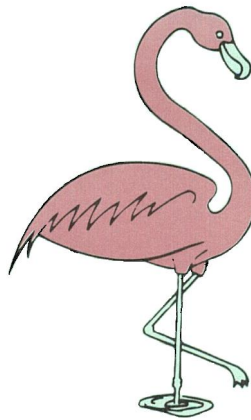


**PORT CITY APARTMENTS
TRAFFIC STUDY**

GLYNN COUNTY, GEORGIA

October 2022



BUCKHOLZ TRAFFIC



**BUCKHOLZ TRAFFIC
3585 KORI ROAD
JACKSONVILLE, FLORIDA 32257
(904) 886-2171 jwbuckholz@aol.com**

October 26, 2022

Mr. Brad Piazza, CEO
Port City Partners
1510 Bay Street
Brunswick, Georgia 31520

Re: Port City Apartments Traffic Study; Brunswick, Georgia

Dear Mr. Hunt:

Attached is the requested traffic study. If there are any questions or comments regarding this study please contact me.

Sincerely,

Jeffrey W. Buckholz, P.E., PTOE
Principal

This item has been digitally signed and sealed by Jeffrey W. Buckholz, P.E. on 10/26/22. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

INTRODUCTION

The proposed Port City Apartments residential development will contain 300 apartments and will be located in the northwest corner of the Lanier Boulevard/4th Avenue intersection in Brunswick, Georgia. Access to the development will be provided via one full access driveway on Lanier Boulevard and one full access driveway on 4th Avenue. Both Lanier Boulevard and 4th Avenue are two lane undivided roads with a posted speed limit of 35 mph. Lanier Boulevard is an urban minor collector while 4th Avenue is an urban principal arterial. Figure 1 shows the site location and surrounding road network and Appendix A provides the proposed site plan. The development is expected to be complete and fully occupied by the end of 2025. Consequently, 2025 was chosen as the design year for this study.

EXISTING TRAFFIC VOLUMES

Manual turning movement counts were conducted by Buckholz Traffic personnel during October of 2022 at the Lanier Boulevard/4th Avenue intersection (See Appendix B). The counts were conducted during weekday peak periods (6:45-8:45 AM and 3:45-6:00 PM) with school in session. The data was recorded at 15-minute intervals and includes a separate tabulation for trucks. Figure 2 provides a visual summary of existing weekday peak hour traffic flows in the area while Figure 3 provides a similar visual summary for weekday peak period traffic flows. Appendix C provides daily traffic volumes from the GDOT annual traffic counting program for two count stations near the site. The current Average Daily Traffic (ADT) on the portion of 4th Avenue near the site is about 5000 vehicles per day and the ADT on Lanier Boulevard near the site is approximately 1000 vehicles per day.

TRIP GENERATION

Trip generation calculations were carried out using the 11th edition of ITE's Trip Generation Manual and referencing land use code 221 (Suburban Mid-Rise Multifamily Housing). Table 1 contains the daily, AM peak hour, and PM peak hour trip generation calculations. During an average weekday, the development is expected to generate 1384 trips (692 entering and 692 exiting) with 120 trips (28 entering and 92 exiting) occurring during the AM peak hour and 117 trips (71 entering and 46 exiting) occurring during the PM peak hour. All of these trips will be new trips.

SITE TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

Peak hour site trips were directionally distributed based on the trip distribution percentages calculated in Figure 3. The resulting weekday peak hour traffic assignments for the development are provided in Figure 4. The values contained in this figure were obtained by multiplying the Table 1 trip generation results by the trip distribution percentages.

FUTURE TRAFFIC VOLUMES

The expected weekday AM and PM peak hour background (No Build) traffic volumes and total (Build) traffic volumes at the 4th Avenue/Lanier Boulevard intersection and at the two site drive intersections are graphically depicted in Figures 5 and 6. The 2025 background traffic volumes were obtained by multiplying the existing traffic volumes by an annual growth rate of 1%. This growth rate was obtained via a linear regression analysis of recent daily GDOT traffic counts on 4th Avenue and Lanier Boulevard (see Appendix C). Recent traffic growth in the area has been relatively stagnant and 1% is used as a conservatively high value. The 2025 Build traffic volumes were then obtained by adding expected site traffic to the 2025 No Build traffic volumes.

TURN LANE ANALYSIS

A formal analysis was made to determine if a right turn lane is warranted in the southbound direction on Lanier Boulevard at the Site Drive, in the westbound direction on 4th Avenue at the Site Drive, or in the westbound direction on 4th Avenue at Lanier Boulevard under 2025 Build conditions. The methodology contained in NCHRP Report 279 was used to conduct this analysis. As is indicated in Figures 7 through 9, right turn volumes will not be high enough to warrant an exclusive right turn lane at any of these locations. The results are supported by NCHRP Report 420 which requires 80 right turns per hour to warrant a right turn lane on a 2-lane roadway with a posted speed less than or equal to 45 mph.

Using the 2025 Build traffic volumes a formal analysis was also made to determine if an exclusive left turn lane is warranted on northbound Lanier Boulevard at the Site Drive, on eastbound 4th Avenue at the Site Drive, or on eastbound 4th Avenue at Lanier Boulevard. The methodology contained in a paper written by M.D. Harmelink entitled: "Volume Warrants for Left Turn Storage Lanes at Unsignalized Grade Intersections" was used to conduct this evaluation. The results indicate that traffic volumes will not be high enough to warrant an exclusive left turn lane at either site drive but will be high enough during the weekday AM peak hour to warrant an exclusive left turn lane on 4th Avenue at Lanier Boulevard. The supporting analyses are provided in Figures 10 through 15.

UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS

The 4th Avenue/Lanier Boulevard intersection and the two site drive intersections were analyzed using the two-way stop control methodology contained in the 2022 version of the Highway Capacity Software. Tables 2 and 3 summarize the capacity analysis results for existing conditions and for 2025 Build conditions. The supporting calculations are provided in Appendix D. The provision of a second approach lane on Lanier Boulevard at 4th Avenue should be considered to expedite traffic operations. In addition, a YIELD sign should be added at the channelized right turn slip lane on 4th Avenue at Lanier Boulevard.

During current weekday peak hours all minor movements at the 4th Avenue/Lanier Boulevard intersection operate at level of service C or better with minimal queuing and with a volume-to-capacity ratio of well less than one. This is expected to continue under 2025 Build conditions during the PM peak hour - but the level of service for the southbound left turn movement during the AM peak hour is expected to fall to D.

During 2025 weekday peak hours all minor movements at the Lanier Boulevard/Site Drive intersection are expected to operate at level of service B or better with minimal queuing and with a volume-to-capacity ratio of well less than one.

During 2025 weekday peak hours all minor movements at the 4th Avenue/Site Drive intersection are expected to operate at level of service B or better during the PM peak hour and level of service C or better during the AM peak hour. Once again, with minimal queuing and with a volume-to-capacity ratio of well less than one.

M:\2022\22-1793\CAD\FIG_01.dwg Date: 10-25-22 T: 16:18 By: AVDelacruz



(S) = TRAFFIC SIGNAL

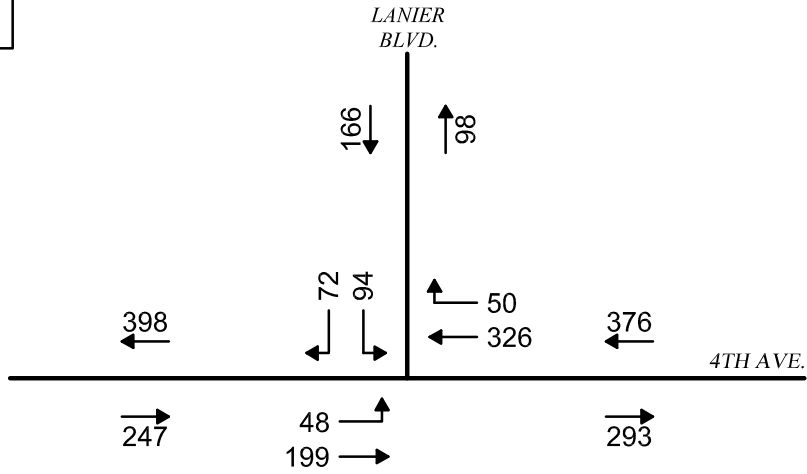
Buckholz Traffic

FIGURE 1

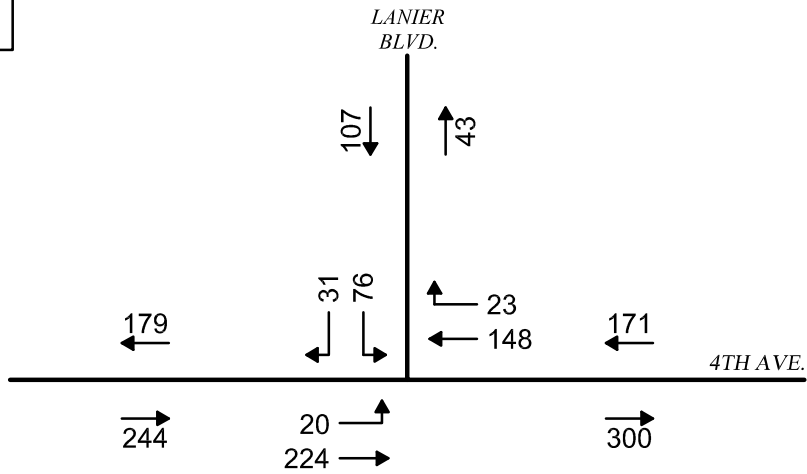
SITE LOCATION



7:30-8:30 AM



3:45-5:45 PM



Buckholz Traffic

FIGURE 2

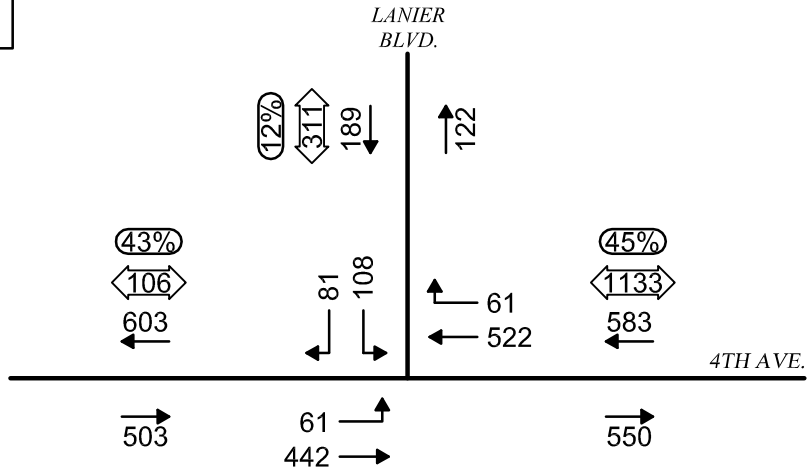
TRAFFIC
COUNTS

WEEKDAY PEAK HOURS

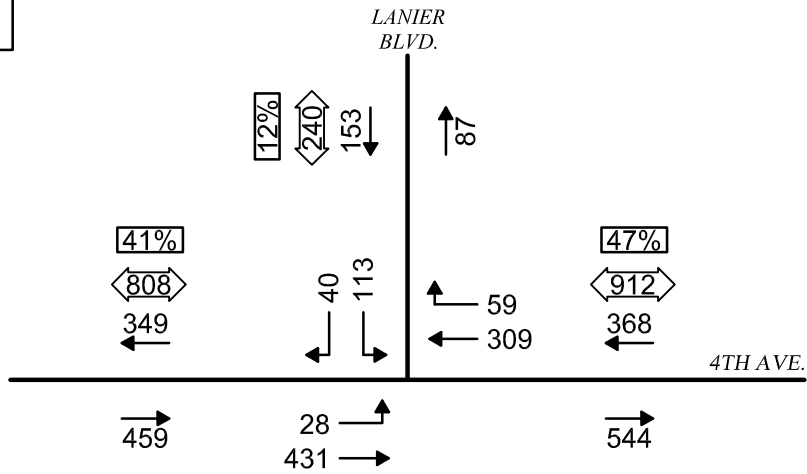




6:45-8:45 AM



3:45-6:00 PM



Buckholz Traffic

FIGURE 3

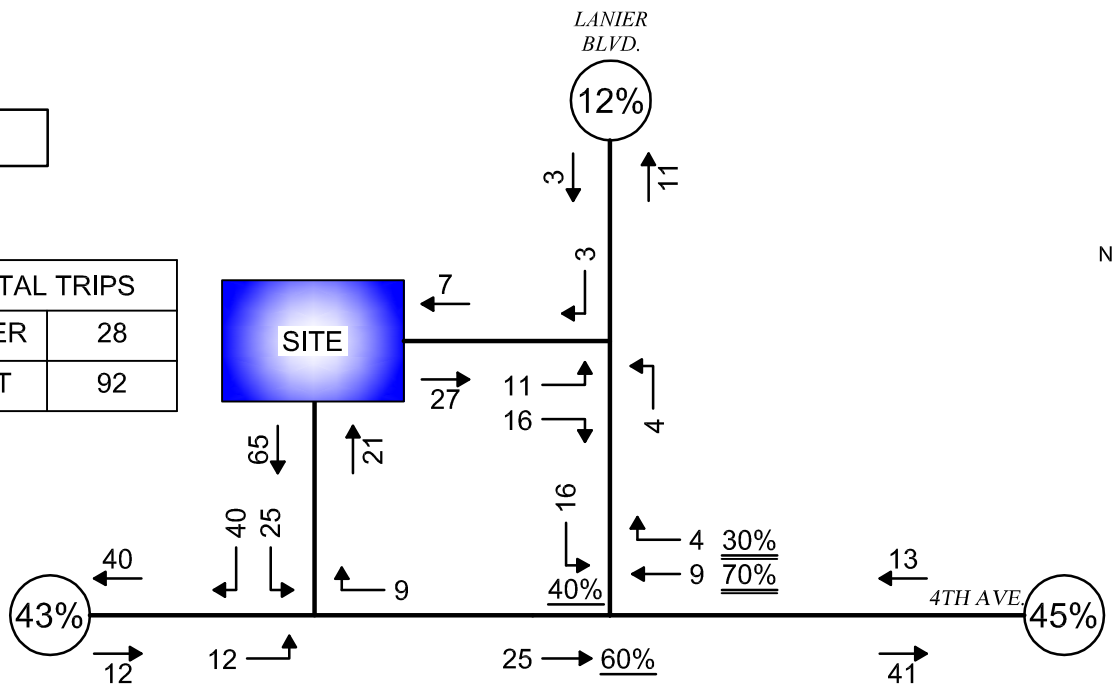
TRAFFIC
COUNTS

WEEKDAY PEAK PERIODS



AM

TOTAL TRIPS	
ENTER	28
EXIT	92



PM

TOTAL TRIPS	
ENTER	71
EXIT	46

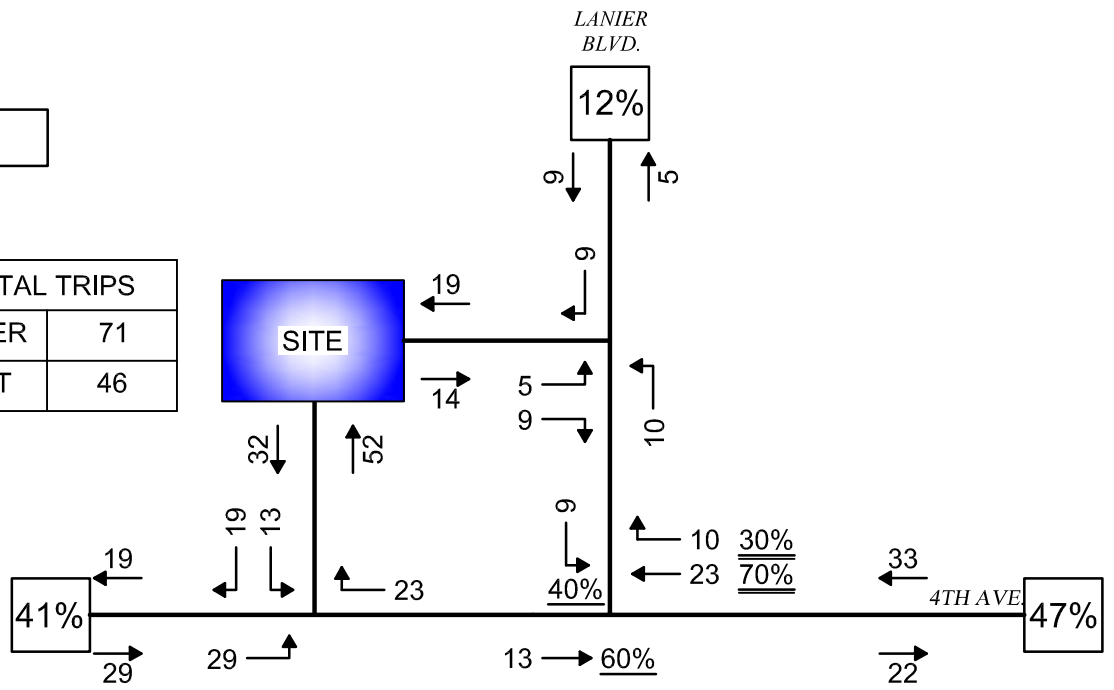


FIGURE 4

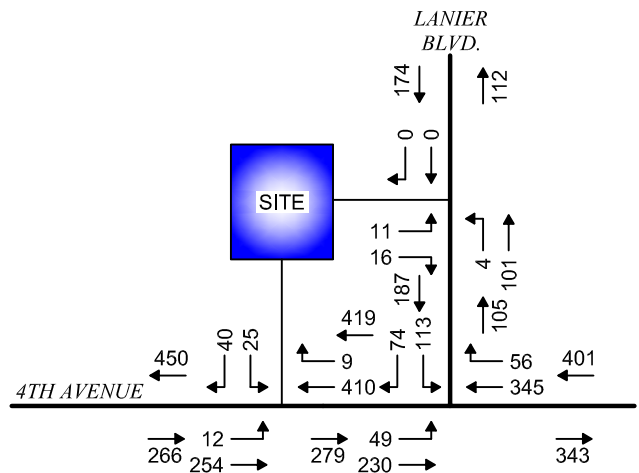
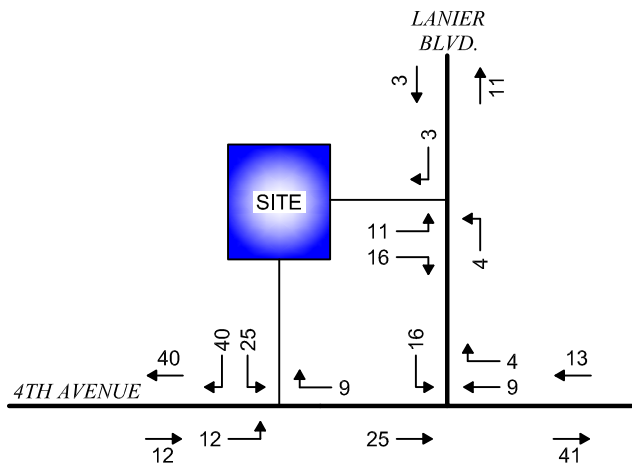
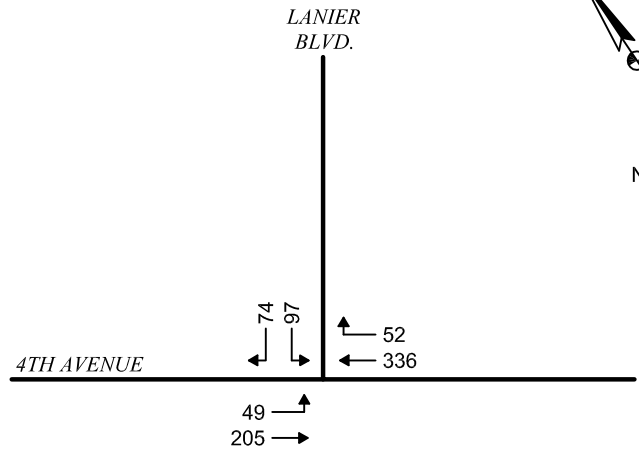
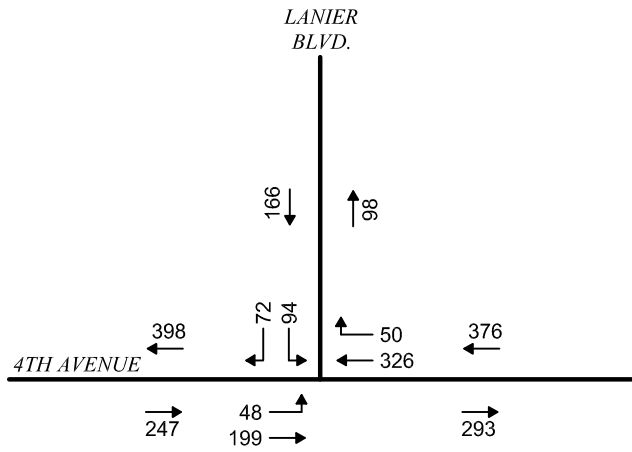
SITE TRAFFIC ASSIGNMENTS

WEEKDAY PEAK HOURS



Buckholz Traffic

M:\2022\22-1793\CAD\FIG_05.dwg Date:10-25-22 T:17:09 By:AVDelacruz



Buckholz Traffic

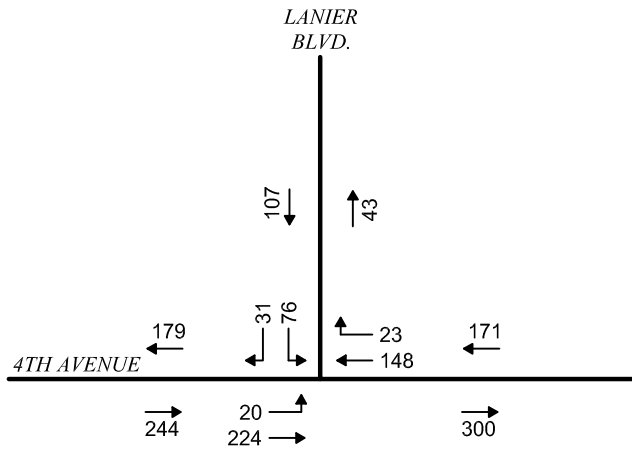
FIGURE 5

2025 BUILD TRAFFIC
4TH AVENUE / LANIER BLVD.

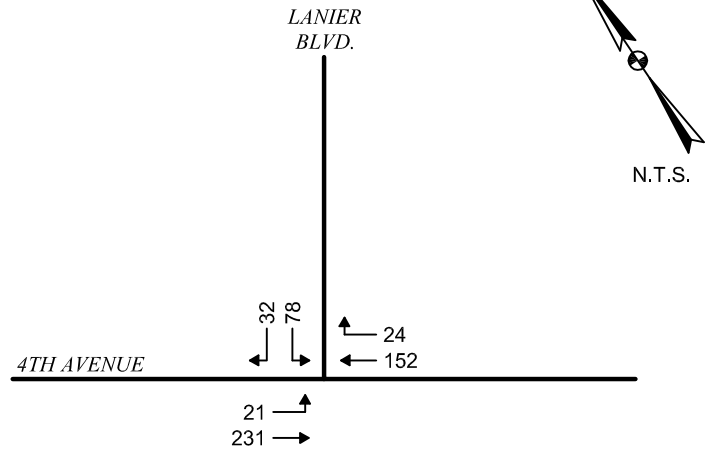
WEEKDAY AM PEAK HOUR



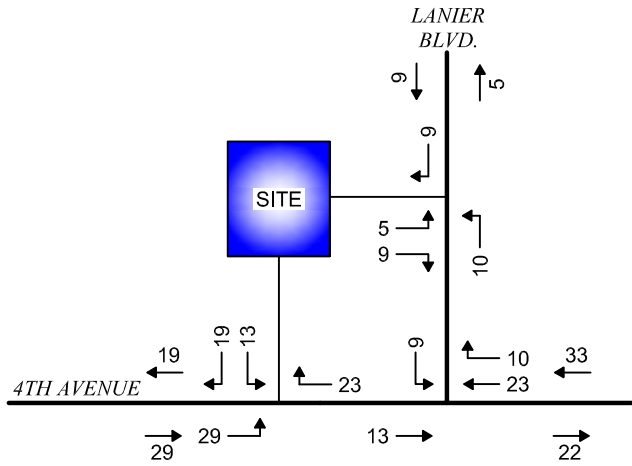
M:\2022\22-1793\CAD\FIG_06.dwg Date:10-25-22 T:17:18 By:AVDelacruz



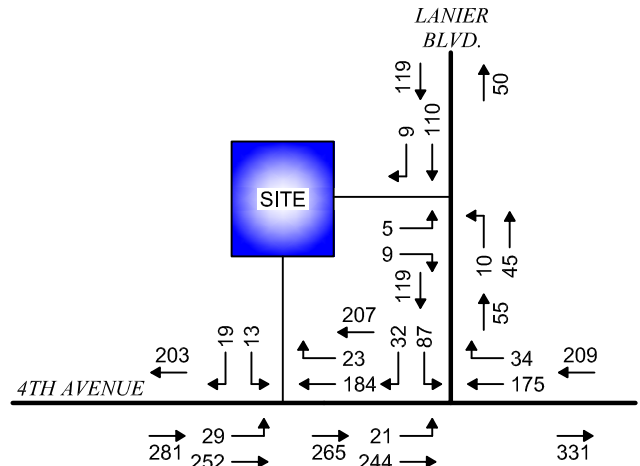
EXISTING TRAFFIC
10/20/22
3:45-4:45 PM



2025 NO BUILD TRAFFIC
AVERAGE ANNUAL GROWTH RATE = 1.0% (GF=1.03)



SITE TRAFFIC



2025 BUILD TRAFFIC

Buckholz Traffic

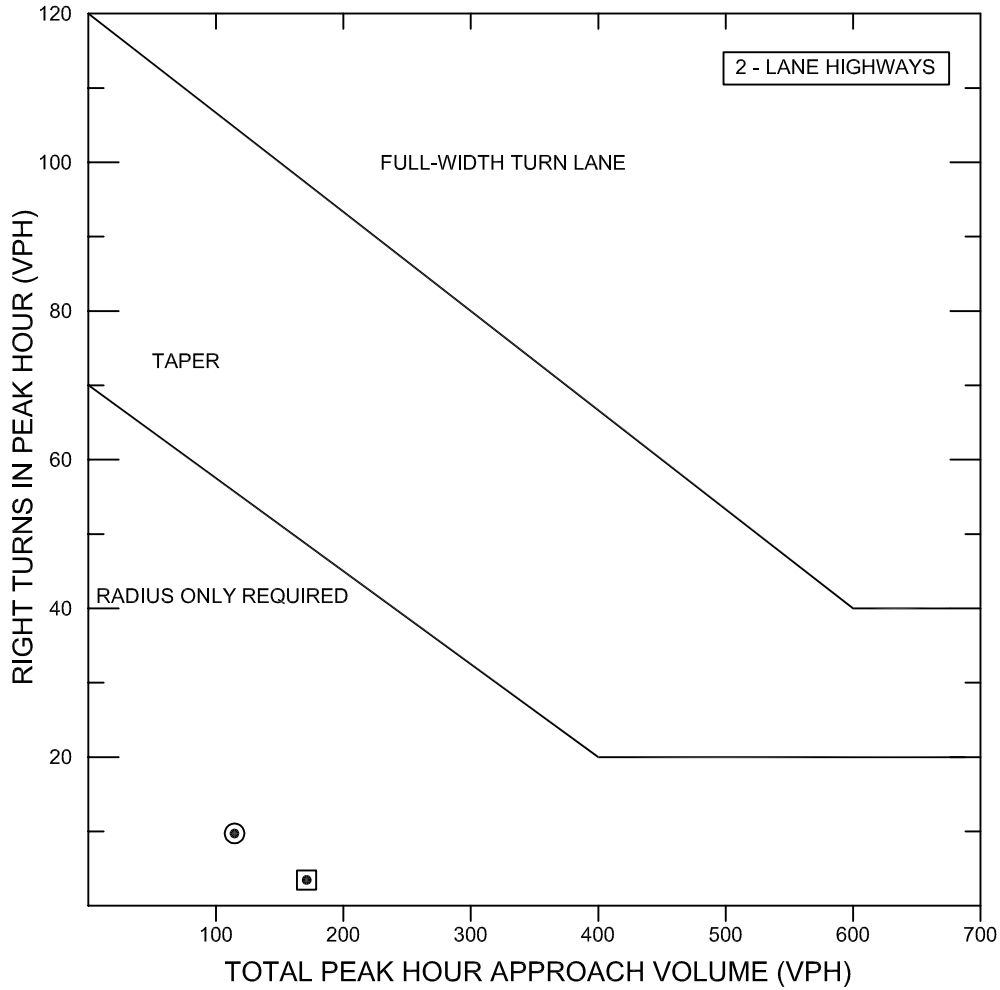
FIGURE 6

2025 BUILD TRAFFIC
4TH AVENUE / LANIER BLVD.

WEEKDAY PM PEAK HOUR



SOUTHBOUND LANIER BLVD. @ SITE DRIVEWAY



NOMOGRAPH FOR RIGHT TURN LANES

SOURCE: TRANSPORTATION RESEARCH BOARD NCHRP REPORT #279

▣ AM PEAK HOUR

V _A	174
V _R	3

⊙ PM PEAK HOUR

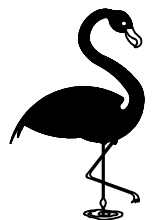
V _A	119
V _R	9

NCHRP 420	
2-LANE	≤ 45 MPH

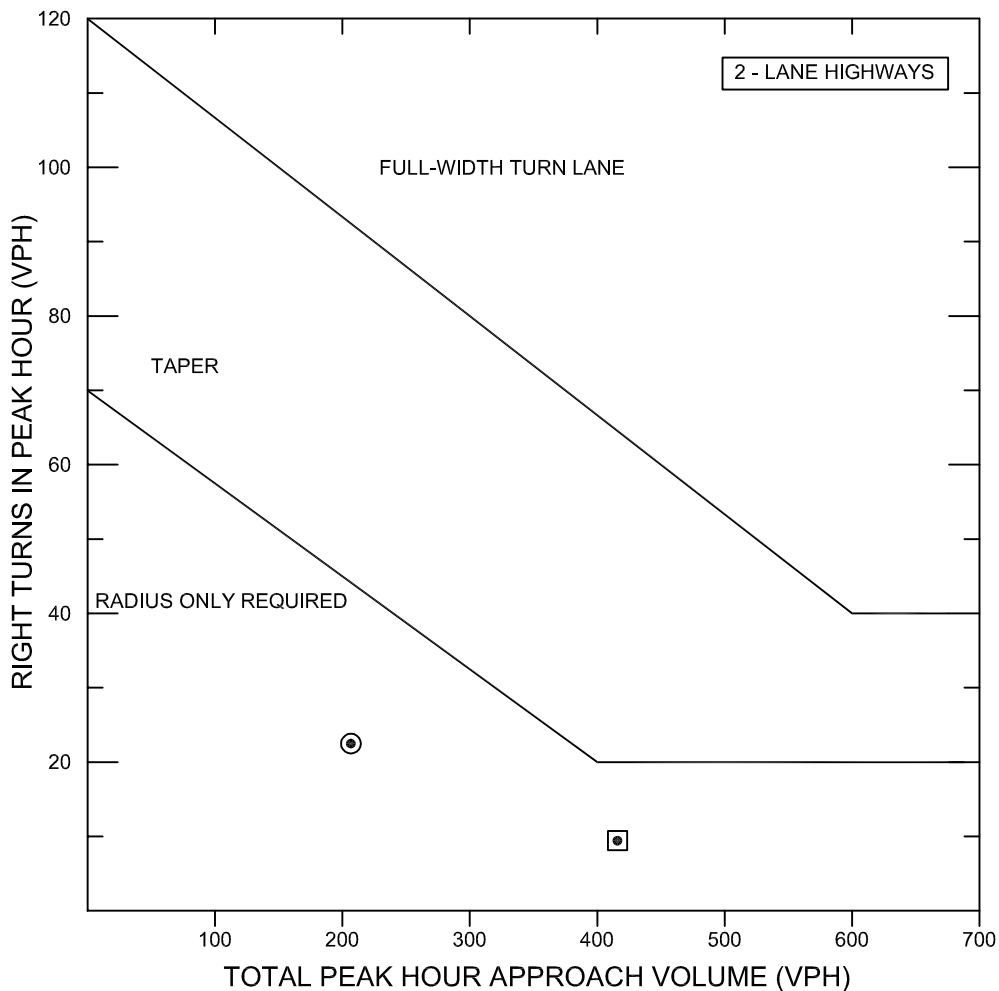
3 & 9 < 80 REQUIRED

FIGURE 7

RIGHT TURN
LANE ANALYSIS



WESTBOUND 4TH AVENUE @ SITE DRIVEWAY



NOMOGRAPH FOR RIGHT TURN LANES

SOURCE: TRANSPORTATION RESEARCH BOARD NCHRP REPORT #279

▣ AM PEAK HOUR

⊙ PM PEAK HOUR

V _A	419
V _R	9

V _A	207
V _R	23

NCHRP 420	
2-LANE	≤ 45 MPH

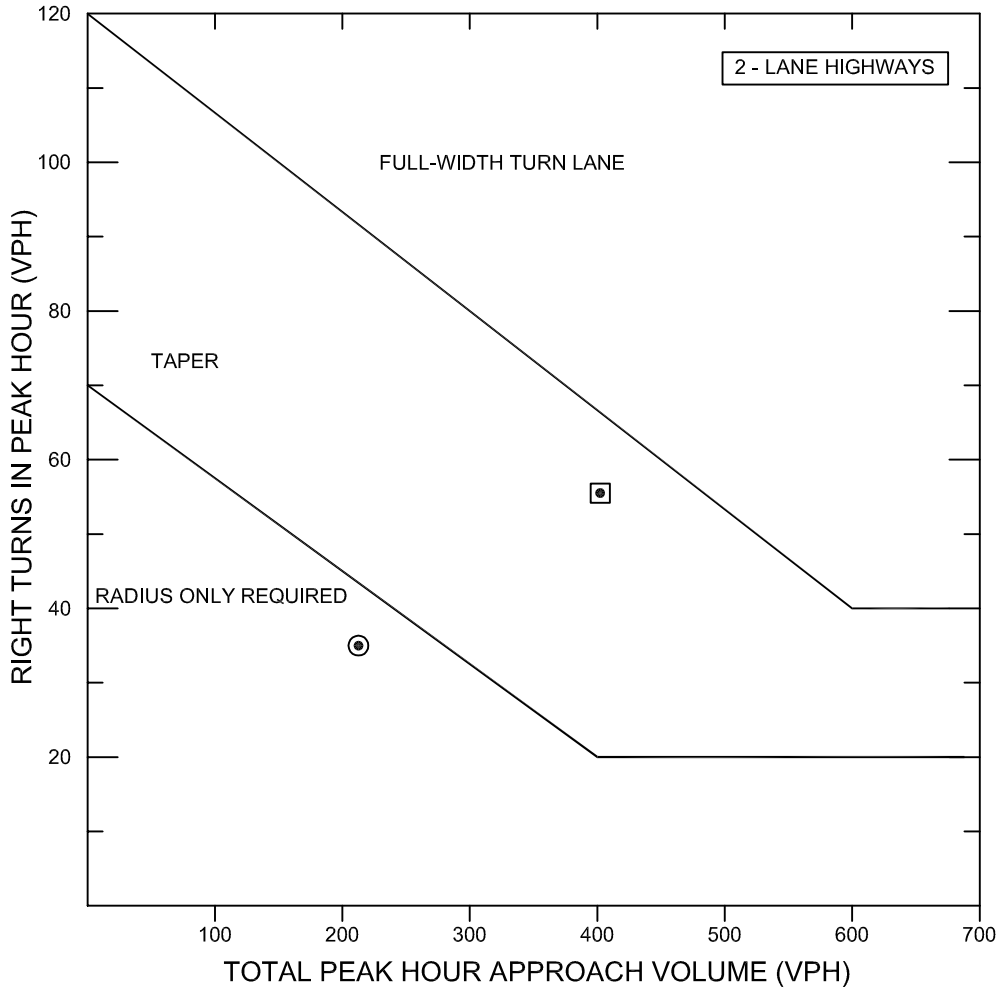
9 & 23 < 80 REQUIRED

FIGURE 8

RIGHT TURN
LANE ANALYSIS



WESTBOUND 4TH AVENUE @ LANIER BLVD.



NOMOGRAPH FOR RIGHT TURN LANES

SOURCE: TRANSPORTATION RESEARCH BOARD NCHRP REPORT #279

▣ AM PEAK HOUR

⊙ PM PEAK HOUR

V _A	401
V _R	56

V _A	209
V _R	34

NCHRP 420	
2-LANE	≤ 45 MPH

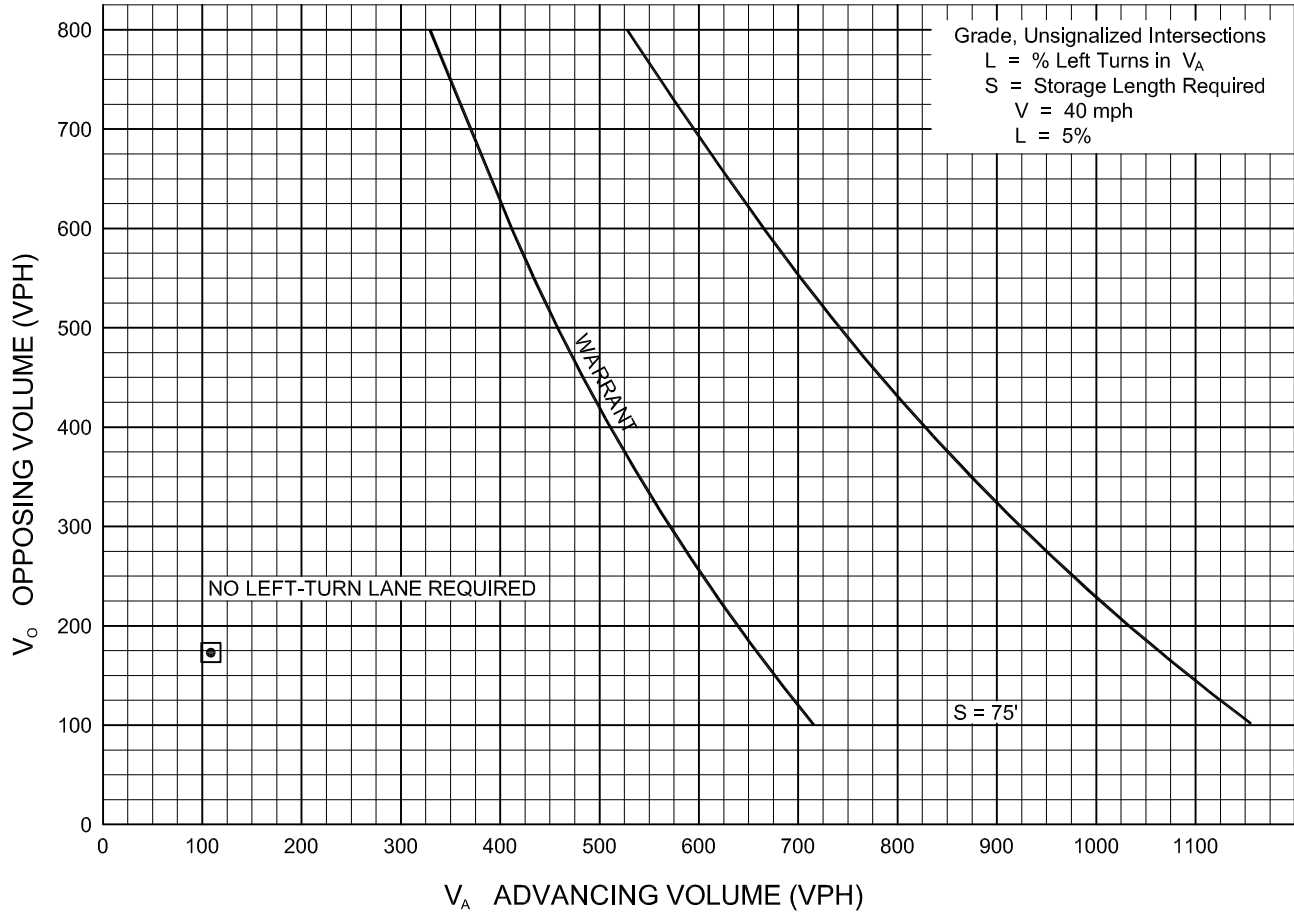
56 & 34 < 80 REQUIRED

FIGURE 9

RIGHT TURN
LANE ANALYSIS



NORTHBOUND LANIER BLVD. @ SITE DRIVE



WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

▣ AM PEAK HOUR

$V_A = 105$
$V_O = 174$
$V_L = 4$
$\%LT = \frac{V_L}{V_A} = \frac{4}{105} = 4\%$

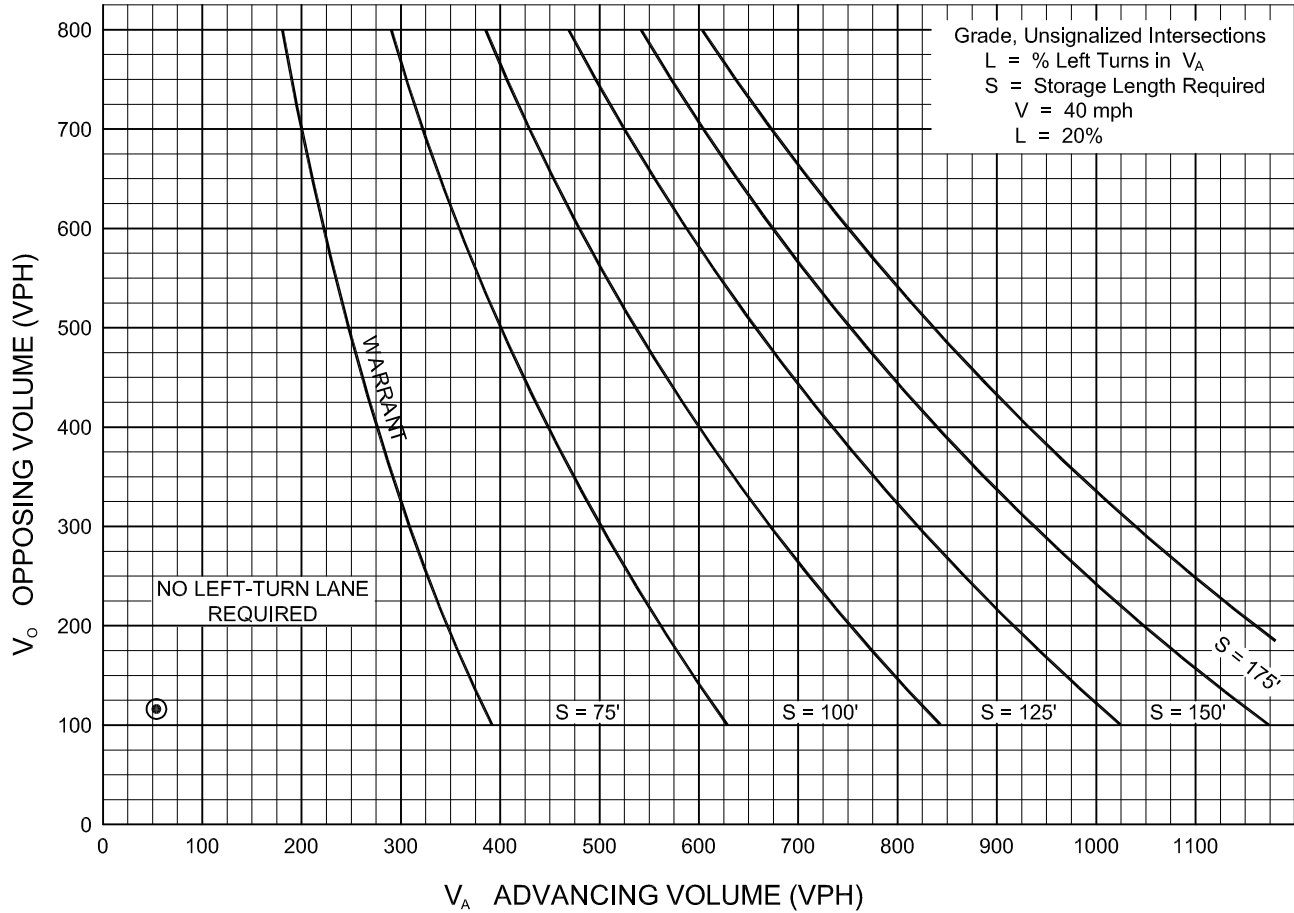
FIGURE 10

LEFT TURN
LANE ANALYSIS



SOURCE: HARMELINK

NORTHBOUND LANIER BLVD. @ SITE DRIVE



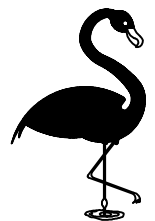
WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

⊙ PM PEAK HOUR

$V_A = 55$
$V_O = 119$
$V_L = 10$
$\%LT = \frac{V_L}{V_A} = \frac{10}{55} = 18\%$

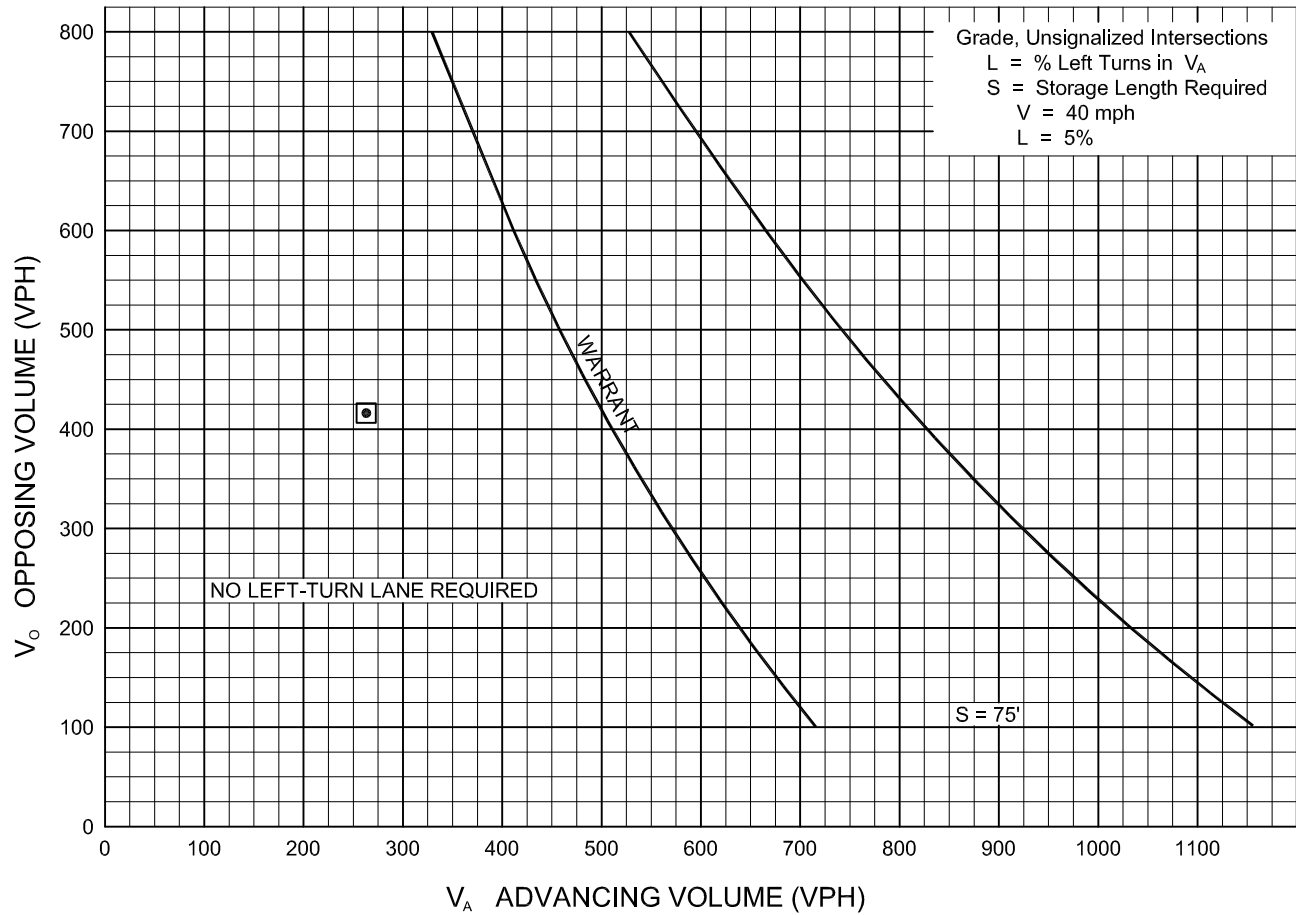
FIGURE 11

LEFT TURN
LANE ANALYSIS



SOURCE: HARMELINK

EASTBOUND 4TH AVENUE @ SITE DRIVE



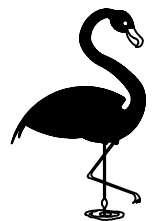
WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

▣ AM PEAK HOUR

$V_A = 266$
$V_O = 419$
$V_L = 12$
$\%LT = \frac{V_L}{V_A} = \frac{12}{266} = 5\%$

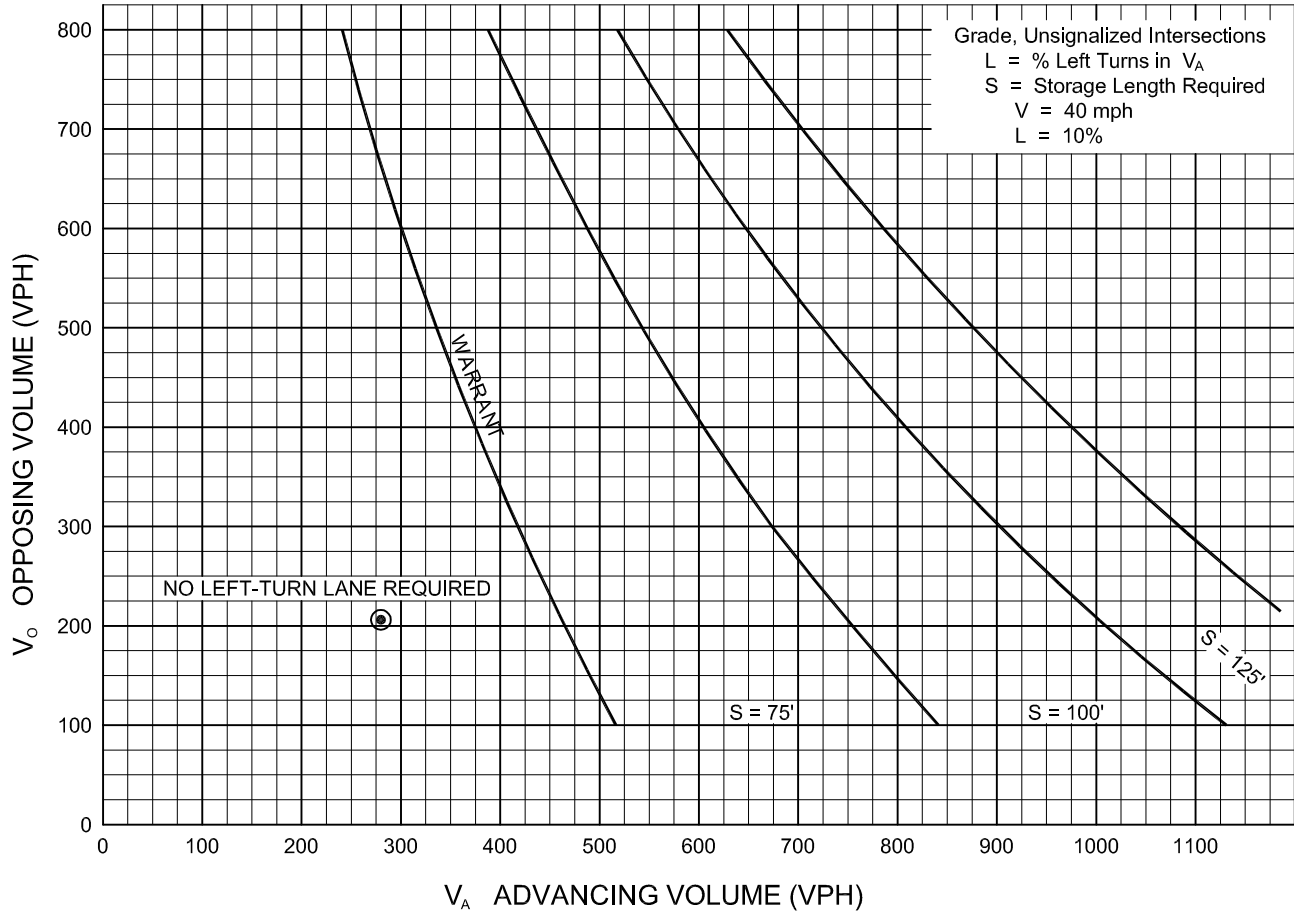
FIGURE 12

LEFT TURN
LANE ANALYSIS



SOURCE: HARMELINK

EASTBOUND 4TH AVENUE @ SITE DRIVE



WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

⊙ PM PEAK HOUR

$V_A = 181$
$V_O = 207$
$V_L = 29$
$\%LT = \frac{V_L}{V_A} = \frac{29}{281} = 10\%$

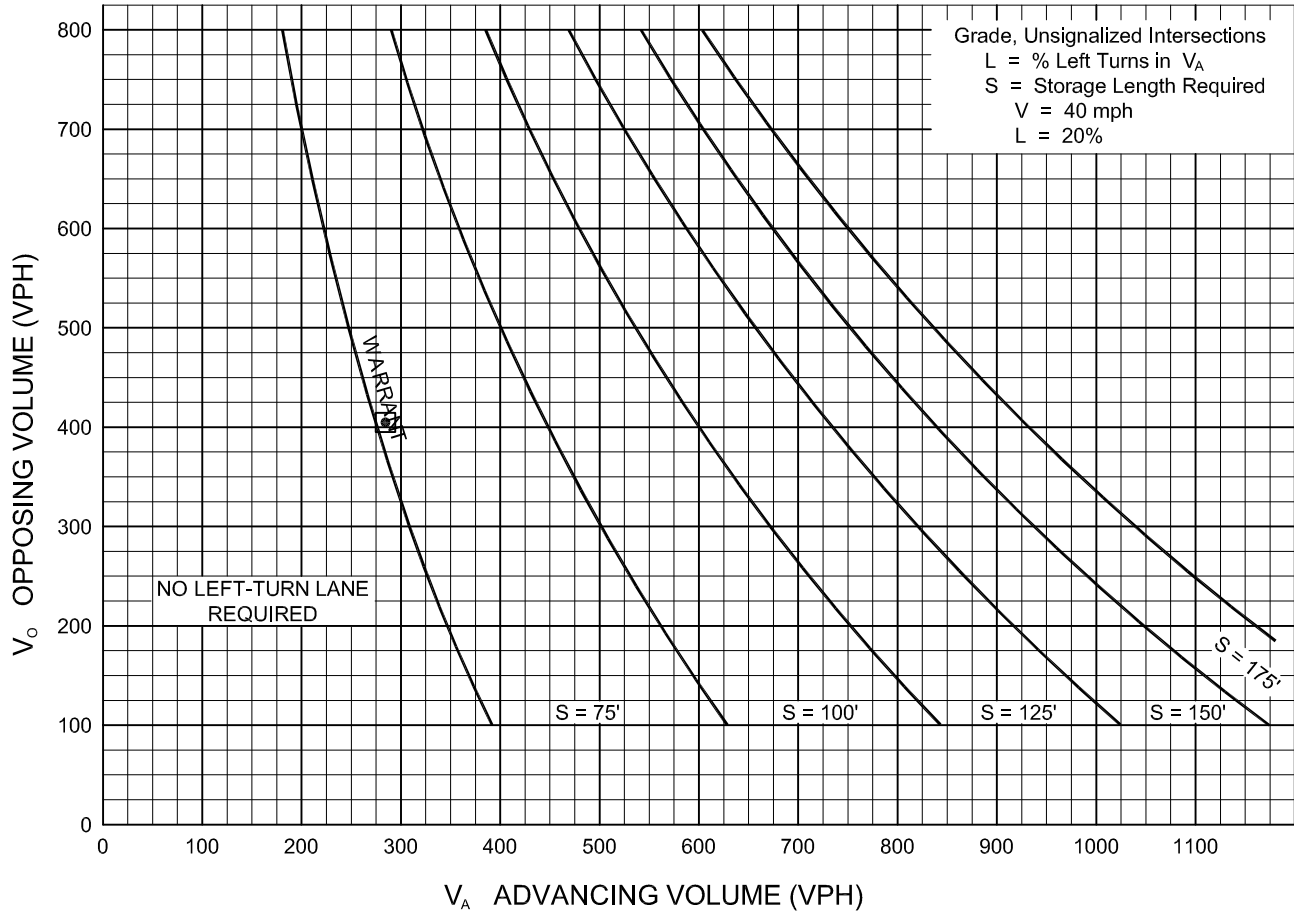
FIGURE 13

LEFT TURN
LANE ANALYSIS



SOURCE: HARMELINK

EASTBOUND 4TH AVENUE @ LANIER BLVD.



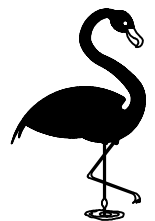
WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

☐ AM PEAK HOUR

$V_A = 279$
$V_O = 401$
$V_L = 49$
$\%LT = \frac{V_L}{V_A} = \frac{49}{279} = 18\%$

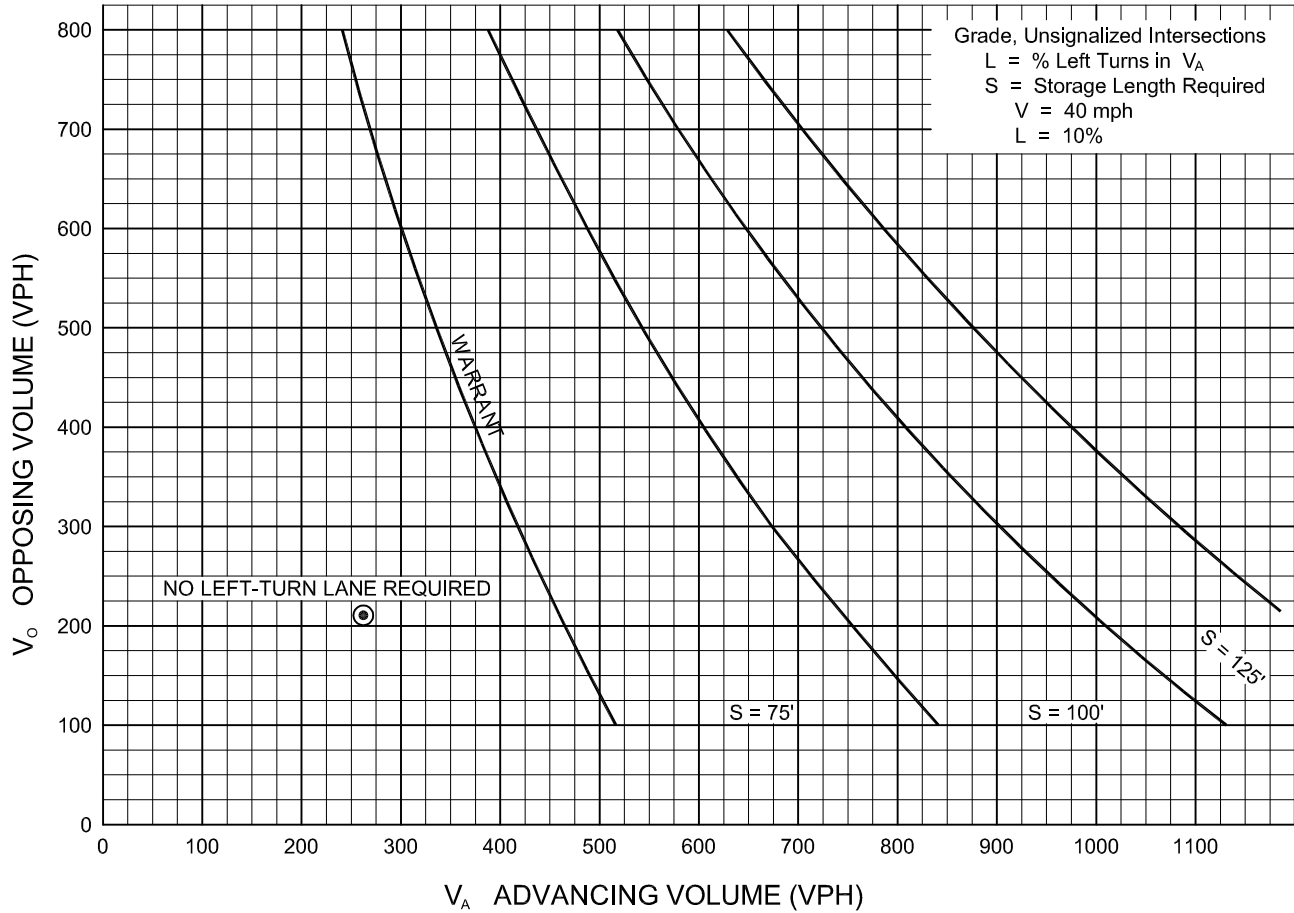
FIGURE 14

LEFT TURN
LANE ANALYSIS



SOURCE: HARMELINK

EASTBOUND 4TH AVENUE @ LANIER BLVD.



WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAYS

⊙ PM PEAK HOUR

$V_A = 265$
$V_O = 209$
$V_L = 21$
$\%LT = \frac{V_L}{V_A} = \frac{21}{265} = 8\%$

FIGURE 15

LEFT TURN
LANE ANALYSIS



SOURCE: HARMELINK

TABLE 1

TRIP GENERATION CALCULATIONS

**MULTIFAMILY HOUSING (MID-RISE)
Not Close to Rail Transit**

Land Use Code 221

T = Number of Vehicle Trip Ends

X = Number of Dwelling Units = 300

<u>TIME PERIOD</u>	<u>TRIP GENERATION EQUATION</u>	<u>TOTAL TRIP ENDS</u>	<u>PERCENT ENTERING</u>	<u>PERCENT EXITING</u>	<u>TOTAL TRIP ENDS ENTERING</u>	<u>TOTAL TRIP ENDS EXITING</u>
WEEKDAY						
Daily	$T = 4.77 (X) - 46.46$	1384	50%	50%	692	692
AM Peak Hour	$T = 0.44 (X) - 11.61$	120	23%	77%	28	92
PM Peak Hour	$T = 0.39 (X) + 0.34$	117	61%	39%	71	46

SOURCE: Institute of Transportation Engineers, "Trip Generation", 11th Edition (2021)

TABLE 2**UNSIGNALIZED INTERSECTION CAPACITY RESULTS
4TH AVENUE / LANIER BOULEVARD**

2022 CONDITIONS	WEEKDAY AM PEAK HOUR			
Movement	LOS	Delay	v/c Ratio	95th % Queue (vehicles)
Eastbound Left Turn	A	8.9 sec/veh	0.06	1
Southbound Approach	C	22.9 sec/veh	0.52	2.9

2022 CONDITIONS	WEEKDAY PM PEAK HOUR			
Movement	LOS	Delay	v/c Ratio	95th % Queue (vehicles)
Eastbound Left Turn	A	7.9 sec/veh	0.02	1
Southbound Approach	B	13.5 sec/veh	0.25	1

2025 BUILD CONDITIONS	WEEKDAY AM PEAK HOUR			
Movement	LOS	Delay	v/c Ratio	95th % Queue (vehicles)
Eastbound Left Turn	A	9.0 sec/veh	0.06	1
Southbound Left Turn	D	28.1 sec/veh	0.48	2.5
Southbound Right Turn	B	12.2 sec/veh	0.16	1

2025 BUILD CONDITIONS	WEEKDAY AM PEAK HOUR			
Movement	LOS	Delay	v/c Ratio	95th % Queue (vehicles)
Eastbound Left Turn	A	8.0 sec/veh	0.02	1
Southbound Left Turn	C	15.7 sec/veh	0.25	1
Southbound Right Turn	A	9.8 sec/veh	0.05	1

TABLE 3**UNSIGNALIZED INTERSECTION CAPACITY RESULTS
SITE DRIVE INTERSECTIONS****4TH AVENUE / SITE DRIVE**

2025 BUILD CONDITIONS	WEEKDAY AM PEAK HOUR			
Movement	LOS	Delay	v/c Ratio	95th % Queue (vehicles)
Eastbound Left Turn	A	8.5 sec/veh	0.01	1
Southbound Approach	C	15.4 sec/veh	0.19	1

2025 BUILD CONDITIONS	WEEKDAY PM PEAK HOUR			
Movement	LOS	Delay	v/c Ratio	95th % Queue (vehicles)
Eastbound Left Turn	A	7.9 sec/veh	0.03	1
Southbound Approach	B	11.7 sec/veh	0.07	1

LANIER BOULEVARD / SITE DRIVE

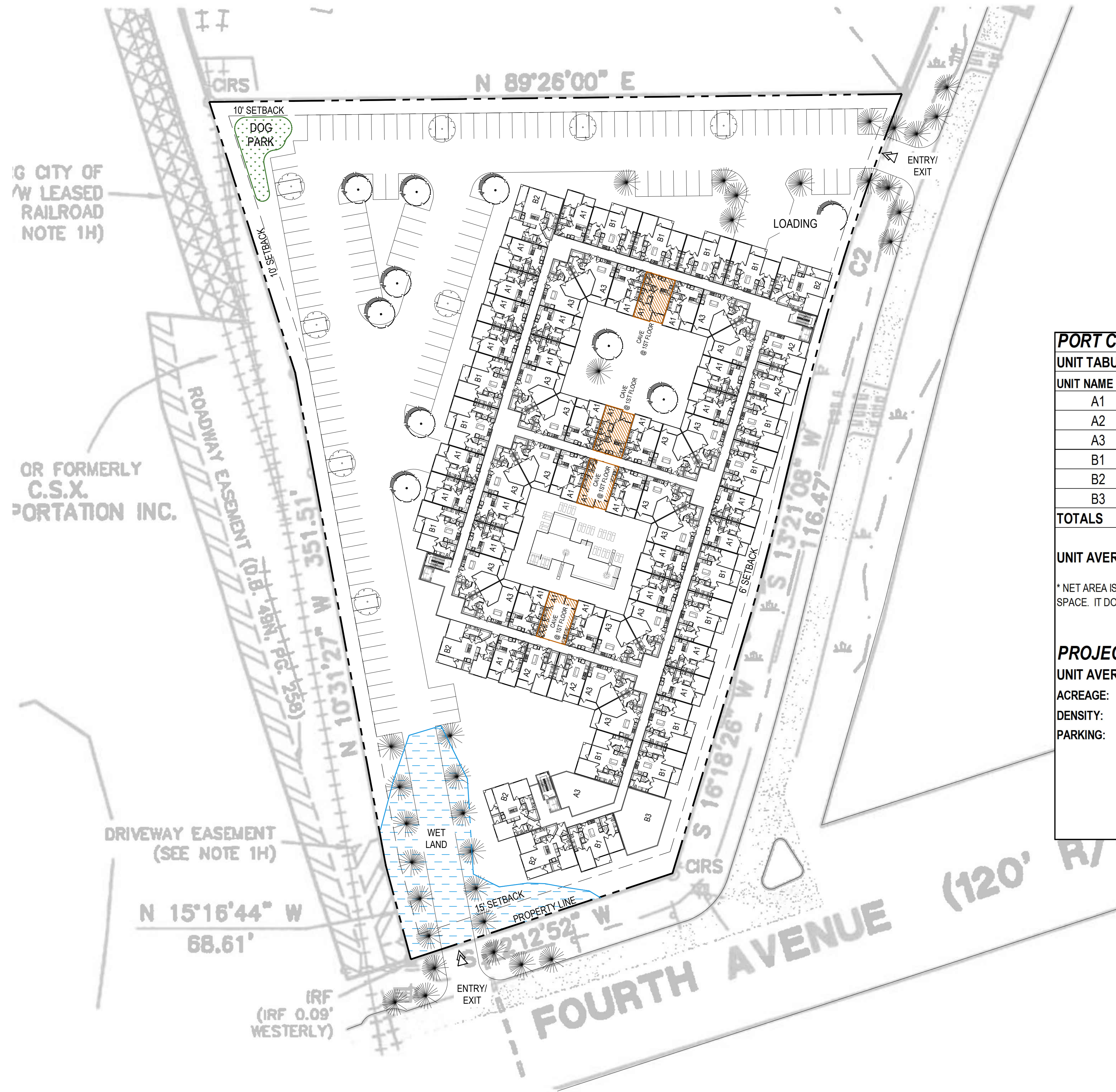
2025 BUILD CONDITIONS	WEEKDAY AM PEAK HOUR			
Movement	LOS	Delay	v/c Ratio	95th % Queue (vehicles)
Northbound Left Turn	A	7.7 sec/veh	0.00	1
Eastbound Approach	B	10.1 sec/veh	0.05	1

2025 BUILD CONDITIONS	WEEKDAY PM PEAK HOUR			
Movement	LOS	Delay	v/c Ratio	95th % Queue (vehicles)
Northbound Left Turn	A	7.5 sec/veh	0.01	1
Eastbound Approach	A	9.4 sec/veh	0.02	1

APPENDIX A

SITE PLAN





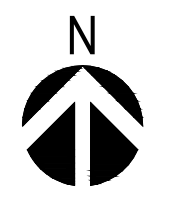
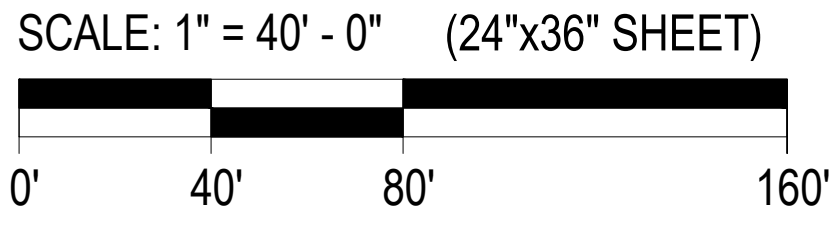
PORT CITY APARTMENTS						PORT CITY PARTNERS	2020371
UNIT TABULATION - 4 STORY RESIDENTIAL OVER PODIUM							7/12/22
UNIT NAME	UNIT TYPE	NET AREA(SF)	UNIT COUNT	PERCENTAGE	TOTAL AREA	% BREAKDOWN	
A1	1br/1ba	632	124	41%	78,368	72%	
A2	1br/1ba	687	16	5%	10,992		
A3	1br/1ba	788	76	25%	59,888		
B1	2br/2ba	991	60	20%	59,460	28%	
B2	2br/2ba	1,078	20	7%	21,560		
B3	2br/2ba	1,150	4	1%	4,600		
TOTALS			300	100%	234,868		

UNIT AVERAGE NET SF : 783

* NET AREA IS COMPUTED TO INCLUDE SQUARE FOOTAGE FROM EXTERIOR FACE OF ALL EXTERIOR FRAME WALLS THAT ENCLOSE A/C SPACE. IT DOES NOT INCLUDE PATIOS, BALCONIES, PATIO/BALCONY STORAGE.

PROJECT DATA

UNIT AVERAGE NET SF :	783 S.F.
ACREAGE:	4.31 GROSS ACRES
DENSITY:	70 UNITS/ACRE
PARKING:	
REQUIRED	300 SPACES
PROVIDED	327 SPACES
GARAGE PARKING	202 GARAGE SPACES
SURFACE PARKING	125 SURFACE SPACES
	1.09 SPACES/UNIT



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APPENDIX B

TURNING MOVEMENT COUNTS



**TABLE B-1
4TH AVENUE / LANIER BOULEVARD
TURNING MOVEMENT COUNTS - ALL VEHICLES**

Friday, October 21, 2022

	LANIER BOULEVARD				4TH AVENUE		All
	Left Turn Out	Right Turn In	Left Turn In	Right Turn Out	Eastbound	Westbound	
6:45-7:00 AM	4	1	2	3	29	103	142
7:00-7:15 AM	2	2	6	2	114	27	153
7:15-7:30 AM	4	6	4	3	66	36	119
7:30-7:45 AM	16	8	6	9	64	89	192
7:45-8:00 AM	19	14	12	18	44	98	205
8:00-8:15 AM	30	23	18	30	53	95	249
8:15-8:30 AM	29	5	12	15	38	44	143
8:30-8:45 AM	4	2	1	1	34	30	72
AM PEAK PERIOD:	108	61	61	81	442	522	1275

AM PEAK HOUR: 7:30-8:30 AM	94	50	48	72	199	326	789
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0.79

Thursday, October 20, 2022

	LANIER BOULEVARD				4TH AVENUE		All
	Left Turn Out	Right Turn In	Left Turn In	Right Turn Out	Eastbound	Westbound	
3:45-4:00 PM	37	6	9	17	67	32	168
4:00-4:15 PM	23	7	3	11	47	33	124
4:15-4:30 PM	8	4	5	2	41	34	94
4:30-4:45 PM	8	6	3	1	69	49	136
4:45-5:00 PM	7	6	1	2	39	26	81
5:00-5:15 PM	11	8	3	2	52	33	109
5:15-5:30 PM	3	6	1	4	38	31	83
5:30-5:45 PM	6	4	1	1	38	43	93
5:45-6:00 PM	10	12	2	0	40	28	92
PM PEAK PERIOD:	113	59	28	40	431	309	980

PM PEAK HOUR: 3:45-4:45 PM	76	23	20	31	224	148	522
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0.78

BUCKHOLZ TRAFFIC

**TABLE B-2
4TH AVENUE / LANIER BOULEVARD
TURNING MOVEMENT COUNTS - TRUCKS**

Friday, October 21, 2022

	LANIER BOULEVARD				4TH AVENUE		All
	Left Turn Out	Right Turn In	Left Turn In	Right Turn Out	Eastbound	Westbound	
6:45-7:00 AM	1	0	0	2	2	2	7
7:00-7:15 AM	0	2	0	0	3	2	7
7:15-7:30 AM	0	0	0	0	1	2	3
7:30-7:45 AM	0	0	1	0	4	5	10
7:45-8:00 AM	0	0	1	0	4	4	9
8:00-8:15 AM	1	4	6	0	8	5	24
8:15-8:30 AM	0	1	3	0	7	5	16
8:30-8:45 AM	1	0	0	0	4	5	10
AM PEAK PERIOD:	3	7	11	2	33	30	86

AM PEAK HOUR:	1	5	11	0	23	19	59
Percent Trucks	1%	10%	23%	0%	12%	6%	7%

Thursday, October 20, 2022

	LANIER BOULEVARD				4TH AVENUE		All
	Left Turn Out	Right Turn In	Left Turn In	Right Turn Out	Eastbound	Westbound	
3:45-4:00 PM	0	0	2	0	10	3	15
4:00-4:15 PM	0	0	1	0	4	3	8
4:15-4:30 PM	1	1	0	0	2	3	7
4:30-4:45 PM	0	0	0	0	3	1	4
4:45-5:00 PM	1	0	0	0	1	1	3
5:00-5:15 PM	0	1	0	0	1	1	3
5:15-5:30 PM	0	1	0	0	0	1	2
5:30-5:45 PM	0	0	0	0	2	1	3
5:45-6:00 PM	1	2	0	0	2	0	5
PM PEAK PERIOD:	3	5	3	0	25	14	50

PM PEAK HOUR:	1	1	3	0	19	10	34
Percent Trucks	1%	4%	15%	0%	8%	7%	7%

BUCKHOLZ TRAFFIC

APPENDIX C

GDOT TRAFFIC DATA

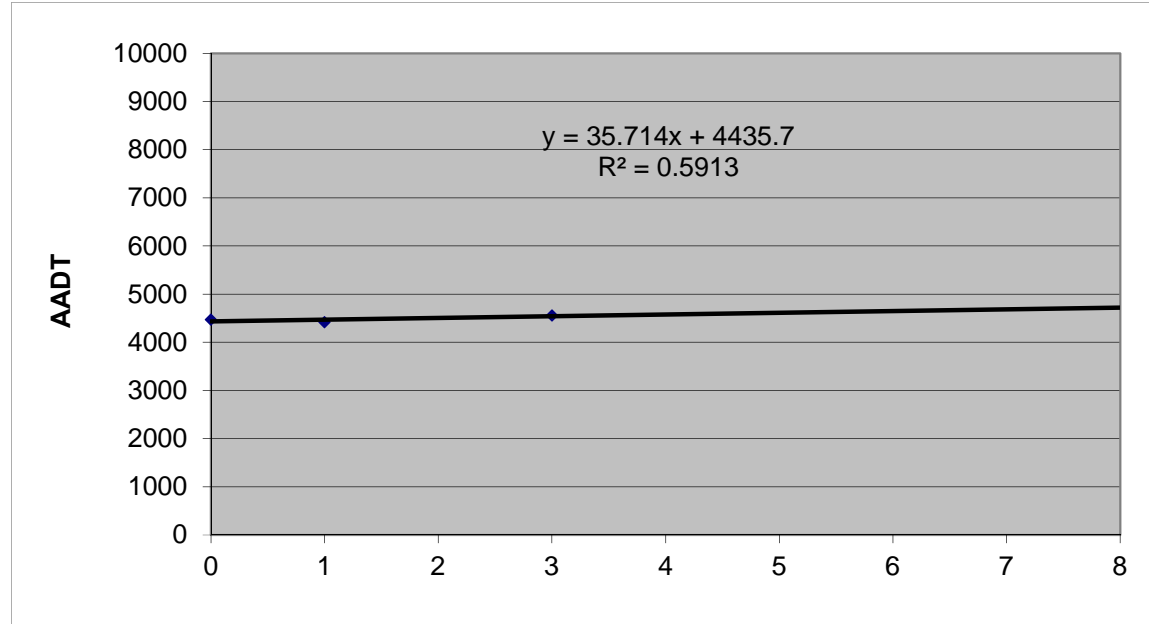


**TABLE C-1
LINEAR REGRESSION ANALYSIS**

4th Avenue, East of Lanier Boulevard

<u>Year</u>	<u>X</u>	Actual AADT (Y)	Predicted AADT
2017	0	4470	4436
2018	1	4420	4471
2019	2		4507
2020	3	4560	4543
2021	4		4579
2022	5		4614
2023	6		4650
2024	7		4686
2025	8		4721

i = 0.8%



BUCKHOLZ TRAFFIC

0000127_0187 - 127-0187

Description: 4th Ave

County: Glynn

Route number: 00002700

LRS section: 1271002700

Functional class: 3U - Principal Arterial - Other (Urban)

Coordinates: 31,13516738, -81,47991829

Site Data

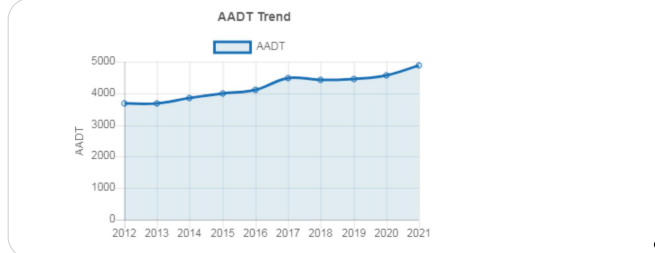
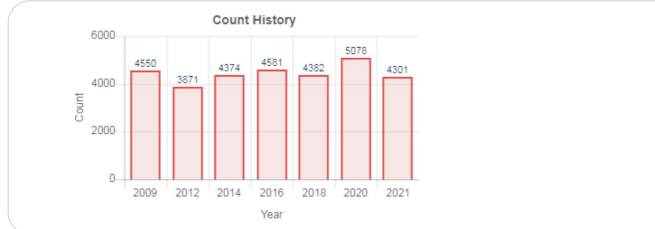
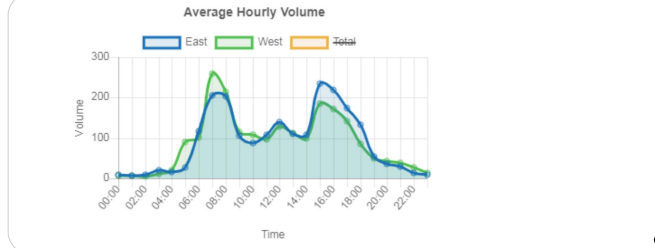


Count History

Year	Month	Count type	Duration	Count
2021	November	Class	48 hours	4301
2020	September	Class	48 hours	5078
2018	January	Class	48 hours	4382
2016	November	Class	48 hours	4581
2014	March	Class	48 hours	4374
2012	July	Class	48 hours	3871
2009	April	Class	48 hours	4550

Annual Statistics

Data Item	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Statistics type	-	-	-	Estimated	Estimated	Actual	Actual	Estimated	Actual	Estimated
AADT	3680	3670	3860	3990	4110	4470	4420	4460	4560	4890
K-Factor	-	-	0.108	0.108	0.108	0.119	0.107	0.107	0.130	0.130
D-Factor	-	-	0.600	0.600	0.600	0.610	0.560	0.560	0.500	0.500
Future AADT	-	-	-	-	4300	5630	5950	6100	6100	7470



FHWA Vehicle Classification

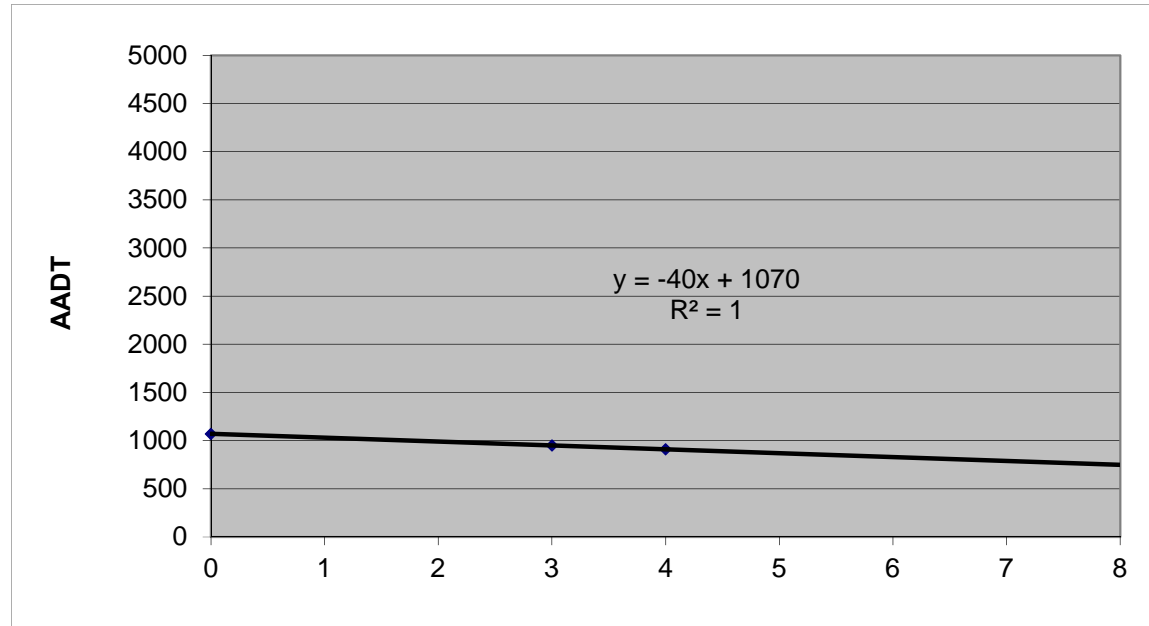
1. Motorcycles 2 axes, 2 or 3 wheels,		0.33%
2. Passenger cars 2 axes, Can have 1- or 2-axle trailers,		68.82%
3. Pickups, panels, vans 2-axle, 4-tire single units, Can have 1- or 2-axle trailers,		22.76%
4. Buses 2- or 3-axle, full length,		0.78%
5. Single-unit trucks 2-axle, 6-tire, (dual rear tires), single-unit trucks,		2.35%
6. Single-unit trucks 3-axle, single-unit trucks,		0.87%
7. Single-unit trucks 4 or more axle, single-unit trucks,		0.01%
8. Single-trailer trucks 3- or 4-axle, single-trailer trucks,		0.76%
9. Single-trailer trucks 5-axle, single-trailer trucks,		3.32%
10. Single-trailer trucks 6 or more axle, single-trailer trucks,		0%
11. Multi-trailer trucks 5 or less axle, multi-trailer trucks,		0%
12. Multi-trailer trucks 6-axle, multi-trailer trucks,		0%
13. Multi-trailer trucks 7 or more axle, multi-trailer trucks,		0%

**TABLE C-2
LINEAR REGRESSION ANALYSIS**

Lanier Boulevard, North of 4th Avenue

<u>Year</u>	<u>X</u>	Actual <u>AADT (Y)</u>	Predicted <u>AADT</u>
2017	0	1070	1070
2018	1		1030
2019	2		990
2020	3	950	950
2021	4	910	910
2022	5		870
2023	6		830
2024	7		790
2025	8		750

i = - 4.3%



BUCKHOLZ TRAFFIC

0000127_0349 - 127-0349

Description: SR 002700 BEG AT

County: Glynn

Route number: 00048001

LRS section: 1273048001

Functional class: 6U - Minor Collector (Urban)

Coordinates: 31.1395077568401, -81.480040567803

Site Data

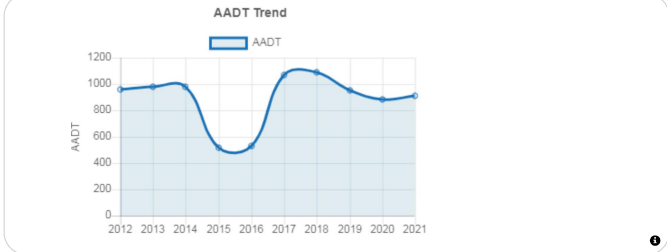
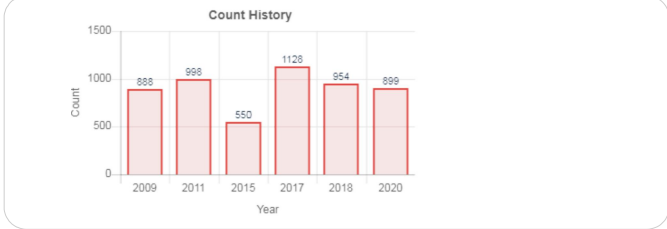
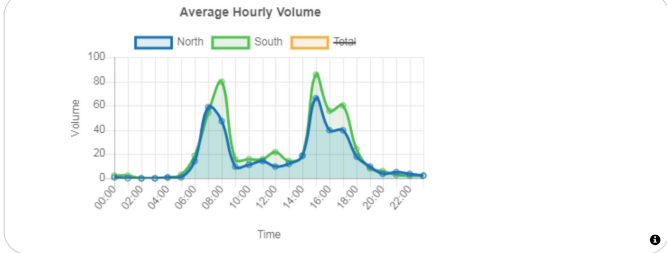


Count History

Year	Month	Count type	Duration	Count
2020	November	Class	48 hours	899
2018	November	Class	48 hours	954
2017	September	Class	48 hours	1128
2015	July	Class	48 hours	550
2011	January	Class	48 hours	998
2009	April	Volume	48 hours	888

Annual Statistics

Data Item	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Statistics type	-	-	-	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual
AADT	960	980	980	520	530	1070	1090	950	880	910
K-Factor	-	-	-	0.118	0.118	0.143	0.143	0.160	0.160	0.190
D-Factor	-	-	-	0.500	0.500	0.650	0.650	0.660	0.660	0.520
Future AADT	-	-	-	-	870	1350	1370	1190	1190	1150



FHWA Vehicle Classification

1. Motorcycles 2 axles, 2 or 3 wheels,		0.72%
2. Passenger cars 2 axles, Can have 1- or 2-axle trailers,		68.97%
3. Pickups, panels, vans 2-axle, 4-tire single units, Can have 1- or 2-axle trailers,		22.86%
4. Buses 2- or 3-axle, full length,		3.23%
5. Single-unit trucks 2-axle, 6-tire, (dual rear tires), single-unit trucks,		2.45%
6. Single-unit trucks 3-axle, single-unit trucks,		0.17%
7. Single-unit trucks 4 or more axle, single-unit trucks,		0%
8. Single-trailer trucks 3- or 4-axle, single-trailer trucks,		0.28%
9. Single-trailer trucks 5-axle, single-trailer trucks,		1.22%
10. Single-trailer trucks 6 or more axle, single-trailer trucks,		0.06%
11. Multi-trailer trucks 5 or less axle, multi-trailer trucks,		0%
12. Multi-trailer trucks 6-axle, multi-trailer trucks,		0%
13. Multi-trailer trucks 7 or more axle, multi-trailer trucks,		0.06%

APPENDIX D

CAPACITY CALCULATIONS UNSIGNALIZED INTERSECTIONS

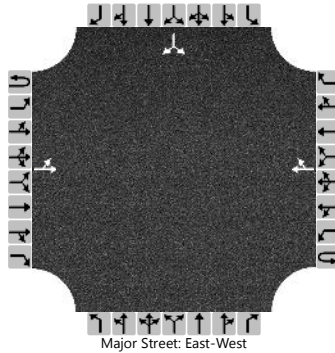


AM PEAK HOUR

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	J. Buckholz			Intersection	4th Avenue / Lanier Boulevard		
Agency/Co.	BUCKHOLZ TRAFFIC			Jurisdiction	Glynn County		
Date Performed	10/25/2022			East/West Street	4th Avenue		
Analysis Year	2022			North/South Street	Lanier Boulevard		
Time Analyzed	Weekday AM Peak Hour			Peak Hour Factor	0.79		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	#22-1793						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		48	199				326	50						94		72
Percent Heavy Vehicles (%)		23												1		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.33												6.41		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.41												3.51		3.30

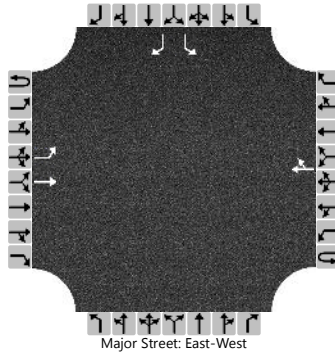
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		61														210	
Capacity, c (veh/h)		985														407	
v/c Ratio		0.06														0.52	
95% Queue Length, Q ₉₅ (veh)		0.2														2.9	
Control Delay (s/veh)		8.9	0.6													22.9	
Level of Service (LOS)		A	A													C	
Approach Delay (s/veh)		2.2												22.9			
Approach LOS		A												C			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	J. Buckholz			Intersection	4th Avenue / Lanier Boulevard		
Agency/Co.	BUCKHOLZ TRAFFIC			Jurisdiction	Glynn County		
Date Performed	10/25/2022			East/West Street	4th Avenue		
Analysis Year	2025			North/South Street	Lanier Boulevard		
Time Analyzed	AM Peak Hr BUILD Traffic			Peak Hour Factor	0.79		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	#22-1793						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		49	230				345	56						113		74
Percent Heavy Vehicles (%)		23												1		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.33												6.41		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.41												3.51		3.30

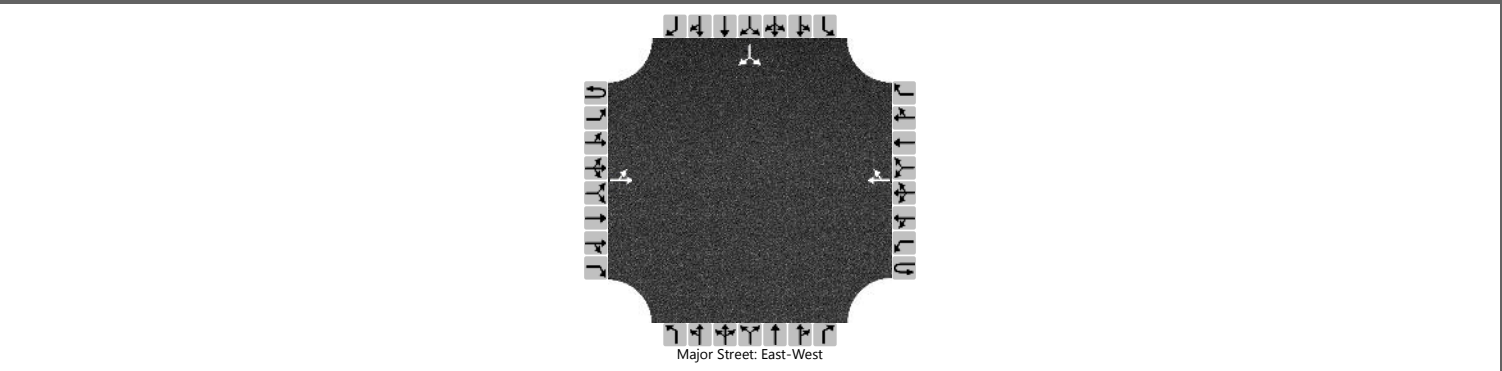
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		62												143		94
Capacity, c (veh/h)		958												295		596
v/c Ratio		0.06												0.48		0.16
95% Queue Length, Q ₉₅ (veh)		0.2												2.5		0.6
Control Delay (s/veh)		9.0												28.1		12.2
Level of Service (LOS)		A												D		B
Approach Delay (s/veh)	1.6												21.8			
Approach LOS	A												C			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	J. Buckholz	Intersection	4th Avenue / Site Drive				
Agency/Co.	BUCKHOLZ TRAFFIC	Jurisdiction	Glynn County				
Date Performed	10/25/2022	East/West Street	4th Avenue				
Analysis Year	2025	North/South Street	Site Drive				
Time Analyzed	AM Peak Hr BUILD Traffic	Peak Hour Factor	0.79				
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25				
Project Description	#22-1793						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		12	254				410	9						25		40
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

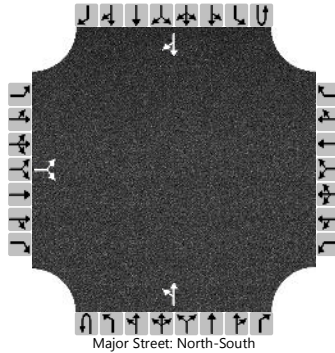
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		15													82		
Capacity, c (veh/h)		1037													427		
v/c Ratio		0.01													0.19		
95% Queue Length, Q ₉₅ (veh)		0.0													0.7		
Control Delay (s/veh)		8.5	0.2												15.4		
Level of Service (LOS)		A	A												C		
Approach Delay (s/veh)		0.5												15.4			
Approach LOS		A												C			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	J. Buckholz			Intersection	Lanier Boulevard / Site Drive		
Agency/Co.	BUCKHOLZ TRAFFIC			Jurisdiction	Glynn County		
Date Performed	10/25/2022			East/West Street	Site Drive		
Analysis Year	2025			North/South Street	Lanier Boulevard		
Time Analyzed	AM Peak Hr BUILD Traffic			Peak Hour Factor	0.79		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	#22-1793						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		11		16						4	101				171	3
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

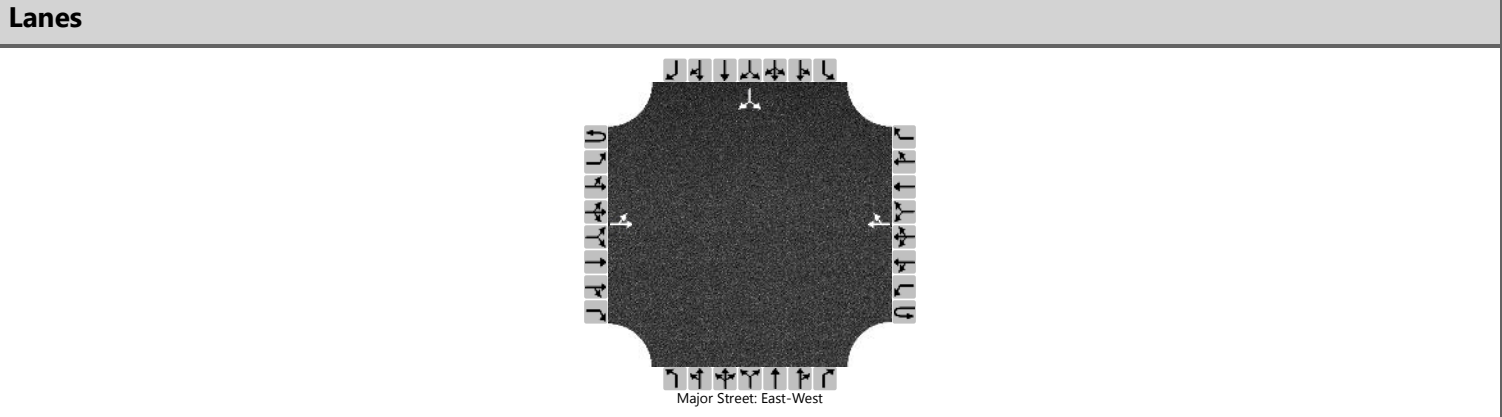
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			34							5						
Capacity, c (veh/h)			736							1349						
v/c Ratio			0.05							0.00						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
Control Delay (s/veh)			10.1							7.7	0.0					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)	10.1								0.3							
Approach LOS	B								A							

PM PEAK HOUR

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	J. Buckholz	Intersection	4th Avenue / Lanier Boulevard				
Agency/Co.	BUCKHOLZ TRAFFIC	Jurisdiction	Glynn County				
Date Performed	10/25/2022	East/West Street	4th Avenue				
Analysis Year	2022	North/South Street	Lanier Boulevard				
Time Analyzed	Weekday PM Peak Hour	Peak Hour Factor	0.78				
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25				
Project Description	#22-1793						



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		20	224				148	23						76		31
Percent Heavy Vehicles (%)		15												1		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.25												6.41		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.34												3.51		3.30

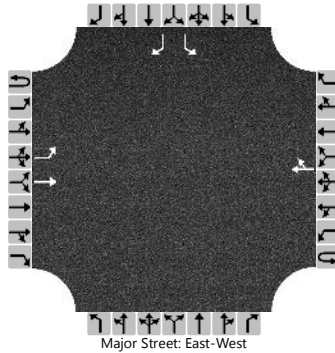
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		26													137	
Capacity, c (veh/h)		1277													558	
v/c Ratio		0.02													0.25	
95% Queue Length, Q ₉₅ (veh)		0.1													1.0	
Control Delay (s/veh)		7.9	0.2												13.5	
Level of Service (LOS)		A	A												B	
Approach Delay (s/veh)		0.8												13.5		
Approach LOS		A												B		

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	J. Buckholz			Intersection	4th Avenue / Lanier Boulevard		
Agency/Co.	BUCKHOLZ TRAFFIC			Jurisdiction	Glynn County		
Date Performed	10/25/2022			East/West Street	4th Avenue		
Analysis Year	2025			North/South Street	Lanier Boulevard		
Time Analyzed	PM Peak Hr BUILD Traffic			Peak Hour Factor	0.78		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	#22-1793						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority																
Number of Lanes	0	1	1	0	0	0	1	0	0	0	0		1	0	1	
Configuration		L	T					TR						L		R
Volume (veh/h)		21	244				175	34						87		32
Percent Heavy Vehicles (%)		15												1		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.25												6.41		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.34												3.51		3.30

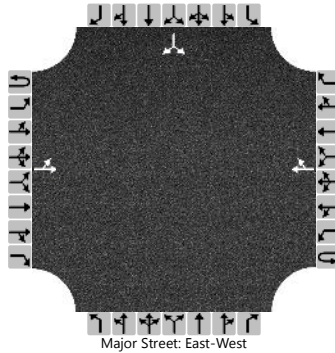
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		27												112		41
Capacity, c (veh/h)		1224												448		798
v/c Ratio		0.02												0.25		0.05
95% Queue Length, Q ₉₅ (veh)		0.1												1.0		0.2
Control Delay (s/veh)		8.0												15.7		9.8
Level of Service (LOS)		A												C		A
Approach Delay (s/veh)	0.6												14.1			
Approach LOS	A												B			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	J. Buckholz			Intersection	4th Avenue / Site Drive		
Agency/Co.	BUCKHOLZ TRAFFIC			Jurisdiction	Glynn County		
Date Performed	10/25/2022			East/West Street	4th Avenue		
Analysis Year	2025			North/South Street	Site Drive		
Time Analyzed	PM Peak Hr BUILD Traffic			Peak Hour Factor	0.78		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	#22-1793						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		29	252				184	23						13		19
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

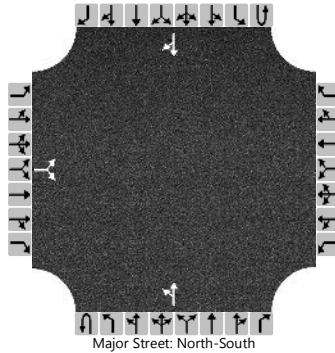
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		37														41	
Capacity, c (veh/h)		1299														581	
v/c Ratio		0.03														0.07	
95% Queue Length, Q ₉₅ (veh)		0.1														0.2	
Control Delay (s/veh)		7.9	0.3													11.7	
Level of Service (LOS)		A	A													B	
Approach Delay (s/veh)		1.1												11.7			
Approach LOS		A												B			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	J. Buckholz	Intersection	Lanier Boulevard / Site Drive				
Agency/Co.	BUCKHOLZ TRAFFIC	Jurisdiction	Glynn County				
Date Performed	10/25/2022	East/West Street	Site Drive				
Analysis Year	2025	North/South Street	Lanier Boulevard				
Time Analyzed	PM Peak Hr BUILD Traffic	Peak Hour Factor	0.78				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	#22-1793						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0		0	1	0		0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		5		9						10	45				110	9
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			18							13						
Capacity, c (veh/h)			841							1428						
v/c Ratio			0.02							0.01						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
Control Delay (s/veh)			9.4							7.5	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.4								1.4							
Approach LOS	A								A							