



TRAFFIC IMPACT ANALYSIS

PH CITRUS LLC., MAMMOTH GROVE MINE

POLK COUNTY, FL

JULY 2025

Prepared for:

THE COLINAS GROUP, INC

Prepared by:

KIMLEY-HORN AND ASSOCIATES, INC.

Kimley»»Horn



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MAMMOTH GROVE MINE**

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042964005
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Kimley-Horn and Associates, Inc.
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THIS IS TO CERTIFY THAT THE ENCLOSED
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AMBER L. GARTNER, P.E.
STATE OF FLORIDA
PROFESSIONAL ENGINEER
LICENSE NO. 72294
THIS ITEM HAS BEEN DIGITALLY SIGNED
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ON THE DATE INDICATED HERE.
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AMBER L. GARTNER, PE
FLORIDA REGISTRATION #72294
KIMLEY-HORN REGISTRY #35106



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INTRODUCTION

The purpose of this traffic study is to assess the anticipated impacts of new traffic generated from a proposed sand mine. The sand mine is located northwest of SR 60 at Mammoth Grove Road in Polk County, Florida. The driveway is located on the west side of Mammoth Grove Road, north of SR 60.

The mine is expected to begin operations in 2026. For the purposes of this Traffic Impact Analysis (TIA), 2026 was assumed as the year the mine will be in full production.

The mining operations are anticipated to generate more than 50 but less than 750 average daily trips at full operation. Based on the Polk County Land Development Code (LDC, Appendix C – Traffic Impact Study Methodology and Procedures), a Minor Traffic Study is required for the site. A minor traffic study requires evaluation of the directly accessed roadway segment and major intersections within the project vicinity.

This traffic study includes evaluation of the proposed site access connection and the adjacent roadway segment of Mammoth Grove Road. This analysis also evaluated the segment of SR 60 adjacent to Mammoth Grove Road to demonstrate the minimal impact of the site operations on the overall transportation network.

The project location, site access, surrounding transportation network, and study area are depicted in **Figure 1**.



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FIGURE 1: PROJECT LOCATION, STUDY AREA & TRIP DISTRIBUTION

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PROJECT TRAFFIC

TRIP GENERATION

For mining facilities, trip generation estimates are typically based on the number of employees and rate of material extraction, since the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition) does not provide trip generation data for this land use. For this project, data obtained from similar mining facilities currently operating in Central Florida, as well as information provided by the owner of the facility, were used to estimate the project’s trip generation potential.

The proposed mine is estimated to have an initial extraction rate less than the full production of material each year. Mining production is expected to average approximately 1,000,000 tons per year and be extracted at a maximum rate of 2,000,000 tons of material per year. For this analysis, calculations were performed assuming the maximum extraction rate.

There will be six working days per week (Monday through Saturday), resulting in 6,410 tons of material extracted a day at maximum capacity. The hauling trucks have a 24-ton capacity, generating 268 trucks entering and exiting the facility each day (536 daily truck trips). Additionally, an estimated 20 trips per day will result from a maximum of 10 facility employees (8 to 10 employees anticipated; 10 in, 10 out). At maximum operating capacity, the proposed mine site is expected to produce 556 daily trips (536 trucks, 20 passenger vehicles).

The hourly distribution of truck trips was calculated based on an estimated hourly distribution derived from traffic data at three active sand mines located in Central Florida. The average hourly distribution from each site was applied to the daily truck trip generation to estimate the hourly truck traffic entering and exiting the site. The daily truck trips are divided into hourly volumes in **Appendix C**.

During the AM peak hour of adjacent street (one hour from 7 AM to 9 AM), an estimated 38 trucks will enter, and 29 trucks will exit the facility. It was assumed that all 10 employee vehicles will enter during the AM peak hour. During the PM peak hour of adjacent street (one hour from 4 PM to 6 PM), it is estimated that 1 truck will enter, 6 trucks and 10 employees will exit the facility. The site operating at maximum capacity will produce 77 AM peak hour trips and 17 PM peak hour trips. **Table 1** provides a summary of the anticipated site trip generation characteristics.

Table 1: Trip Generation Summary

Land Use	Vehicle Type	Daily Trips	AM Peak Hour of Adjacent Street			PM Peak Hour of Adjacent Street		
			Total	Entering	Exiting	Total	Entering	Exiting
Sand Mine	Trucks	536	67	38	29	7	1	6
	Cars	20	10	10	0	10	0	10
	Total	556	77	48	29	17	1	16

TRAFFIC DISTRIBUTION AND ASSIGNMENT

Project traffic assignment to the study area roadway network was based on information provided by the facility owner and knowledge of the traffic patterns in the region. All trips associated with the new facility will access the site via Mammoth Grove Road at SR 60. The mine will serve areas that generally include the southeast region of Florida (via I-95 and Florida's Turnpike), areas around Tampa Bay, and the east coast.

The distribution of traffic assumed on the adjacent street network includes:

- No trucks to/from the north on Mammoth Grove Road
- 100% of trucks to/from the south on Mammoth Grove Road
- 60% of trucks to / from the west on SR 60
- 40% of trucks to / from the east on SR 60

The distribution of the 20 employee trips was assumed to use the same pattern as the truck distribution.

Figure 1 depicts the approximated project trip distribution assigned to the adjacent roadway network.

VOLUME DEVELOPMENT

A 48-hour tube count was collected on Mammoth Grove Road south of the proposed sand mine driveway on June 25, 2025. The observed tube counts were adjusted to peak season using the 2024 peak season conversion factors (minimum 1.00) published by the Florida Department of Transportation (FDOT). A background growth rate was applied to the existing peak season traffic volumes to generate background traffic volumes. Project traffic was then added to background traffic to generate future buildout traffic volumes. The highest project traffic volumes during the AM (7 AM – 9 AM) and PM (4 PM – 6 PM) peak period of adjacent street traffic were utilized in conjunction with the peak hour volumes (7 – 9 AM, 4 – 6 PM) from the tube counts.

An area wide annual growth rate of 1.61% was calculated using FDOT Traffic Online data in the surrounding area. The calculated growth rate is less than 2.0%; therefore, a minimum 2.0% growth rate was utilized. Details of the growth rate calculations are provided in **Table 2**.

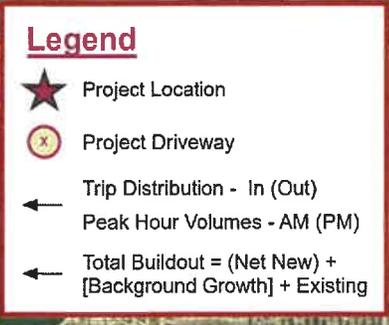
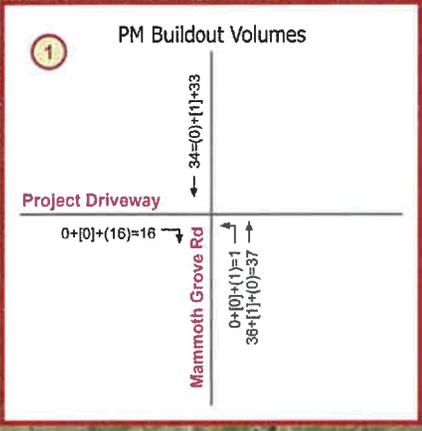
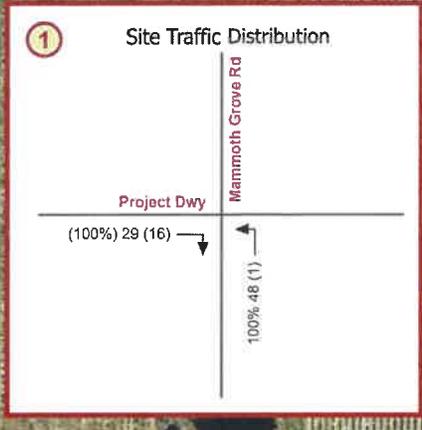
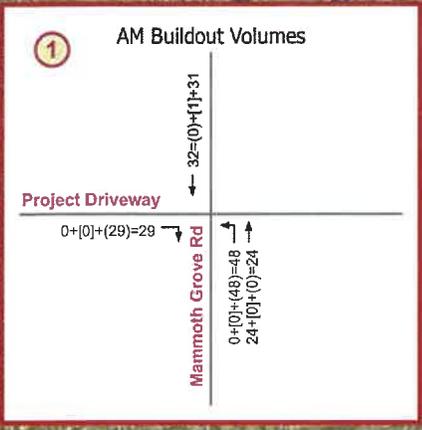
Table 2: Growth Rate Calculations

Roadway	SR 60, E of Buck Moore Rd	SR 60, W of Mammoth Grove Rd	SR 60, W of Lake Walk-In-Water Rd
Count Station	160017	165215	160022
2024	24,000	21,500	18,600
2023	24,500	21,000	17,000
2022	23,500	19,900	16,000
2021	22,500	17,500	15,600
2020	24,500	19,600	16,700
2019	25,500	17,900	16,200
Growth Rates	-1.21%	3.73%	2.80%
Weighted Average²:			1.61%
Notes:			
1. AADTs were obtained from FDOT Traffic Online.			
2. The weighted average is the summation of (AADT x Growth Rate) divided by the summation of AADT.			

For the roadway segment analysis, existing PM peak hour traffic volumes were obtained from the Polk County Transportation Planning Organization(TPO) Roadway Network Database. The reported 2024 traffic volumes in the TPO Database were greater than the FDOT Traffic Online (Synopsis Reports 160022, 165216) and the 48-hour tube count collected for Mammoth Grove Road (June 25-June 26, 2025).

The TPO Database publishes 2024 traffic volumes. The future background traffic volumes were calculated by applying an annual growth rate of 2.0% between years 2024 and 2026. Project traffic was added to background traffic to generate future buildout traffic volumes during the PM peak hour.

The 48-hour tube count, FDOT Traffic Online data, and Polk County TPO Roadway Network Database excerpts are provided in **Appendix A** and **Appendix B**. Intersection volume development sheets are provided in **Appendix D**. **Figure 2** illustrates the AM peak hour and PM peak hour opening year traffic volumes with full operations.



SR 60

Mammoth Grove Rd

1

FIGURE 2: SITE TRAFFIC DISTRIBUTION AND BUILDOUT TRAFFIC VOLUMES

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OPERATIONAL ANALYSIS

This analysis utilized the maximum trip generation potential resulting from maximum site operations, with the existing configuration of the roadway system without modifications.

SEGMENT LEVEL OF SERVICE ANALYSIS

Per the Polk County TIA Guidelines for Minor Traffic Studies, only the directly accessed segment must be evaluated for level of service (LOS). The adjacent roadway segment of Mammoth Grove Road and the nearby roadway segment of SR 60 were included in the study area, as illustrated in **Figure 1**.

The roadway LOS analysis was performed for the PM peak hour, for the existing, background, and buildout scenarios. Characteristics and service volumes for the surrounding transportation network were obtained from the Polk County TPO Roadway Network Database (2025). The Polk County TPO Roadway Network Database is provided in **Appendix B**.

The traffic volumes were compared against the adopted maximum directional service volume for 2026 buildout traffic conditions. The study area roadway segments within the vicinity of the site are projected to operate within the adopted service volume with PM peak hour buildout traffic conditions. Site traffic does not have a significant impact on the surrounding transportation network during the PM peak hour. Additionally, project traffic has a less than 1% de minimis impact on SR 60.

Table 3 details the findings from the roadway segment analysis.

Table 3: PM Peak Hour Roadway Segment Analysis

Roadway From	To	ROADWAY ATTRIBUTES ¹				EXISTING PM PEAK HOUR PEAK SEASON (2024)				FUTURE NON-PROJECT PM PEAK HOUR (2026)				FUTURE BUILDOUT PM PEAK HOUR (2026)								
		Segment ID	Adopted LOS	Number of Lanes	Pk. Hr. Dir. Service Volume	Volumes ²		V/C Ratios		Applied Growth Rate ³	Background Growth		V/C Ratios		Percent Project Traffic Assignment ⁴	PM Peak Hour Project Traffic		Volumes		V/C Ratios		
						NB/EB	SB/WB	NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
SR 60 Sickles Rd Mammoth Grove Rd	Mammoth Grove Rd CR 650	5910 5910	C C	4D 4D	2,210 2,210	762 762	732 732	0.34 0.34	0.33 0.33	2.00% 2.00%	783 783	782 782	0.36 0.36	0.34 0.34	60% 40%	1 6	10 0	0.5% 0.3%	794 799	772 762	0.36 0.36	0.35 0.34
Mammoth Grove Rd SR 60 Project Driveway	Project Driveway Camp Mack Rd	4117 4117	C C	2U 2U	640 640	41 41	40 40	0.06 0.06	0.06 0.06	2.00% 2.00%	43 43	42 42	0.07 0.07	0.07 0.07	100% 0%	1 0	16 0	2.5% 0.0%	44 43	58 42	0.07 0.07	0.09 0.07

Notes:
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- Roadway attributes were obtained from the Polk County TPO 2025 Roadway Network Database.
- Existing volumes were derived from the 2025 Polk County TPO Roadway Network Database. The TPO Database volumes were greater than the 6/25/2025 - 6/26/2025 Mammoth Grove Road tube count and FDOT Traffic Online.
- The calculated average growth rate from the areawide growth rate calculations were used for the segment analysis (min 2%).
- Project assignment was estimated based on site specific information provided by the applicant.

SITE ACCESS ANALYSIS

An operational analysis was performed using Highway Capacity Manual (HCM 7) procedures, which are included in the Synchro (v12) analysis program. The project driveway at Mammoth Grove Road was evaluated for the AM peak hour and PM peak hour.

The project driveway is shown to operate with acceptable LOS and volume-to-capacity (V/C) ratios less than 1.0. The project driveway is projected to have acceptable traffic operations with opening year traffic conditions, with maximum site production. The site driveway is anticipated to operate at LOS A, which is below the segment level of service standard as required by Polk County standards (Polk County Land LDC, Appendix C, Section I3 – Level of Service Standards).

Table 4 details the intersection LOS results for future buildout traffic conditions. The Synchro output is provided in **Appendix E**.

Table 4: Intersection Operational Analysis Summary

Intersection	AM Peak Hour			PM Peak Hour		
	LOS	Delay(s)	V/C Ratio	LOS	Delay(s)	V/C Ratio
Mammoth Grove Road at Project Driveway Buildout Conditions	A	9.6	0.04	A	8.9	0.02
Notes: 1. MOE's at two-way stop controlled intersections are reported for the stop-controlled approaches only.						

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TURN LANE ANALYSIS

The proposed driveway on Mammoth Grove Road was evaluated to assess the need for an ingress northbound left turn lane. The methodologies of the National Cooperative Highway Research Programs (NCHRP) Report 457 were utilized. The NCHRP methodology evaluates the posted speed, approaching volume, opposing volume, and turning volume to determine whether exclusive left-turn lanes are warranted on the major street of a minor street stop-controlled intersection.

Based on the findings from the analysis, a northbound ingress left turn lane is not warranted on Mammoth Grove Road at the proposed driveway. The NCHRP worksheets are provided in **Appendix F**.

CONCLUSION

Site traffic from the proposed mine is not anticipated to significantly impact the surrounding transportation network. Based on the results of this Minor Traffic Study, the existing roadway configuration is sufficient to support project traffic conditions at maximum operating capacity.

The study area roadway segments are projected to operate within the adopted LOS standard and have available capacity after the opening of the mine site. Site traffic from the mining operations does not have a significant impact on the surrounding transportation network. Project traffic has a less than 1% de minimis impact on the adjacent roadway segments of SR 60. The adjacent roadway segment of Mammoth Grove Road is projected to operate at less than 10% of the adopted service volume, with buildout PM peak hour traffic volumes considering maximum mine operations.

The site driveway is shown to have minimal delay and an acceptable LOS. Exclusive turn lanes are not warranted on Mammoth Grove Road at the project driveway.

This analysis has been performed considering the maximum potential traffic impacts from the mining operations. At maximum operating capacity, the site traffic will not have a significant impact on the transportation network.

APPENDICES

APPENDIX A: Traffic Data

2024 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 1600 POLK COUNTYWIDE

MOCF: 0.96

WEEK	DATES	SF	PSCF
1	01/01/2024 - 01/06/2024	0.99	1.03
2	01/07/2024 - 01/13/2024	1.01	1.05
3	01/14/2024 - 01/20/2024	1.04	1.08
4	01/21/2024 - 01/27/2024	1.02	1.06
5	01/28/2024 - 02/03/2024	1.00	1.04
6	02/04/2024 - 02/10/2024	0.99	1.03
* 7	02/11/2024 - 02/17/2024	0.97	1.01
* 8	02/18/2024 - 02/24/2024	0.96	1.00
* 9	02/25/2024 - 03/02/2024	0.96	1.00
*10	03/03/2024 - 03/09/2024	0.95	0.99
*11	03/10/2024 - 03/16/2024	0.94	0.98
*12	03/17/2024 - 03/23/2024	0.95	0.99
*13	03/24/2024 - 03/30/2024	0.95	0.99
*14	03/31/2024 - 04/06/2024	0.96	1.00
*15	04/07/2024 - 04/13/2024	0.96	1.00
*16	04/14/2024 - 04/20/2024	0.97	1.01
*17	04/21/2024 - 04/27/2024	0.98	1.02
*18	04/28/2024 - 05/04/2024	0.98	1.02
*19	05/05/2024 - 05/11/2024	0.99	1.03
20	05/12/2024 - 05/18/2024	1.00	1.04
21	05/19/2024 - 05/25/2024	1.01	1.05
22	05/26/2024 - 06/01/2024	1.01	1.05
23	06/02/2024 - 06/08/2024	1.02	1.06
24	06/09/2024 - 06/15/2024	1.03	1.07
25	06/16/2024 - 06/22/2024	1.03	1.07
26	06/23/2024 - 06/29/2024	1.04	1.08
27	06/30/2024 - 07/06/2024	1.04	1.08
28	07/07/2024 - 07/13/2024	1.05	1.09
29	07/14/2024 - 07/20/2024	1.05	1.09
30	07/21/2024 - 07/27/2024	1.05	1.09
31	07/28/2024 - 08/03/2024	1.04	1.08
32	08/04/2024 - 08/10/2024	1.04	1.08
33	08/11/2024 - 08/17/2024	1.03	1.07
34	08/18/2024 - 08/24/2024	1.03	1.07
35	08/25/2024 - 08/31/2024	1.04	1.08
36	09/01/2024 - 09/07/2024	1.04	1.08
37	09/08/2024 - 09/14/2024	1.04	1.08
38	09/15/2024 - 09/21/2024	1.04	1.08
39	09/22/2024 - 09/28/2024	1.03	1.07
40	09/29/2024 - 10/05/2024	1.03	1.07
41	10/06/2024 - 10/12/2024	1.02	1.06
42	10/13/2024 - 10/19/2024	1.01	1.05
43	10/20/2024 - 10/26/2024	1.00	1.04
44	10/27/2024 - 11/02/2024	0.99	1.03
45	11/03/2024 - 11/09/2024	0.99	1.03
46	11/10/2024 - 11/16/2024	0.98	1.02
47	11/17/2024 - 11/23/2024	0.98	1.02
48	11/24/2024 - 11/30/2024	0.98	1.02
49	12/01/2024 - 12/07/2024	0.99	1.03
50	12/08/2024 - 12/14/2024	0.99	1.03
51	12/15/2024 - 12/21/2024	0.99	1.03
52	12/22/2024 - 12/28/2024	1.01	1.05
53	12/29/2024 - 12/31/2024	1.04	1.08

* PEAK SEASON

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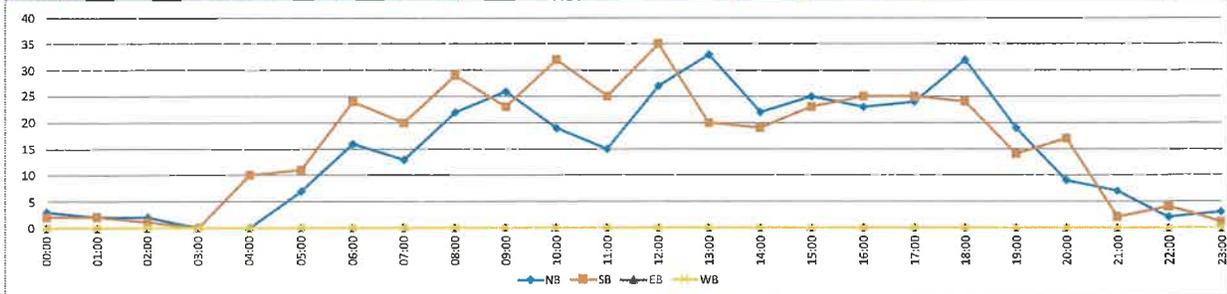
VOLUME

Alcoma Rd N/O SR 60/Hesperides Rd (27.896488, -81.481867)

Day: Wednesday
Date: 6/25/2025

City: Lake Wales
Project #: FL25_130231_001

DAILY TOTALS						NB	SB	EB	WB	Total	DAILY TOTALS																																																																																																																																																	
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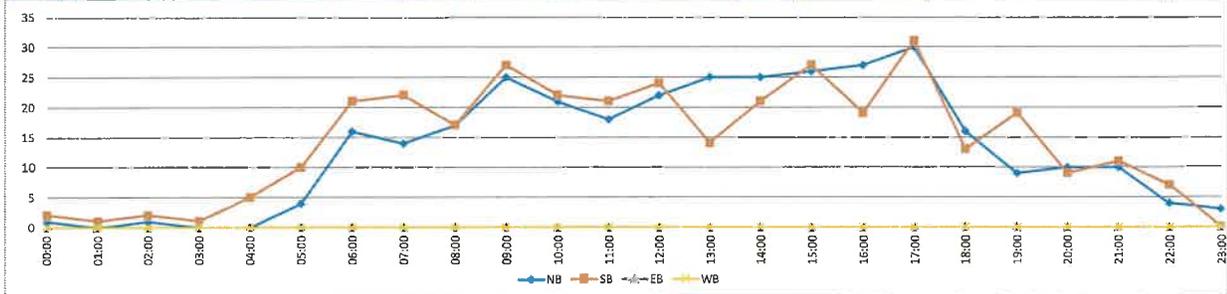
VOLUME

Alcoma Rd N/O SR 60/Hesperides Rd (27.896488, -81.481867)

Day: Thursday
Date: 6/26/2025

City: Lake Wales
Project #: FL25_130231_001

DAILY TOTALS						NB	SB	EB	WB	Total	DAILY TOTALS																																																																																																																																									
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COUNTY: 16
 STATION: 0022
 DESCRIPTION: SR 60 WEST OF LAKE WALK-IN-WATER ROAD, LK WALES
 START DATE: 04/04/2024
 START TIME: 0000

TIME	DIRECTION: E			TOTAL	DIRECTION: W			COMBINED TOTAL		
	1ST	2ND	3RD		4TH	1ST	2ND		3RD	4TH
0000	24	15	15	78	16	13	17	12	58	136
0100	14	16	20	63	14	11	13	16	54	117
0200	17	14	17	75	22	12	9	16	59	134
0300	22	21	23	88	20	14	17	16	67	155
0400	23	28	46	141	21	27	28	32	108	249
0500	40	56	83	245	51	49	56	69	225	470
0600	72	82	77	332	88	100	125	135	448	780
0700	91	95	109	421	121	161	138	133	553	974
0800	115	147	129	534	143	133	129	124	529	1063
0900	150	151	128	591	132	123	141	134	530	1121
1000	160	156	145	616	133	155	126	132	546	1162
1100	163	164	159	671	145	140	196	143	624	1295
1200	160	123	163	638	161	132	153	178	624	1262
1300	151	161	163	657	185	135	164	179	663	1320
1400	151	160	152	631	157	170	136	181	644	1275
1500	162	162	173	650	158	198	181	171	708	1358
1600	173	169	191	715	165	177	228	169	739	1454
1700	167	161	188	668	190	168	167	175	700	1368
1800	142	142	172	573	151	132	136	101	520	1093
1900	120	131	110	446	121	93	90	94	398	844
2000	101	124	94	393	86	79	66	69	300	693
2100	67	69	61	253	58	72	76	36	242	495
2200	51	44	47	182	41	37	41	50	169	351
2300	28	46	34	139	37	25	18	27	107	246
24-HOUR TOTALS:	9800				9615				19415	

PEAK VOLUME INFORMATION

DIRECTION:	DIRECTION: W		DIRECTION: E	
	COMBINED HOUR	COMBINED VOLUME	COMBINED HOUR	COMBINED VOLUME
A.M.	845	1092	715	573
P.M.	1615	1473	1615	715
DAILY	1615	1473	1615	715

TRUCK PERCENTAGE 23.14 21.27 22.21

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
E	29	5210	2293	28	416	105	8	390	1196	78	22	19	6	0	0	2268	9800
W	31	5223	2316	20	414	134	7	360	1056	21	16	14	3	0	0	2045	9615

COUNTY: 16
 STATION: 5216
 DESCRIPTION: SR 60, EAST OF LAKE WALK-IN-WATER ROAD
 START DATE: 04/23/2024
 START TIME: 0000

TIME	DIRECTION: E			TOTAL	DIRECTION: W			COMBINED TOTAL			
	1ST	2ND	3RD		4TH	1ST	2ND		3RD	4TH	
0000	9	17	12	17	55	16	16	18	8	58	113
0100	20	18	10	7	55	15	7	14	10	46	101
0200	16	21	13	16	66	7	15	7	9	38	104
0300	14	25	25	16	80	14	15	16	7	52	132
0400	17	37	49	30	133	15	24	21	17	77	210
0500	57	61	84	76	278	38	45	43	40	166	444
0600	72	80	83	74	309	53	64	83	88	288	597
0700	86	74	103	93	356	83	92	101	84	360	716
0800	106	109	121	117	453	95	90	113	103	401	854
0900	117	122	114	118	471	105	105	106	106	422	893
1000	125	118	103	134	480	124	109	110	99	442	922
1100	118	126	131	104	479	132	110	156	126	524	1003
1200	129	95	111	132	467	91	125	124	116	456	923
1300	104	120	124	143	491	111	138	133	116	498	989
1400	101	94	102	102	399	124	126	110	120	480	879
1500	116	106	120	127	469	100	128	109	123	460	929
1600	101	104	111	111	427	121	131	124	140	516	943
1700	105	82	105	107	399	119	121	136	91	467	866
1800	89	75	98	78	340	99	104	100	65	368	708
1900	85	77	68	54	284	60	71	66	62	259	543
2000	64	46	38	48	196	52	52	53	42	199	395
2100	52	30	28	34	144	44	26	33	30	133	277
2200	37	26	33	22	118	30	20	28	29	107	225
2300	30	23	17	11	81	22	17	24	19	82	163
24-HOUR TOTALS:					7030					6899	13929

PEAK VOLUME INFORMATION

DIRECTION: E	DIRECTION: W	
	HOUR	VOLUME
A.M.	830	477
P.M.	1300	491
DAILY	1045	509
TRUCK PERCENTAGE	27.41	
		27.70
		27.55

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
E	23	3612	1468	15	317	72	11	270	1128	73	18	17	6	0	0	1927	7030
W	14	3490	1484	21	341	86	5	310	1081	30	17	17	3	0	0	1911	6899

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2024 HISTORICAL AADT REPORT

COUNTY: 16 - POLK

SITE: 0017 - SR 60, E OF BUCK MOORE RD/CR 17B N LAKE WALES

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2024	24000	C				
2023	24500	S	W 11500	9.00	56.00	20.60
2022	23500	F	W 12500	9.00	55.00	21.10
2021	22500	C	W 11500	9.00	55.20	21.10
2020	24500	C	W 12000	9.00	55.30	21.10
2019	25500	C	W 12500	9.00	53.40	18.10
2018	24500	C	W 12000	9.00	56.00	16.80
2017	25000	C	W 12000	9.00	54.50	16.70
2016	23000	C	W 11000	9.00	54.50	16.80
2015	24500	C	W 12000	9.00	53.30	15.80
2014	21500	F	W 10500	9.00	55.70	15.20
2013	21500	C	W 10500	9.00	55.60	16.10
2012	22500	C	W 11000	9.00	55.90	16.10
2011	19700	F	W 9800	9.00	55.80	16.40
2010	19900	C	W 9900	9.00	55.70	20.00
2009	21000	C	W 10500	9.55	56.07	20.00
				9.36	56.35	17.60

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
 *K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2024 HISTORICAL AADT REPORT

COUNTY: 16 - POLK

SITE: 5215 - SR 60, WEST OF MAMMOTH GROVE ROAD

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2024	21500	F				
2023	21000	C				
2022	19900	C				
2021	17500	C				
2020	19600	C				
2019	17900	F				
2018	17300	C				
2017	18300	C				
2016	16300	C				
2015	16700	C				
2014	16200	F				
2013	16000	C				
2012	13500	C				
2011	13600	F				
2010	13600	C				
2009	13700	C				

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
 *K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2024 HISTORICAL AADT REPORT

COUNTY: 16 - POLK

SITE: 0022 - SR 60 WEST OF LAKE WALK-IN-WATER ROAD, LK WALES

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2024	18600	C	W	9.50	56.00	22.20
2023	17000	S	W	9.50	55.00	24.90
2022	16000	F	W	9.50	55.20	24.90
2021	15600	C	W	9.50	55.30	24.90
2020	16700	C	W	9.50	53.40	22.00
2019	16200	C	W	9.50	56.00	22.50
2018	14700	C	W	9.50	54.50	21.90
2017	15900	C	W	9.50	54.50	23.00
2016	14100	C	W	9.50	53.30	23.30
2015	14300	C	W	9.50	55.70	21.40
2014	12900	S	W	9.50	55.60	22.70
2013	12700	F	W	9.50	55.90	22.70
2012	12700	C	W	9.50	55.80	22.70
2011	12200	S	W	9.50	55.70	22.70
2010	12200	F	W	9.55	56.07	22.70
2009	12400	C	W	9.36	56.35	22.70

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
 *K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

**APPENDIX B:
Polk County TPO Roadway Network Database
Excerpts**

**APPENDIX C:
Hourly Distribution of Project Truck Traffic**

Hourly Distribution of Project Truck Traffic

Time	St. Catherine Borrow Pit		Center Hill Borrow Pit		Davenport Borrow Pit		Average, Adjusted for Site Hours (4AM-5PM)		Number of Trucks	
	% Entering	% Exiting	% Entering	% Exiting	% Entering	% Exiting	% Entering	% Exiting	Entering	Exiting
04:00	0.0%	0.0%	0.0%	0.0%	4.8%	3.7%	1.6%	1.2%	4	3
05:00	6.1%	7.0%	0.0%	0.0%	7.3%	4.7%	4.5%	4.0%	12	11
06:00	10.4%	12.6%	9.6%	17.9%	8.6%	7.4%	9.6%	12.7%	26	34
07:00	11.7%	12.1%	11.5%	9.7%	6.9%	10.7%	10.1%	10.9%	27	29
08:00	13.5%	12.1%	17.9%	10.3%	10.7%	9.5%	14.1%	10.7%	38	29
09:00	12.3%	7.0%	9.9%	14.1%	8.4%	8.4%	10.2%	9.9%	27	27
10:00	12.3%	12.1%	12.2%	11.6%	11.7%	9.9%	12.1%	11.3%	32	30
11:00	9.8%	10.6%	7.7%	7.5%	11.1%	11.0%	9.6%	9.8%	26	26
12:00	10.4%	6.0%	8.3%	5.6%	10.6%	11.4%	9.8%	7.8%	26	21
13:00	4.9%	8.0%	11.2%	8.5%	11.2%	10.4%	9.1%	9.1%	25	24
14:00	5.5%	5.0%	4.8%	9.1%	6.2%	7.6%	5.5%	7.3%	15	20
15:00	2.5%	3.0%	5.1%	2.8%	2.1%	3.3%	3.2%	3.1%	9	8
16:00	0.0%	3.5%	1.3%	1.6%	0.2%	1.3%	0.5%	2.2%	1	6
17:00	0.6%	1.0%	0.3%	1.3%	0.2%	0.6%	0.0%	0.0%	0	0
Daily Total									268	268
							100.0%	100.0%	100.0%	100.0%

Notes:

1. The hourly distributions were derived from three active sand mines located in Florida, and averaged to approximate truck traffic at the proposed sand mine.

**APPENDIX D:
Intersection Volume Development Sheets**

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION: Mammoth Grove Rd at Project Driveway
COUNT DATE: June 25, 2025
AM PEAK HOUR FACTOR: 0.85
PM PEAK HOUR FACTOR: 0.94

"AM EXISTING TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
AM Raw Turning Movements		0	0	0	0	0	0	0	22	0	0	29	0
Peak Season Correction Factor		1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
AM EXISTING CONDITIONS		0	0	0	0	0	0	0	24	0	0	31	0
"PM EXISTING TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
PM Raw Turning Movements		0	0	0	0	0	0	0	33	0	0	31	0
Peak Season Correction Factor		1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
PM EXISTING CONDITIONS		0	0	0	0	0	0	0	36	0	0	33	0
"AM BACKGROUND TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Years To Buildout		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%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
AM BACKGROUND TRAFFIC GROWTH		0	0	0	0	0	0	0	0	0	0	1	0
AM NON-PROJECT TRAFFIC		0	0	0	0	0	0	0	24	0	0	32	0
"PM BACKGROUND TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
PM BACKGROUND TRAFFIC GROWTH		0	0	0	0	0	0	0	1	0	0	1	0
PM NON-PROJECT TRAFFIC		0	0	0	0	0	0	0	37	0	0	34	0
"PROJECT DISTRIBUTION"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Net New Distribution	Entering							100.0%					
	Exiting			100.0%									
"AM PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	Net New			29				48					
AM TOTAL PROJECT TRAFFIC		0	0	29	0	0	0	48	0	0	0	0	0
AM TOTAL TRAFFIC		0	0	29	0	0	0	48	24	0	0	32	0
"PM PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	Net New			16				1					
PM TOTAL PROJECT TRAFFIC		0	0	16	0	0	0	1	0	0	0	0	0
PM TOTAL TRAFFIC		0	0	16	0	0	0	1	37	0	0	34	0

**APPENDIX E:
Synchro Output**

Intersection						
Int Delay, s/veh	5.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	0	29	48	24	32	0
Future Vol, veh/h	0	29	48	24	32	0
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	85	85	85	85	85	85
Heavy Vehicles, %	0	100	80	2	2	0
Mvmt Flow	0	34	56	28	38	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	179	38	38	0	-	0
Stage 1	38	-	-	-	-	-
Stage 2	141	-	-	-	-	-
Critical Hdwy	6.4	7.2	4.9	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	4.2	2.92	-	-	-
Pot Cap-1 Maneuver	815	813	1189	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	776	813	1189	-	-	-
Mov Cap-2 Maneuver	776	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	891	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.62	5.45	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1171	-	813	-	-
HCM Lane V/C Ratio	0.047	-	0.042	-	-
HCM Control Delay (s/veh)	8.2	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

HCM 7th TWSC
1: Mammoth Grove Rd & Project Driveway

2026 Buildout Conditions
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		4		B	
Traffic Vol, veh/h	0	16	1	37	34	0
Future Vol, veh/h	0	16	1	37	34	0
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	94	94	94	94	94	94
Heavy Vehicles, %	0	38	100	2	2	0
Mvmt Flow	0	17	1	39	36	0

Major/Minor	Minor2	Major1	Major2	Major2	Major2	Major2
Conflicting Flow All	78	36	36	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	41	-	-	-	-	-
Critical Hdwy	6.4	6.58	5.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.642	3.1	-	-	-
Pot Cap-1 Maneuver	930	942	1121	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	929	942	1121	-	-	-
Mov Cap-2 Maneuver	929	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.89	0.22	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	47	-	942	-	-
HCM Lane V/C Ratio	0.001	-	0.018	-	-
HCM Control Delay (s/veh)	8.2	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

**APPENDIX F:
NCHRP 457 Output**

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

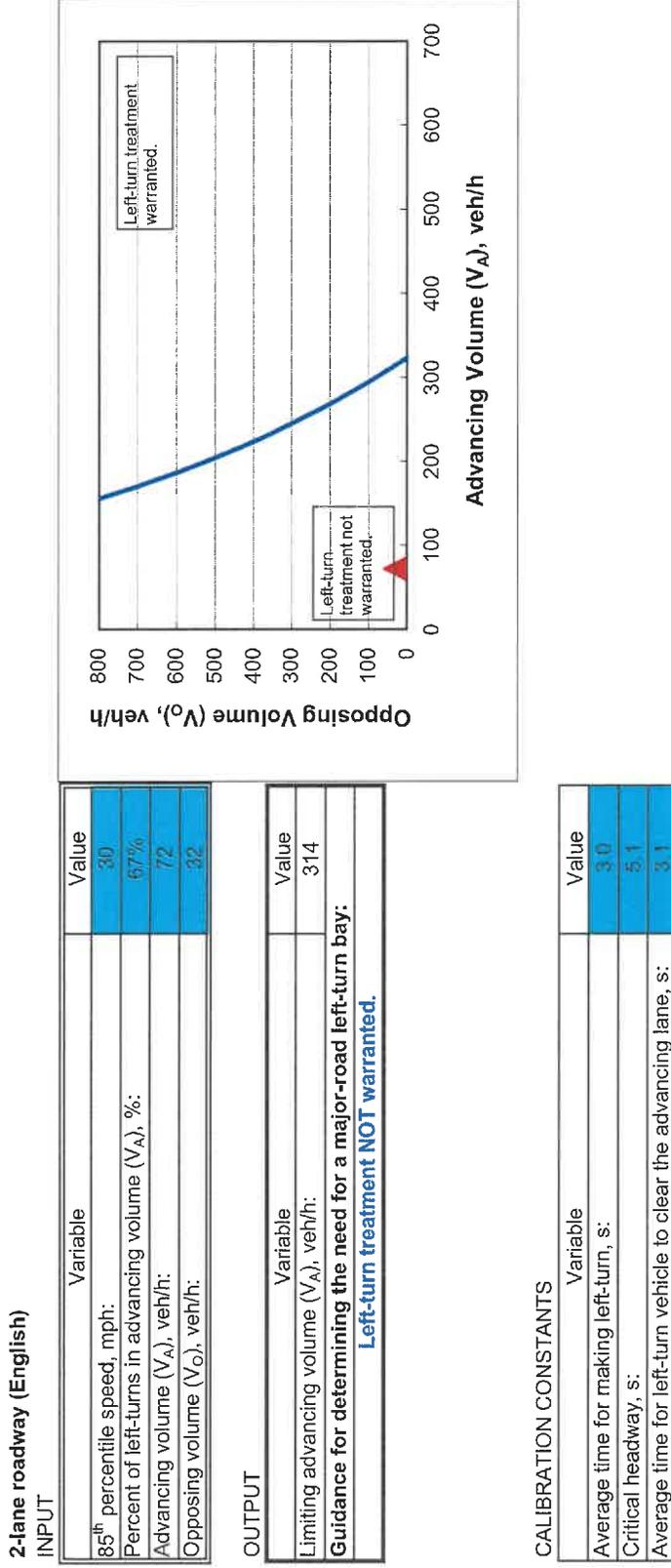


Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

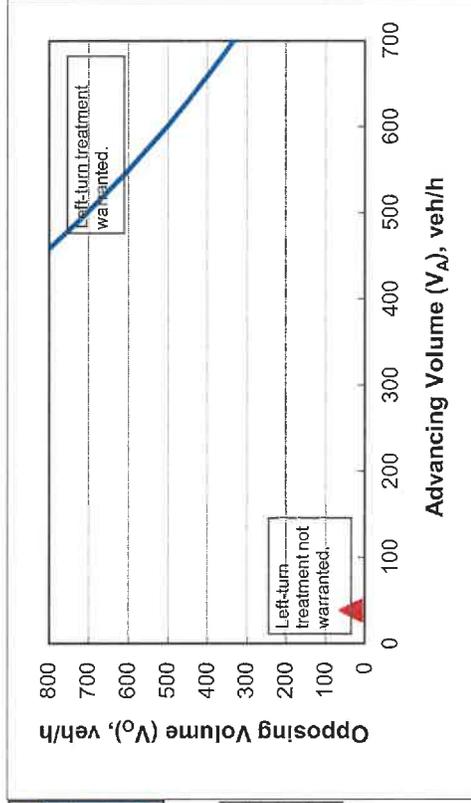
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	30
Percent of left-turns in advancing volume (V_A), %:	3%
Advancing volume (V_A), veh/h:	38
Opposing volume (V_O), veh/h:	34

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	922
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.1
Average time for left-turn vehicle to clear the advancing lane, s:	3.1