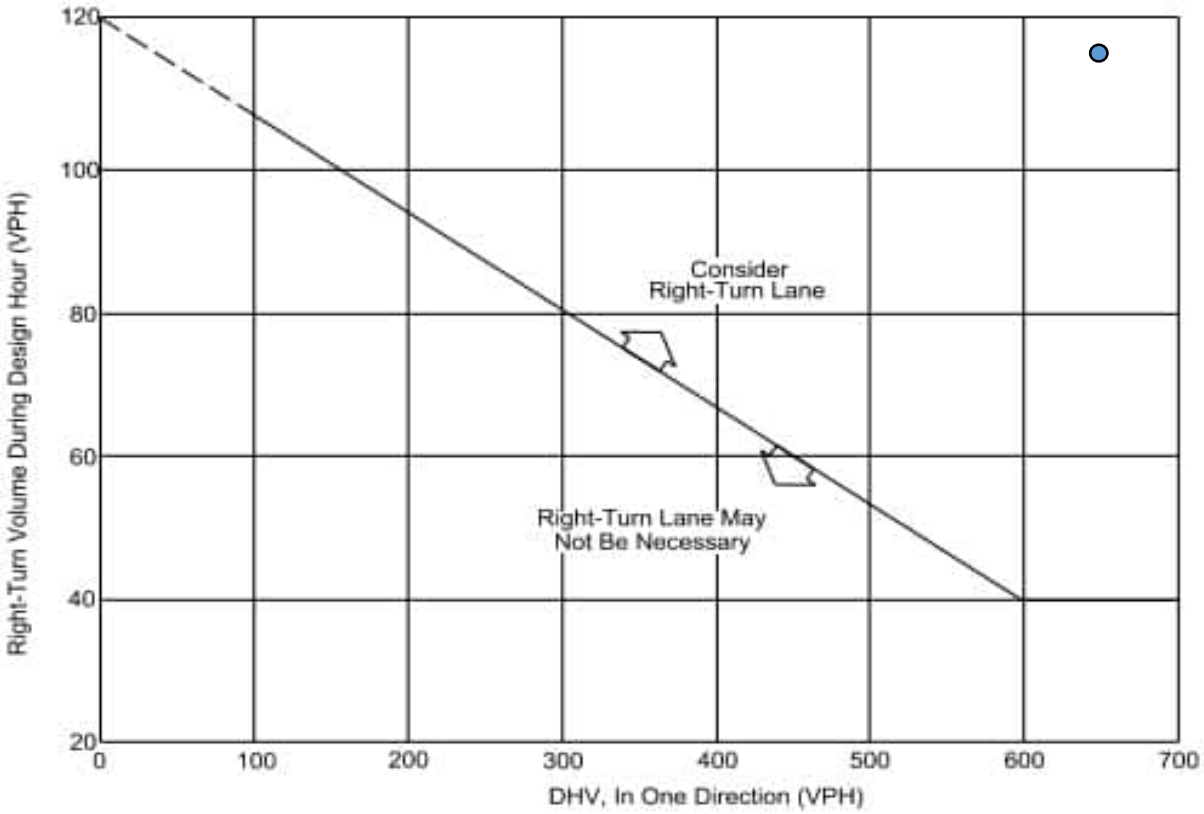
INTERSECTION: SC 46 & Meadow Drive

MOVEMENT: Westbound left turn

SCENARIO	Advancing Volume (V_a)	Westbound left turn	Opposing Volume (V_o)	Left Turn % of V_a	Symbol
Sunday Build	717	92	668	12.8%	●

Cornerstone Church TIS

RIGHT-TURN LANE WARRANT REVIEW



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.

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

Figure 9.5-A

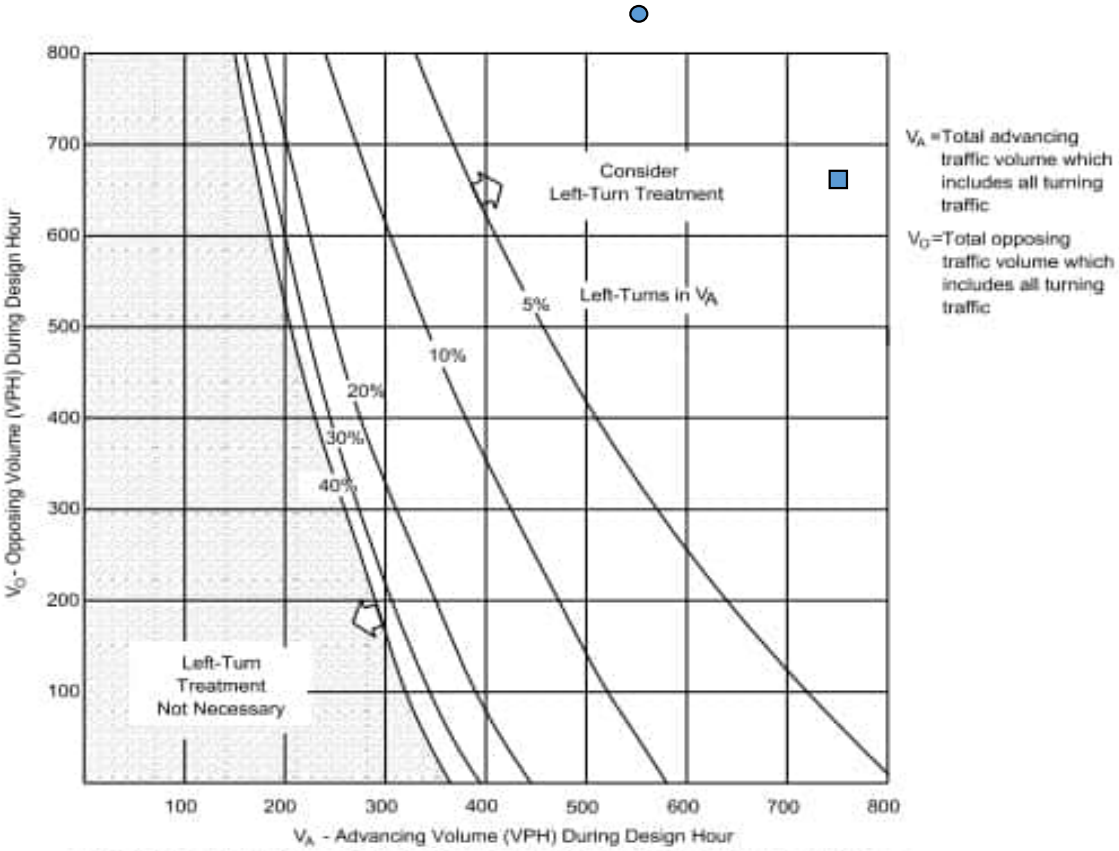
INTERSECTION: SC 46 & Meadow Drive

MOVEMENT: Eastbound Right Turn

SCENARIO	Design Hour Volume	Right Turn Volume	Symbol
Sunday Build 11am	668	114	●

Cornerstone Church TIS

LEFT-TURN LANE WARRANT REVIEW



VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS (40 mph)
Figure 9.5-G

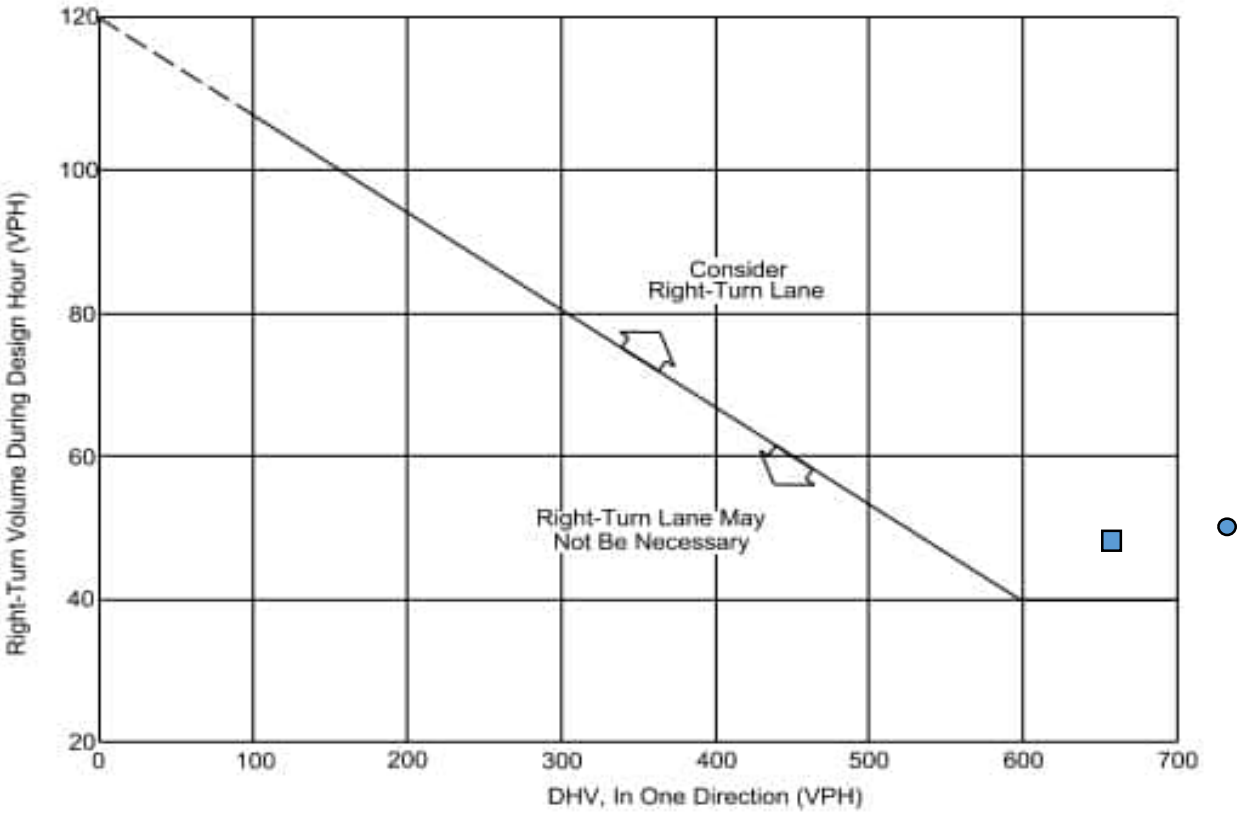
INTERSECTION: SC 46 & Meadow Drive

MOVEMENT: Westbound left turn

SCENARIO	Advancing Volume (V_a)	Westbound left turn	Opposing Volume (V_o)	Left Turn % of V_a	Symbol
AM Build	555	37	892	6.7%	●
PM Build	769	36	677	4.7%	■

Cornerstone Church TIS

RIGHT-TURN LANE WARRANT REVIEW



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.

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

Figure 9.5-A

INTERSECTION: SC 46 & Meadow Drive

MOVEMENT: Eastbound Right Turn

SCENARIO	Design Hour Volume	Right Turn Volume	Symbol
2025 AM Build	892	48	●
2025 PM Build	677	47	■

APPENDIX E

Capacity Analysis

2023 – Existing Conditions

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	796	4	1	493	12	4
Future Vol, veh/h	796	4	1	493	12	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	150	-	150	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	865	4	1	536	13	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	869	0	1403	865
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	538	-
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	-	154	353
Stage 1	-	-	-	-	412	-
Stage 2	-	-	-	-	585	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	775	-	154	353
Mov Cap-2 Maneuver	-	-	-	-	154	-
Stage 1	-	-	-	-	412	-
Stage 2	-	-	-	-	584	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	26.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	154	353	-	-	775	-
HCM Lane V/C Ratio	0.085	0.012	-	-	0.001	-
HCM Control Delay (s)	30.5	15.3	-	-	9.7	-
HCM Lane LOS	D	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	597	5	2	689	7	2
Future Vol, veh/h	597	5	2	689	7	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	150	-	150	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	649	5	2	749	8	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	654	0	1402	649
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	753	-
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	-	-	933	-	154	470
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	465	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	933	-	154	470
Mov Cap-2 Maneuver	-	-	-	-	154	-
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	464	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	25.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	154	470	-	-	933	-
HCM Lane V/C Ratio	0.049	0.005	-	-	0.002	-
HCM Control Delay (s)	29.6	12.7	-	-	8.9	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	517	2	0	596	3	4
Future Vol, veh/h	517	2	0	596	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	150	-	150	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	562	2	0	648	3	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	564	0	1210	562
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	648	-
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	-	-	1008	-	202	526
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1008	-	202	526
Mov Cap-2 Maneuver	-	-	-	-	202	-
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	521	-

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

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	202	526	-	-	1008	-
HCM Lane V/C Ratio	0.016	0.008	-	-	-	-
HCM Control Delay (s)	23.1	11.9	-	-	0	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0	-	-	0	-

2025 No-Build Conditions

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	554	2	0	625	3	4
Future Vol, veh/h	554	2	0	625	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	150	-	150	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	602	2	0	679	3	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	604	0	1281	602
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	679	-
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	-	-	974	-	183	500
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	504	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	974	-	183	500
Mov Cap-2 Maneuver	-	-	-	-	183	-
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	504	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	183	500	-	-	974	-
HCM Lane V/C Ratio	0.018	0.009	-	-	-	-
HCM Control Delay (s)	25	12.3	-	-	0	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	844	4	1	518	12	4
Future Vol, veh/h	844	4	1	518	12	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	150	-	150	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	917	4	1	563	13	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	921	0	1482	917
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	565	-
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	-	-	741	-	138	330
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	569	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	741	-	138	330
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	568	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	29.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	138	330	-	-	741	-
HCM Lane V/C Ratio	0.095	0.013	-	-	0.001	-
HCM Control Delay (s)	33.8	16.1	-	-	9.9	-
HCM Lane LOS	D	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	630	5	2	733	7	2
Future Vol, veh/h	630	5	2	733	7	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	150	-	150	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	685	5	2	797	8	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	690	0	1486	685
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	801	-
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	-	-	905	-	137	448
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	442	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	905	-	137	448
Mov Cap-2 Maneuver	-	-	-	-	137	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	441	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	28.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	137	448	-	-	905	-
HCM Lane V/C Ratio	0.056	0.005	-	-	0.002	-
HCM Control Delay (s)	32.8	13.1	-	-	9	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

2025 No-Build Conditions

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	630	47	36	733	57	43
Future Vol, veh/h	630	47	36	733	57	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	150	-	150	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	685	51	39	797	62	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	736	0	1560	685
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	875	-
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	-	-	870	-	123	448
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	408	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	870	-	117	448
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	390	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	43.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	117	448	-	-	870	-
HCM Lane V/C Ratio	0.53	0.104	-	-	0.045	-
HCM Control Delay (s)	66.1	14	-	-	9.3	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	2.5	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	45	54	0	38	45
Future Vol, veh/h	0	45	54	0	38	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	49	59	0	41	49

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	190	59	0	0	59	0
Stage 1	59	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	799	1007	-	-	1545	-
Stage 1	964	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	777	1007	-	-	1545	-
Mov Cap-2 Maneuver	777	-	-	-	-	-
Stage 1	964	-	-	-	-	-
Stage 2	871	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	3.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1007	1545	-
HCM Lane V/C Ratio	-	-	0.049	0.027	-
HCM Control Delay (s)	-	-	8.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	6.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	45	9	0	38	7
Future Vol, veh/h	0	45	9	0	38	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	49	10	0	41	8

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	100	10	0	0	10	0
Stage 1	10	-	-	-	-	-
Stage 2	90	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	899	1071	-	-	1610	-
Stage 1	1013	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	876	1071	-	-	1610	-
Mov Cap-2 Maneuver	876	-	-	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	910	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	6.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1071	1610	-
HCM Lane V/C Ratio	-	-	0.046	0.026	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	13.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	554	114	92	625	119	99
Future Vol, veh/h	554	114	92	625	119	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	150	-	150	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	602	124	100	679	129	108

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	726	0	1481	602
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	879	-
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	-	-	877	-	138	500
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	406	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	877	-	~ 122	500
Mov Cap-2 Maneuver	-	-	-	-	~ 122	-
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	360	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	97.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	122	500	-	-	877	-
HCM Lane V/C Ratio	1.06	0.215	-	-	0.114	-
HCM Control Delay (s)	167.5	14.2	-	-	9.6	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	7.4	0.8	-	-	0.4	-

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

Intersection	
Int Delay, s/veh	4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	105	113	0	102	104
Future Vol, veh/h	0	105	113	0	102	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	114	123	0	111	113

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	458	123	0	0	123	0
Stage 1	123	-	-	-	-	-
Stage 2	335	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	561	928	-	-	1464	-
Stage 1	902	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	516	928	-	-	1464	-
Mov Cap-2 Maneuver	516	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	666	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	3.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	928	1464	-
HCM Lane V/C Ratio	-	-	0.123	0.076	-
HCM Control Delay (s)	-	-	9.4	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Intersection	
Int Delay, s/veh	7.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	106	7	0	102	2
Future Vol, veh/h	0	106	7	0	102	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	115	8	0	111	2

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	232	8	0	0	8	0
Stage 1	8	-	-	-	-	-
Stage 2	224	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	756	1074	-	-	1612	-
Stage 1	1015	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	704	1074	-	-	1612	-
Mov Cap-2 Maneuver	704	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	7.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1074	1612	-
HCM Lane V/C Ratio	-	-	0.107	0.069	-
HCM Control Delay (s)	-	-	8.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	844	48	37	518	47	33
Future Vol, veh/h	844	48	37	518	47	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	150	-	150	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	917	52	40	563	51	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	969	0	1560	917
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	643	-
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	-	-	711	-	123	330
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	711	-	116	330
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	494	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	41.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	116	330	-	-	711	-
HCM Lane V/C Ratio	0.44	0.109	-	-	0.057	-
HCM Control Delay (s)	58.5	17.2	-	-	10.4	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	1.9	0.4	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	32	49	0	40	45
Future Vol, veh/h	0	32	49	0	40	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	53	0	43	49

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	188	53	0	0	53	0
Stage 1	53	-	-	-	-	-
Stage 2	135	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	801	1014	-	-	1553	-
Stage 1	970	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	779	1014	-	-	1553	-
Mov Cap-2 Maneuver	779	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	866	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	3.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1014	1553	-
HCM Lane V/C Ratio	-	-	0.034	0.028	-
HCM Control Delay (s)	-	-	8.7	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	32	17	0	40	5
Future Vol, veh/h	0	32	17	0	40	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	18	0	43	5

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	109	18	0	0	18	0
Stage 1	18	-	-	-	-	-
Stage 2	91	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	888	1061	-	-	1599	-
Stage 1	1005	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	864	1061	-	-	1599	-
Mov Cap-2 Maneuver	864	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	908	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	6.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1061	1599	-
HCM Lane V/C Ratio	-	-	0.033	0.027	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-