



Pine Meadows Subdivision

Lake County, Florida

TRAFFIC IMPACT STUDY

Prepared for:

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May 2024

EXECUTIVE SUMMARY

This traffic analysis is being conducted to assess the impact of the proposed Pine Meadow Subdivision located north of Pine Meadows Golf Course Road, approximately 0.6 miles east of SR 19 in Eustis, Florida. The proposed project comprises 60 single family units. The analysis included a determination of project trip generation, a review of existing and projected roadway and intersection capacity and a review of access operations.

The results of the traffic analysis are summarized as follows:

- The proposed development will generate a total of 631 daily trips of which 47 and 61 will occur during the AM and PM peak hour, respectively.
- Access to the site will be provided via directional median opening connections onto SR 19 via Pine Meadows Golf Course Road, McKinley Road, and Orange Avenue.
- An analysis of the study roadway segments indicates that the study roadway segments currently operate adequately within their adopted Level of Service standard and are projected to continue to do so upon buildout of the proposed development. The eastbound segment of CR 44 between CR 452 and SR 19 is project to continue to fail in the PM peak hour as it is an existing deficiency.
- An analysis of the study intersections indicates that the study intersections currently operate adequately within their adopted Level of Service standard and are projected to continue to do so upon buildout of the proposed development.

Based on the analyses conducted, approval of the proposed project is requested from a transportation perspective since the project does not adversely impact any of the study roadway segments or intersections.

PROFESSIONAL ENGINEERING CERTIFICATION

I hereby certify that I am a Professional Engineer properly registered in the State of Florida practicing with Premier Traffic Group a dba of Karma Consultancy, LLC. and that I have supervised the preparation and approve the evaluation, findings, opinions, conclusions, and technical advice hereby reported for:

PROJECT: Pine Meadows Subdivision

LOCATION: Lake County, Florida

I acknowledge that the procedures and references used to develop the results contained in these computations are standard to the professional practice of Transportation Engineering as applied through professional judgment and experience.

NAME: Vasu T. Persaud, PE

P.E. #: Florida P.E. No. 72790

DATE: May 10th, 2024

SIGNATURE: _____

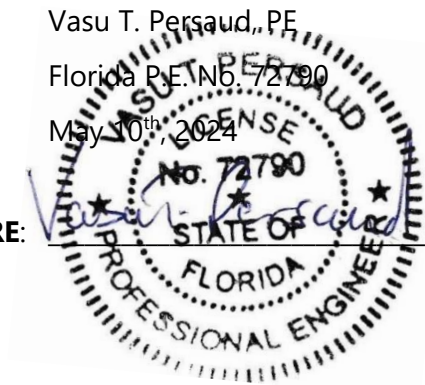


TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 Data and Methodology.....	1
1.2 Study Area.....	2
1.3 Planned and Programmed Improvements.....	2
2.0 EXISTING TRAFFIC CONDITIONS.....	3
2.1 Roadway Segment Analysis.....	3
2.2 Intersection Capacity Analysis.....	3
3.0 TRIP GENERATION	5
3.1 Trip Generation	5
3.2 Trip Distribution/Assignment.....	5
4.0 PROJECTED TRAFFIC CONDITIONS.....	7
4.1 Background Traffic Projection	7
4.2 Roadway Segment Analysis.....	7
4.3 Intersection Capacity Analysis.....	8
5.0 STUDY CONCLUSIONS.....	9

Appendix A: Preliminary Concept Plan

Appendix B: Methodology Coordination

Appendix C: Lake County CMS

Appendix D: Traffic Volumes

Appendix E: Existing Intersection Analysis Output

Appendix F: Historical Trends Analysis

Appendix G: Projected Intersection Analysis Output

LIST OF TABLES

Table 1: Existing Roadway Segment Capacity Analysis	3
Table 2: Existing Intersection Capacity Analysis	4
Table 3: Trip Generation	5
Table 4: Projected Roadway Segment Capacity Analysis	7
Table 5: Projected Intersection Capacity Analysis	8

LIST OF FIGURES

Figure 1: Project Location Map	1
Figure 2: Trip Distribution Map	6

1.0 INTRODUCTION

The proposed project comprises 60 single family units and is located approximately 0.6 miles east of SR 19 in Eustis, Florida. **Figure 1** depicts the site location and the surrounding transportation network. Access to the site will be provided via directional median opening connections onto SR 19 via Pine Meadows Golf Course Road, McKinley Road and Orange Avenue. A preliminary concept plan is included in **Appendix A**.

1.1 Data and Methodology

Data used in the analysis consisted of site plan/development information provided by the Project Engineers, AM and PM peak hour intersection traffic counts obtained by PTG and roadway segment traffic volumes obtained from Lake County and the Florida Department of Transportation (FDOT). The analysis was conducted in accordance with the Traffic Impact Analysis (TIA) *Methodology Memorandum* prepared for the project. A copy of the methodology coordination is provided in **Appendix B**.

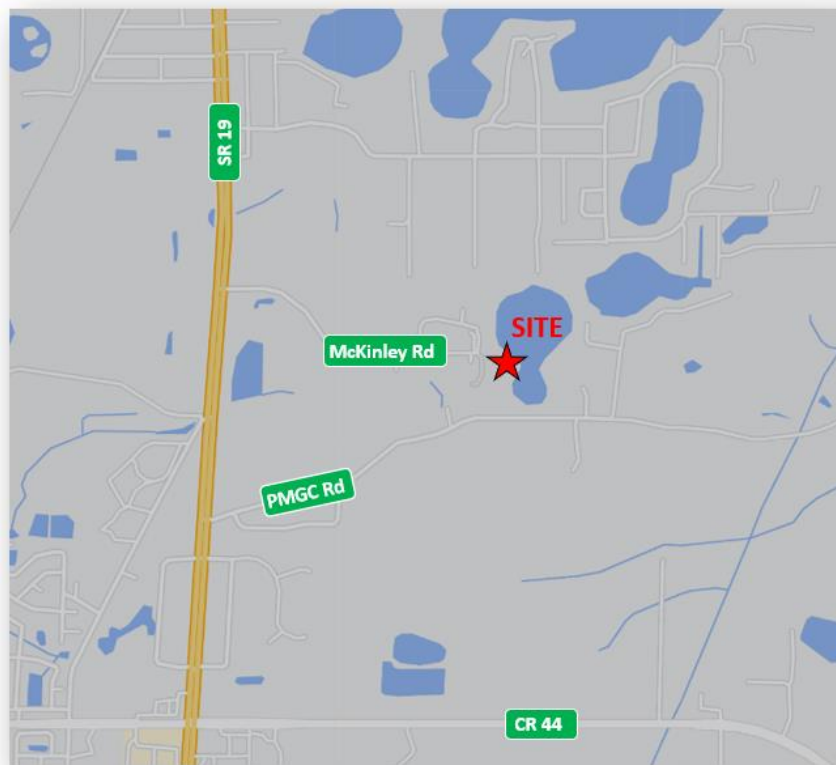


Figure 1: Project Location Map

1.2 Study Area

The study facilities to be considered in the analysis are:

Study Intersections

- SR 19 and CR 44
- SR 19 and Pine Meadows Golf Course Road
- SR 19 and CR 19A
- SR 19 and McKinley Road
- SR 19 and Orange Avenue

Study Segments

- Per the Lake-Sumter Traffic Impact Study Methodology Guidelines, the study roadway segments within a one (1) mile area and having a 5% capacity utilization/significance will be studied. The anticipated study segments are as follows:
 - CR 44
 - 500: CR 452 to SR 19
 - 510: SR 19 to Hicks Road
 - SR 19
 - 2910: CR 450A to CR 19A
 - 2920: CR 19A to CR 44
 - 2930: CR 44 to CR 452

1.3 Planned and Programmed Improvements

Based on discussions and review of data documented by FDOT, Lake County and the Lake-Sumer Metropolitan Planning Organization, there are no pertinent roadway capacity improvements that were planned and programmed within three (3) years of the project buildout.

2.0 EXISTING TRAFFIC CONDITIONS

Existing conditions in the vicinity of the site were analyzed to establish a baseline for the traffic conditions prevailing in the vicinity of the proposed development. The analysis included a review of the existing roadway segment capacities and an analysis of the intersection operations at the study intersections.

2.1 Roadway Segment Analysis

Table 1 summarizes the existing roadway segment capacity analysis for study segment within a four (4) mile radius of the proposed development. The existing roadway segment conditions were analyzed by comparing the existing traffic volumes observed on the study roadway segments to the service volumes at the adopted Level of Service (LOS) standard for the roadway segments. The LOS data was obtained from the latest *Lake County Transportation Management System Spreadsheet*, excerpts of which are included in **Appendix C**.

Table 1: Existing Roadway Segment Capacity Analysis

Seg ID	Roadway	Segment	Lanes	LOS Stnd	PH Dir Capacity	Dir	Existing Vol	LOS Stnd Met?
500	C.R. 44	CR 452 to SR 19	2	D	710	NB/EB	733	No
						SB/WB	646	Yes
510	C.R. 44	SR 19 to HICKS DITCH ROAD	2	D	840	NB/EB	452	Yes
						SB/WB	653	Yes
2910	SR 19	CR 450A to CR 19A	4	D	3280	NB/EB	935	Yes
						SB/WB	584	Yes
2920	SR 19	CR 19A to CR 44	4	D	2100	NB/EB	935	Yes
						SB/WB	584	Yes
2930	SR 19	CR 44 to CR 452	4	D	2100	NB/EB	689	Yes
						SB/WB	624	Yes

The analysis indicates that the study roadway segments currently operate adequately within their adopted Level of Service (LOS) standard. The eastbound segment of CR 44 between CR 452 and SR 19 currently fails in the PM peak hour and thus, is an existing deficiency.

2.2 Intersection Capacity Analysis

Table 2 summarizes the results of the existing intersection capacity analysis. The existing intersection capacity analysis was conducted for the AM and PM peak hour using the *Synchro* software and the methods of the *Highway Capacity Manual (HCM)*. The turning movement count data and the existing AM and PM peak hour Turning Movement Volumes are the are included in **Appendix D**. It should be noted that the raw turning movement counts were

adjusted to peak season volumes using a seasonal adjustment factor (1.16) obtained from the *FDOT Traffic Online* website.

Table 2: Existing Intersection Capacity Analysis

Intersection	Control	Time	EB		WB		NB		SB		Overall	
		Period	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 19 & CR 44	Signal	AM	44.2	D	42.5	D	27.0	C	28.0	C	34.6	C
		PM	53.4	D	52.3	D	44.7	D	40.3	D	47.3	D
SR 19 & PMGC Rd	Stop	AM	--	--	10.1	B	0.0	A	0.1	A	--	--
		PM	--	--	12.6	B	0.0	A	0.4	A	--	--
SR 19 & CR 19A	Stop	AM	18.9	C	--	--	0.2	A	0.0	A	--	--
		PM	22.6	C	--	--	0.2	A	0.0	A	--	--
SR 19 & McKinley Rd	Stop	AM	--	--	9.9	A	0.0	A	0.1	A	--	--
		PM	--	--	12.3	B	0.0	A	0.1	A	--	--
SR 19 & Orange Ave	Stop	AM	--	--	10.2	B	0.0	A	0.1	A	--	--
		PM	--	--	12.5	B	0.0	A	0.5	A	--	--

The analysis indicates that the study intersections operate adequately during the AM and PM peak hour period. The detailed *Synchro* worksheets are included in **Appendix E**.

3.0 TRIP GENERATION

To determine the impact of this development, an analysis of its trip generation characteristics was conducted. This included a determination of the trips to be generated as well as their distribution and assignment to the surrounding roadways. The estimated project buildout is 2025.

3.1 Trip Generation

Table 3 summarizes the trip generation analysis conducted using information published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual, 11th Edition*. The calculation indicated that the proposed development would generate a total of 631 daily trips of which 47 and 61 will occur during the AM and PM peak hour, respectively. The ITE Trip Generation graphs are included as part of the *Methodology Memorandum* in **Appendix B**.

Table 3: Trip Generation

ITE Code	Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
			Rate	Trips	Rate	Enter	Exit	Total	Rate	Enter	Exit	Total
210	Single Family	60 DUs	10.51	631	0.78	12	35	47	1.02	38	23	61

Note: ITE Trip generation equation used as the R-squared value is greater than 0.7

3.2 Trip Distribution/Assignment

The *Central Florida Regional Planning Model (CFRPM)* was used to determine a trip distribution pattern for this project. A model plot showing the trip distribution pattern is provided as part of the *Methodology Memorandum* in **Appendix B**. The trip distribution pattern was assessed for reasonableness using knowledge of the traffic patterns in the area, review of existing traffic counts and engineering judgement.

Figure 2 provides the finalized trip distribution developed for this project. Using this trip distribution pattern, project trips will be assigned to the surrounding study roadway network.

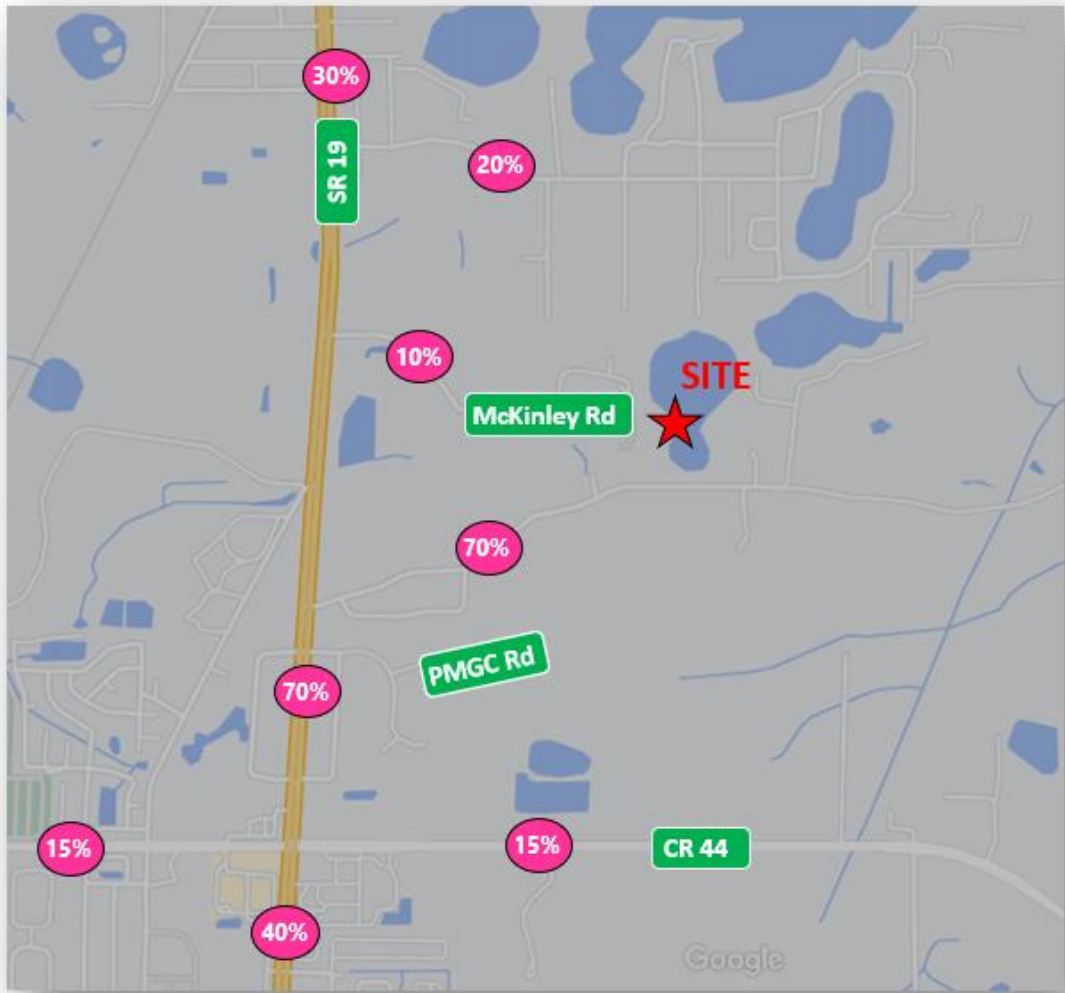


Figure 2: Trip Distribution Map

4.0 PROJECTED TRAFFIC CONDITIONS

An analysis of projected conditions was conducted to determine the proposed development's impact on the roadway segment capacities and to evaluate the operations of the study intersections. The project buildout year for the analysis is 2025.

4.1 Background Traffic Projection

Projected traffic volumes consist of background traffic combined with site generated traffic. Typically, background traffic volumes are determined by expanding existing peak hour traffic volumes to the buildout year using an annual growth rate. A historical trend analysis was conducted based on the Annual Average Daily Traffic (AADT) data obtained from the *FDOT Traffic Online* website in the vicinity of the project (see **Appendix F**). The trend analysis indicated negligible growth, therefore a nominal annual growth rate of 3% was utilized for the analysis. This growth rate was applied to the existing traffic volumes as appropriate in order to determine the projected background volumes in the project buildout year.

4.2 Roadway Segment Analysis

Table 4 summarizes the results of the projected study roadway segment capacity analysis. The Projected roadway segment conditions were analyzed by comparing the projected traffic volumes on the study segments to their respective service volumes at the adopted Level of Service (LOS) standard. The total projected traffic volume is composed of background traffic and project trips. Projected background traffic was estimated using the annual growth rate discussed in the previous section.

Table 4: Projected Roadway Segment Capacity Analysis

Seg ID	Roadway	Segment	Lanes	LOS Stnd	PH Dir Capacity	Dir	Trip Dist	Project Vol	Total Vol	LOS Stnd Met?
500	C.R. 44	CR 452 to SR 19	2	D	710	NB/EB	40%	15	792	No
						SB/WB		9	693	Yes
510	C.R. 44	SR 19 to HICKS DITCH ROAD	2	D	840	NB/EB	15%	164	643	Yes
						SB/WB		96	789	Yes
2910	SR 19	CR 450A to CR 19A	4	D	3,280	NB/EB	70%	164	1155	Yes
						SB/WB		96	715	Yes
2920	SR 19	CR 19A to CR 44	4	D	2,100	NB/EB	70%	164	1155	Yes
						SB/WB		96	715	Yes
2930	SR 19	CR 44 to CR 452	4	D	2,100	NB/EB	40%	164	894	Yes
						SB/WB		96	757	Yes

Note: Total Vol = Existing Vol x [1+(3.0% x 2 years)] + Project Vol

The analysis indicates that the study roadway segments currently operate adequately within their adopted Level of Service (LOS). The eastbound segment of CR 44 between CR 452 and SR 19 is project to continue to fail in the PM peak hour as it is an existing deficiency.

4.3 Intersection Capacity Analysis

Table 5 summarizes the results of the projected intersection capacity analysis. The projected intersection capacity and operational analysis was conducted using the *Synchro* software and the methods of the *Highway Capacity Manual (HCM)* and was performed for the AM and PM peak hours. The projected volumes for the intersection capacity and operations analysis were calculated as previously discussed. Projected background traffic was estimated using the annual growth rate as previously discussed. The projected peak hour volumes are also provided **Appendix D**.

Table 5: Projected Intersection Capacity Analysis

Intersection	Control	Time	EB		WB		NB		SB		Overall	
		Period	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 19 & CR 44	Signal	AM	44.3	D	42.8	D	28.9	C	29.6	C	35.6	D
		PM	66.0	E	53.8	D	48.4	D	42.6	D	52.0	D
SR 19 & PMGC Rd	Stop	AM	--	--	10.5	B	0.0	A	0.1	A	--	--
		PM	--	--	13.3	B	0.0	A	0.4	A	--	--
SR 19 & CR 19A	Stop	AM	22.8	C	--	--	0.8	A	0.0	A	--	--
		PM	26.7	D	--	--	0.3	A	0.0	A	--	--
SR 19 & McKinley Rd	Stop	AM	--	--	10.1	B	0.0	A	0.1	A	--	--
		PM	--	--	12.7	B	0.0	A	0.2	A	--	--
SR 19 & Orange Ave	Stop	AM	--	--	10.4	B	0.0	A	0.2	A	--	--
		PM	--	--	13.0	B	0.0	A	0.6	A	--	--

Note: Planning level signal timings utilize for projected conditions

The analysis indicates that the study intersections are projected to continue to operate adequately during both the AM and PM peak hour period. The *Synchro* analysis worksheets are included in **Appendix G**.

5.0 STUDY CONCLUSIONS

This traffic analysis is being conducted to assess the impact of the proposed Pine Meadow Subdivision located north of Pine Meadows Golf Course Road, approximately 0.6 miles east of SR 19 in Eustis, Florida. The proposed project comprises 60 single family units. The analysis included a determination of project trip generation, a review of existing and projected roadway and intersection capacity and a review of access operations.

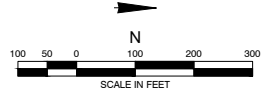
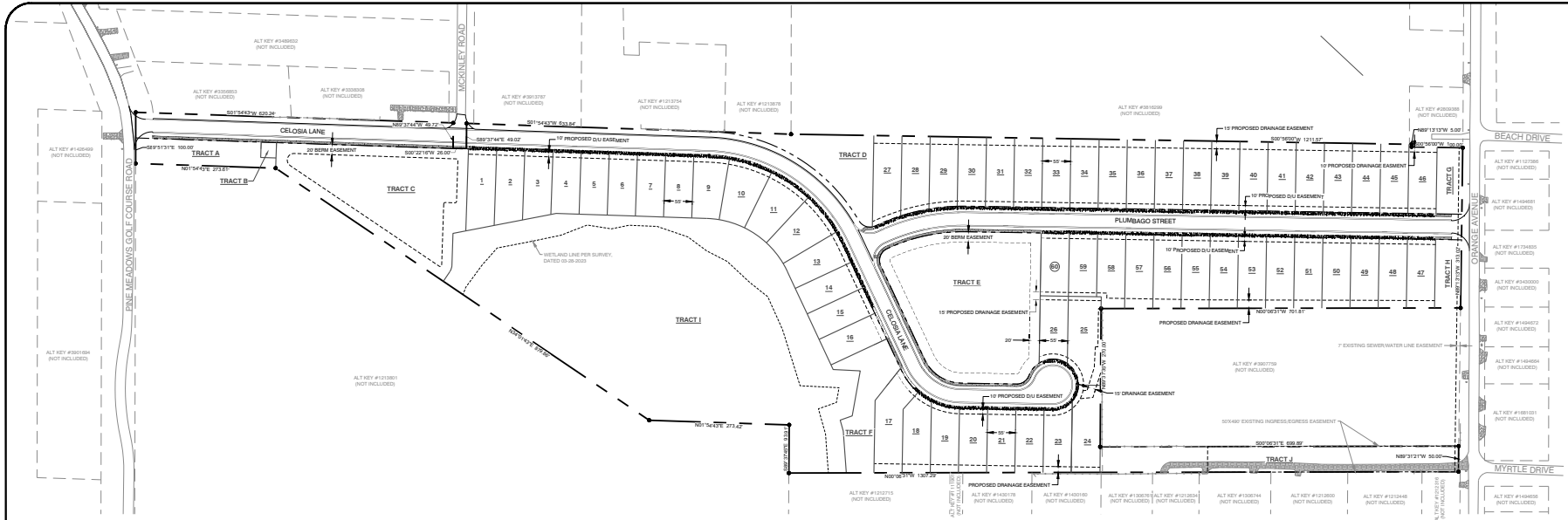
The results of the traffic analysis are summarized as follows:

- The proposed development will generate a total of 631 daily trips of which 47 and 61 will occur during the AM and PM peak hour, respectively.
- Access to the site will be provided via directional median opening connections onto SR 19 via Pine Meadows Golf Course Road, McKinley Road, and Orange Avenue.
- An analysis of the study roadway segments indicates that the study roadway segments currently operate adequately within their adopted Level of Service standard and are projected to continue to do so upon buildout of the proposed development. The eastbound segment of CR 44 between CR 452 and SR 19 is project to continue to fail in the PM peak hour as it is an existing deficiency.
- An analysis of the study intersections indicates that the study intersections currently operate adequately within their adopted Level of Service standard and are projected to continue to do so upon buildout of the proposed development.

Based on the analyses conducted, approval of the proposed project is requested from a transportation perspective since the project does not adversely impact any of the study roadway segments or intersections.

APPENDIX

Appendix A: Preliminary Concept Plan



LEGEND

- PROJECT PROPERTY LINE
- - - PROPOSED LOT LINE
- - - EXTERIOR PARCEL LINE
- - - PROPOSED EASEMENT
- WETLAND LINE
- FLOOD ZONE LINE
- ▭ PROPOSED CONCRETE TO BE CONSTRUCTED WITH LOTS (TYPICAL)
- ▭ PROPOSED CONCRETE TO BE CONSTRUCTED WITH THIS PROJECT (TYPICAL)
- ▭ EXISTING CONCRETE

NOTES

1. THE SITE CONSTRUCTION STAKEOUT SHALL BE PERFORMED UNDER THE DIRECTION OF A FLORIDA REGISTERED SURVEYOR. AUTOCAD FILE WILL BE PROVIDED TO AID IN THE SITE CONSTRUCTION STAKEOUT. ANY DISCREPANCIES FOUND BETWEEN THE AUTOCAD FILES SHALL BE BROUGHT TO THE ENGINEERS ATTENTION FOR CLARIFICATION PRIOR TO THAT STAKEOUT.
2. PROJECT SITE SHALL COMPLY WITH THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION (FBC) 8TH EDITION (2022).
3. UTILITY EASEMENTS TO BE DEDICATED TO THE CITY OF EUSTIS AND ELECTRICITY PROVIDER WHERE APPLICABLE.
4. DRAINAGE UTILITIES TO BE DEDICATED TO THE HOME OWNERS ASSOCIATION.
5. THE HOME OWNERS ASSOCIATION SHALL MAINTAIN ALL COMMON AREAS, FENCES, AND RETENTION AREAS.
6. ALL SIDEWALKS CONSTRUCTED THROUGHOUT THE ENTIRE SITE SHALL BE CONSTRUCTED IN COMPLIANCE WITH THE CITY OF EUSTIS LAND DEVELOPMENT REGULATIONS AND SPECIFICATIONS.
7. POND TRACTS SHALL BE DEDICATED TO THE HOME OWNERS ASSOCIATION.
8. WALLS, FENCES, AND SIGNS SHALL BE OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION.
9. ALL UTILITY LINES TO BE DESIGNED TO MEET THE CITY OF EUSTIS STANDARDS.
10. ALL CONSTRUCTION MATERIAL AND OTHER PROPOSED IMPROVEMENTS SHALL MEET THE APPLICABLE CODES OF THE CITY OF EUSTIS, CITY OF EUSTIS ORDINANCES, OR APPROVED EQUALS, AND WILL BE UTILIZED ON THE FINAL CONSTRUCTION PLANS.
11. ANY PROPOSED MECHANICAL GATES WILL REQUIRE FIRE DEPARTMENT ACCESS (CLICKCENTER, TO BE PERMITTED SEPARATELY).
12. ONLY COMMON AREA SIDEWALKS ARE TO BE BUILT WITH THIS PROJECT. INDIVIDUAL LOT SIDEWALKS ARE TO BE BUILT WITH THE CONSTRUCTION OF EACH LOT.

SITE DATA

1. **SITE AREA** - 24.96 AC / 1,087,108 SF
2. **SITE LOCATION**
EUSTIS, FLORIDA 32726
SECTION 26, TOWNSHIP 18 SOUTH, RANGE 26 EAST
3. **SITE DESCRIPTION**
ALT KEYS: 3007758, 2831634, 1588243
FUTURE LAND USE: SUBURBAN RESIDENTIAL (SR)
DESIGN DISTRICT: RURAL NEIGHBORHOOD
4. **SITE REQUIREMENTS**
MAXIMUM DENSITY: 5 DU/ACRE
MINIMUM OPEN SPACE REQUIRED: 25%
MAXIMUM IRI: 40%
PARK SPACE REQUIREMENT: 1 ACRE
AVERAGE WETLAND BUFFER REQUIRED: 50'
5. **SUBDIVISION DATA**
USE TYPE: SINGLE FAMILY RESIDENTIAL
TOTAL NUMBER OF LOTS: 60
MINIMUM LOT DIMENSIONS: 120 X 55'
NET BUILDABLE AREA - SITE AREA - WETLAND AREA
= 24.96 AC - 4.16 AC
= 20.80 AC (DENSITY = 2.88 DU/AC < 5 DU/AC)
OPEN SPACE REQUIRED: 5.20 AC (25.20%)
OPEN SPACE PROVIDED: 5.70 AC (27.48%)
PARK SPACE PROVIDED: 1.09 AC (> 1 AC)
R/W WIDTH: 50'
50' BUFFER PROPOSED ALONG ORANGE AVENUE (NORTH)
AVERAGE WETLAND BUFFER PROVIDED: 50'
WATER DEMAND: 60 UNITS X 300 GPD/UNIT = 21,000 GPD
SEWER DEMAND: 60 UNITS X 300 GPD/UNIT = 18,000 GPD
TRAFFIC: 60 UNITS X 9.44 TRIPS/UNIT = 567 TRIPS
SCHOOL AGE POPULATION: 60 X 0.65 = 39 CHILDREN

6. LOT SETBACKS

- FRONT SETBACK - 25'
- SIDE SETBACK - 5'
- REAR SETBACK - 10'

7. UTILITY DATA

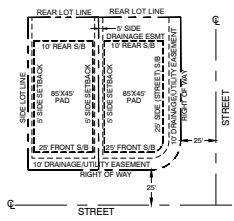
- WATER: CITY OF EUSTIS
- WASTEWATER: CITY OF EUSTIS
- ELECTRICITY: SECO ENERGY

8. IMPERVIOUS DATA

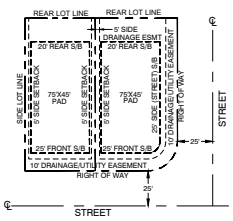
- 50' WIDE LOTS ROADWAY = 4.13 AC (2,000 SF/LOT)
- ROADWAY = 2.17 AC
- SIDEWALK = 0.87 AC
- ON-SITE IMPERVIOUS = 6.97 AC (SR = 27.52%)
- PERVIOUS = 18.09 AC (72.48%)

TRACT TABLE

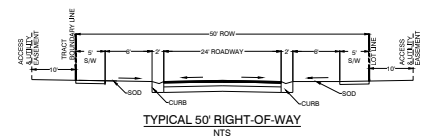
TRACT	USE	OWNERSHIP	ACREAGE	% OVERALL	OPEN SPACE
N/A	SINGLE FAMILY LOTS	.	10.38 AC	41.58%	0.00 AC
N/A	RIGHT OF WAY	CITY OF EUSTIS	3.79 AC	15.20%	0.00 AC
TRACT A	MINI-PARK	H.O.A.	0.29 AC	1.18%	0.29 AC
TRACT B	LIFT STATION	H.O.A.	0.02 AC	0.08%	0.00 AC
TRACT C	STORMWATER	H.O.A.	1.37 AC	5.50%	1.37 AC
TRACT D	PLAYGROUND	H.O.A.	0.43 AC	1.74%	0.43 AC
TRACT E	STORMWATER	H.O.A.	1.76 AC	7.03%	0.85 AC
TRACT F	MINI-PARK	H.O.A.	0.37 AC	1.46%	0.37 AC
TRACT G	LANDSCAPE BUFFER	H.O.A.	0.15 AC	0.60%	0.15 AC
TRACT H	LANDSCAPE BUFFER	H.O.A.	0.16 AC	0.62%	0.16 AC
TRACT I	CONSERVATION EASEMENT	H.O.A.	5.44 AC	21.80%	1.28 AC
TRACT J	EXISTING INGRESS/EGRESS EASEMENT	H.O.A.	0.80 AC	3.22%	0.80 AC
			24.96 AC	100.00%	5.70 AC



TYPICAL LOT LAYOUT
NTS



LOT 7 AND 8 LAYOUT
NTS



TYPICAL 50' RIGHT-OF-WAY
NTS

PRELIMINARY
NOT FOR CONSTRUCTION
NOT FOR PERMITTING
02-13-24

CHRISTOPHER M. GERMANA, P.E.
FLORIDA PROFESSIONAL ENGINEER # 61682
ENGINEERING FIRM REGISTRY # 26279

NO.	REVISIONS	DATE

**SUBDIVISION
MASTER PLAN**

**PINE MEADOWS RESERVE
SUBDIVISION**

**GERMANA ENGINEERING
AND ASSOCIATES, LLC**
1100 WEST MANALAPAN AVENUE
SUITE 200
EUSTIS, FLORIDA 32726
WWW.GERMANAENGINEERING.COM

SCALE: 1" = 100'
DATE: 02-13-2023
SHEET
C-103

Appendix B: Methodology Coordination



METHODOLOGY MEMORANDUM

RE: Pine Meadows Subdivision
Lake County, FL
Traffic Impact Analysis Methodology
09/22/2023 (Revised)
Job # 23145

The following is a methodology outline for the Traffic Impact Analysis (TIA) for the above referenced project. In general, the TIA will conform to the methodology requirements and guidelines documented by the City of Eustis, Lake County and the Florida Department of Transportation (FDOT).

Project Description

This traffic analysis is being conducted to assess the impact of the proposed Pine Meadow subdivision located north of Pine Meadows Golf Course Road, approximately 0.6 miles east of SR 19 in Eustis, Florida. The proposed project comprises 79 single family units. **Figure 1** depicts the site location and the surrounding transportation network.

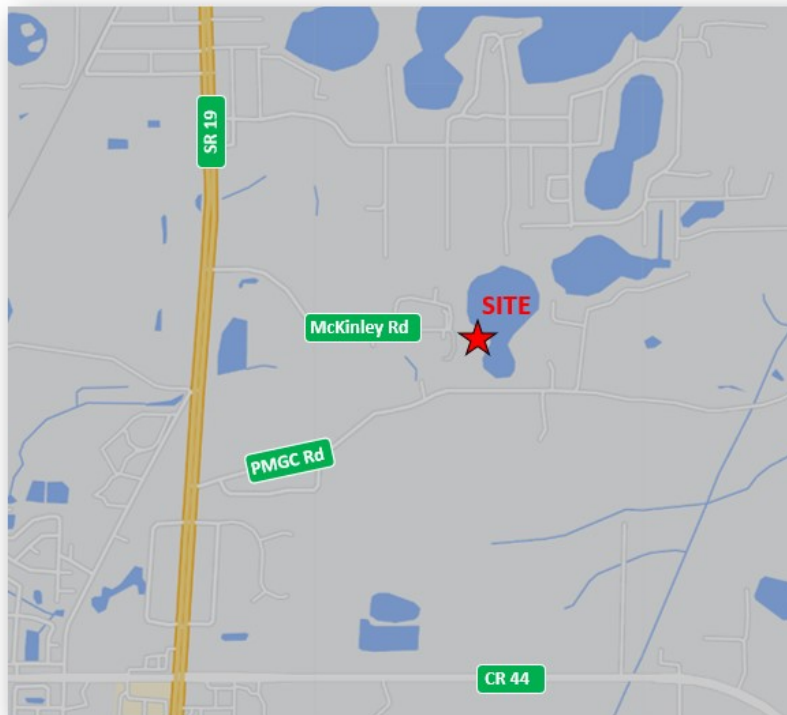


Figure 1: Project Location Map

Site Access

Access to the site will be provided via directional median opening connections onto SR 19 via Pine Meadows Golf Course Road, McKinley Road and Orange Avenue. **Attachment A** provides site information from the Lake County property appraiser website.

Trip Generation

Table 1 summarizes the trip generation analysis conducted using information published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual, 11th Edition*. The calculation revealed that the proposed development will generate a total of 812 daily trips of which 72 and 80 trips will occur during the AM and PM peak hour. The ITE Trip Generation graphs are included for reference in **Attachment B**.

Table 1: Trip Generation

ITE Code	Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
			Rate	Trips	Rate	Enter	Exit	Total	Rate	Enter	Exit	Total
210	Single Family	79 DUs	10.28	812	0.91	19	53	72	1.01	50	30	80

Trip Distribution

The *Central Florida Regional Planning Model (CFRPM)* was used to determine a trip distribution pattern for this project. A model plot showing the trip distribution pattern is provided in **Attachment C**. The trip distribution pattern was assessed for reasonableness using knowledge of the traffic patterns in the area, review of existing traffic counts and engineering judgement. **Figure 2** provides the finalized trip distribution developed for this project. Using this trip distribution pattern, project trips will be assigned to the surrounding study roadway network.

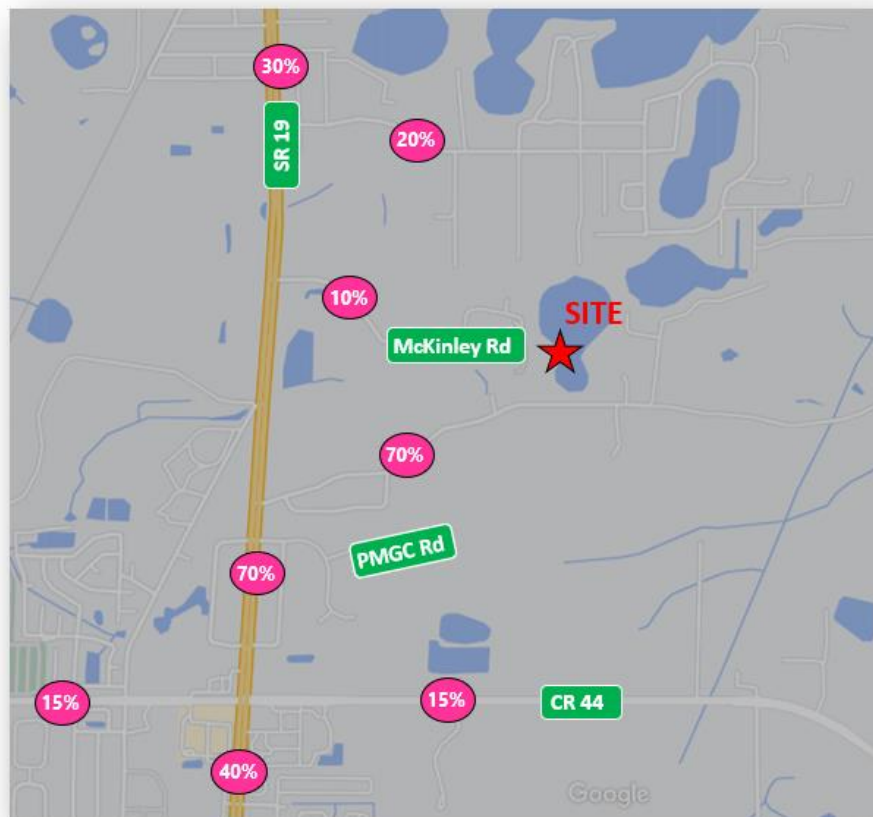


Figure 2: Trip Distribution Map

Study Area

The study facilities to be considered in the analysis are:

Study Intersections

- SR 19 and CR 44
- SR 19 and Pine Meadows Golf Course Road
- SR 19 and CR 19A
- SR 19 and McKinley Road
- SR 19 and Orange Avenue

Study Segments

- Per the Lake-Sumter Traffic Impact Study Methodology Guidelines, the study roadway segments within a one (1) mile area and having a 5% capacity utilization/significance will be studied. The anticipated study segments are as follows:
 - CR 44
 - 500: CR 452 to SR 19
 - 510: SR 19 to Hicks Road
 - SR 19
 - 2910: CR 450A to CR 19A
 - 2920: CR 19A to CR 44
 - 2930: CR 44 to CR 452

Projected Conditions Analysis

The projected conditions analysis will be conducted within the following framework:

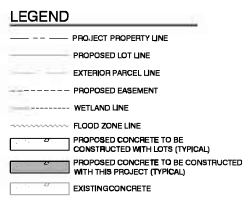
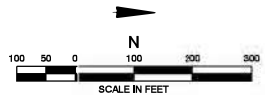
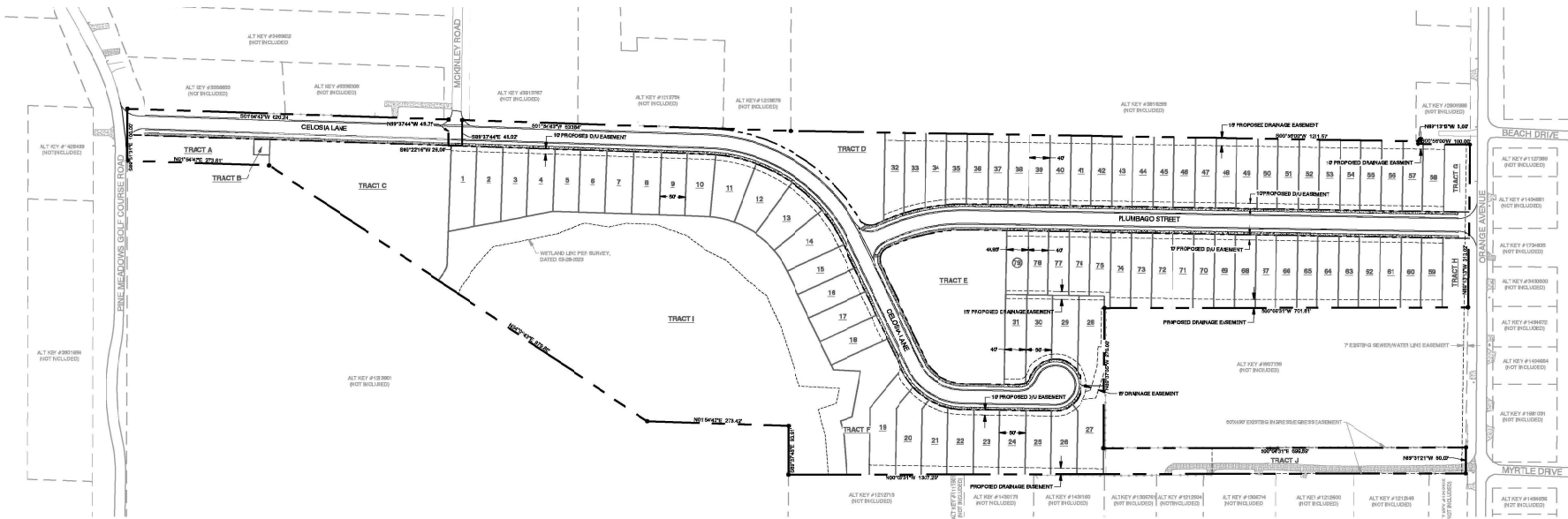
- *Counts:* Traffic counts will be obtained during the AM and PM peak period and adjusted using a peak season factor as necessary.
- *Growth Factors:* Growth factors, derived from historical traffic volume data, will be applied to existing traffic counts to develop projected/buildout background traffic volumes.
- *Analysis Periods:* Analyses will be performed for existing (2023) and projected/buildout conditions (2025).
- *Projected Conditions Traffic:* Project buildout traffic volumes will be added to the future background traffic volumes to obtain total project/buildout traffic volumes.
- *Roadway Analysis:* Roadways segments will be evaluated using the Lake County and FDOT service volume capacities, as applicable.
- *Intersection Analysis:* Intersection capacity analysis will be performed using the latest operational analysis procedures documented in the *Highway Capacity Manual* as applied using the *Synchro* software.
- *Turn Lane Analysis:* Turn Lane analysis will be performed as necessary for all the site access driveways based on FDOT requirements.

Traffic Impact Study Report

The traffic report prepared will summarize the study procedures, analyses and recommendations.

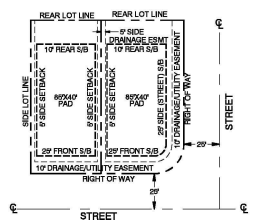
END

Attachment A
Concept Plan

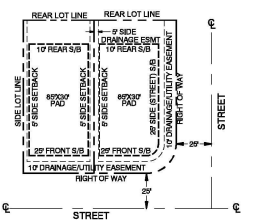


NOTES

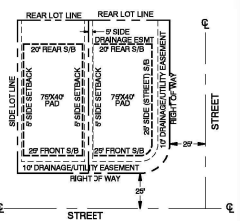
1. THE SITE CONSTRUCTION STAKEOUT SHALL BE PERFORMED UNDER THE DIRECTION OF A FLORIDA REGISTERED SURVEYOR. AUTOCAD FILES WILL BE PROVIDED TO AID IN THE SITE CONSTRUCTION STAKEOUT. ANY DISCREPANCIES FOUND BETWEEN THE AUTOCAD FILES SHALL BE BROUGHT TO THE ENGINEERS ATTENTION FOR CLARIFICATION PRIOR TO THAT STAKEOUT.
2. PROJECT SITES SHALL COMPLY WITH THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION (FAC) (FEDERATION 9030).
3. UTILITY EASEMENTS TO BE DEDICATED TO THE CITY OF EUSTIS AND ELECTRICITY PROVIDER WHERE APPLICABLE.
4. DRAINAGE UTILITIES TO BE DEDICATED TO THE HOME OWNERS ASSOCIATION.
5. THE HOME OWNERS ASSOCIATION SHALL MAINTAIN ALL COMMON AREAS, FENCES AND RETENTION AREAS.
6. ALL SIDEWALKS CONSTRUCTED THROUGHOUT THE ENTIRE SITE SHALL BE CONSTRUCTED IN COMPLIANCE WITH THE CITY OF EUSTIS LAND DEVELOPMENT REGULATIONS AND SPECIFICATIONS.
7. POND TRACTS SHALL BE DEDICATED TO THE HOME OWNERS ASSOCIATION.
8. WALLS, FENCES AND SIGNS SHALL BE OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION.
9. ALL UTILITY LINES TO BE DESIGNED TO MEET THE CITY OF EUSTIS STANDARDS.
10. ALL CONSTRUCTION MATERIAL AND OTHER PROPOSED IMPROVEMENTS SHALL MEET THE APPLICABLE CODES OF THE CITY OF EUSTIS, CITY OF EUSTIS DETAILS, OR APPROVED EQUALS, AND WILL BE UTILIZED ON THE FINAL CONSTRUCTION PLANS.
11. ANY PROPOSED MECHANICAL GATES WILL REQUIRE FIRE DEPARTMENT ACCESS (CLICK CENTER) TO BE PERMITTED SEPARATELY.
12. ONLY COMMON AREAS AND SIDEWALKS ARE TO BE BUILT WITH THIS PROJECT. INDIVIDUAL LOT SIDEWALKS ARE TO BE BUILT WITH THE CONSTRUCTION OF EACH LOT.



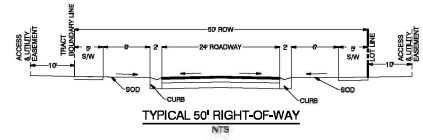
TYPICAL 50' LOT LAYOUT
NTS



TYPICAL 40' LOT LAYOUT
NTS



LOT 7 AND 8 LAYOUT
NTS



TYPICAL 50' RIGHT-OF-WAY
NTS

SITE DATA

1. **SITE AREA** = 24.96 AC (1,087,106 SF)
 2. **SITE LOCATION**
 EUSTIS, FLORIDA 32728
 SECTION 08, TOWN SHIP 18 SOUTH, RANGE 28 EAST
 3. **SITE DESCRIPTION**
 ALT KEYS: 307758, 283164, 158624
 FUTURE LAND USE: SUBURBAN RESIDENTIAL (SR)
 DESIGN DISTRICT: RURAL, NEIGHBORHOOD
 4. **SITE REQUIREMENTS**
 MAXIMUM DENSITY: 5 DU/AC
 MINIMUM OPEN SPACE REQUIRED: 25%
 MAXIMUM ISR: 40%
 AVERAGE WETLAND BUFFER REQUIRED: 50'
 5. **SUBDIVISION DATA**
 LOTS: 79 (SINGLE-FAMILY RESIDENTIAL)
 50' WIDE LOTS: 30
 40' WIDE LOTS: 22
 TOTAL NUMBER OF LOTS: 79
 MINIMUM LOT DIMENSIONS: 120' X 40'
 TOTAL SITE AREA - WETLAND AREA
 NET BUILDABLE AREA
 = 24.96 AC - 4.16 AC
 = 20.80 AC (DENSITY = 380 DU/AC < 5 DU/AC)
 OPEN SPACE REQUIRED: 5.20 AC (25.00%)
 OPEN SPACE PROVIDED: 5.57 AC (28.78%)
 R/W WIDTH: 50'
 50' BUFFER PROPOSED ALONG ORANGE AVENUE (NORTH)
 AVERAGE WETLAND BUFFER PROVIDED: 50'
 WATER DEMAND: 79 UNITS X 300 GPD/UNIT = 23,700 GPD
 SEWER DEMAND: 79 UNITS X 300 GPD/UNIT = 23,700 GPD
 TRAFFIC: 79 UNITS X 844 TRIPS/DAY/UNIT = 746 TRIPS
 SCHOOL AGE POPULATION: 79 X 0.8 = 62 CHILDREN

6. LOT SETBACKS

FRONT SETBACK = 25'
 SIDE SETBACK = 5'
 REAR SETBACK = 10'

7. UTILITY DATA

WATER: CITY OF EUSTIS
 WASTEWATER: CITY OF EUSTIS
 ELECTRICITY: SECO ENERGY

8. IMPERVIOUS DATA

50' WIDE LOTS = 2,07 AC (0.00 SF/LOT)
 40' WIDE LOTS = 2.45 AC (0.16 SF/LOT)
 ROADWAY = 2.22 AC
 SIDEWALKS = 0.57 AC
 ON-SITE IMPERVIOUS = 23.34 AC (98.17%)
 PERVIOUS = 17.29 AC (70.83%)

TRACT TABLE

TRACT	USE	OWNERSHIP	ACREAGE	% OVERALL	OPEN SPACE
TRACT A	SINGLE-FAMILY LOTS	H.O.A.	15.96 AC	43.89%	0.00 AC
TRACT B	RIGHT-OF-WAY	CITY OF EUSTIS	3.79 AC	18.20%	0.00 AC
TRACT A	MINI-PARK	H.O.A.	0.28 AC	1.18%	0.28 AC
TRACT B	LIFT STATION	H.O.A.	0.02 AC	0.08%	0.00 AC
TRACT C	STORMWATER	H.O.A.	1.28 AC	5.12%	1.28 AC
TRACT D	PLAYGROUND	H.O.A.	0.81 AC	2.06%	0.81 AC
TRACT E	STORMWATER	H.O.A.	1.28 AC	5.17%	0.77 AC
TRACT F	MINI-PARK	H.O.A.	0.33 AC	1.34%	0.33 AC
TRACT G	LANDSCAPE BUFFER	H.O.A.	0.15 AC	0.60%	0.15 AC
TRACT H	LANDSCAPE BUFFER	H.O.A.	0.18 AC	0.80%	0.18 AC
TRACT I	CONSERVATION EASEMENT	H.O.A.	5.44 AC	21.80%	1.28 AC
TRACT J	EXISTING INGRESS/EGRESS EASEMENT	H.O.A.	0.80 AC	3.22%	0.80 AC
			24.96 AC	100.00%	5.97 AC

PRELIMINARY
 NOT FOR CONSTRUCTION
 NOT FOR PERMITTING
 09-15-23
 CHRISTOPHER S. GEMMANA, P.E.
 FLORIDA PROFESSIONAL ENGINEER # 61882
 ENGINEERING FIRM REGISTRY # 29279

Attachment B
Trip Generation Information

Land Use: 210

Single-Family Detached Housing

Description

A single-family detached housing site includes any single-family detached home on an individual lot. A typical site surveyed is a suburban subdivision.

Specialized Land Use

Data have been submitted for several single-family detached housing developments with homes that are commonly referred to as patio homes. A patio home is a detached housing unit that is located on a small lot with little (or no) front or back yard. In some subdivisions, communal maintenance of outside grounds is provided for the patio homes. The three patio home sites total 299 dwelling units with overall weighted average trip generation rates of 5.35 vehicle trips per dwelling unit for weekday, 0.26 for the AM adjacent street peak hour, and 0.47 for the PM adjacent street peak hour. These patio home rates based on a small sample of sites are lower than those for single-family detached housing (Land Use 210), lower than those for single-family attached housing (Land Use 251), and higher than those for senior adult housing -- single-family (Land Use 251). Further analysis of this housing type will be conducted in a future edition of *Trip Generation Manual*.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

For 30 of the study sites, data on the number of residents and number of household vehicles are available. The overall averages for the 30 sites are 3.6 residents per dwelling unit and 1.5 vehicles per dwelling unit.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Arizona, California, Connecticut, Delaware, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Minnesota, Montana, New Jersey, North Carolina, Ohio, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, Virginia, and West Virginia.

Source Numbers

100, 105, 114, 126, 157, 167, 177, 197, 207, 211, 217, 267, 275, 293, 300, 319, 320, 356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 869, 903, 925, 936, 1005, 1007, 1008, 1010, 1033, 1066, 1077, 1078, 1079

Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 174

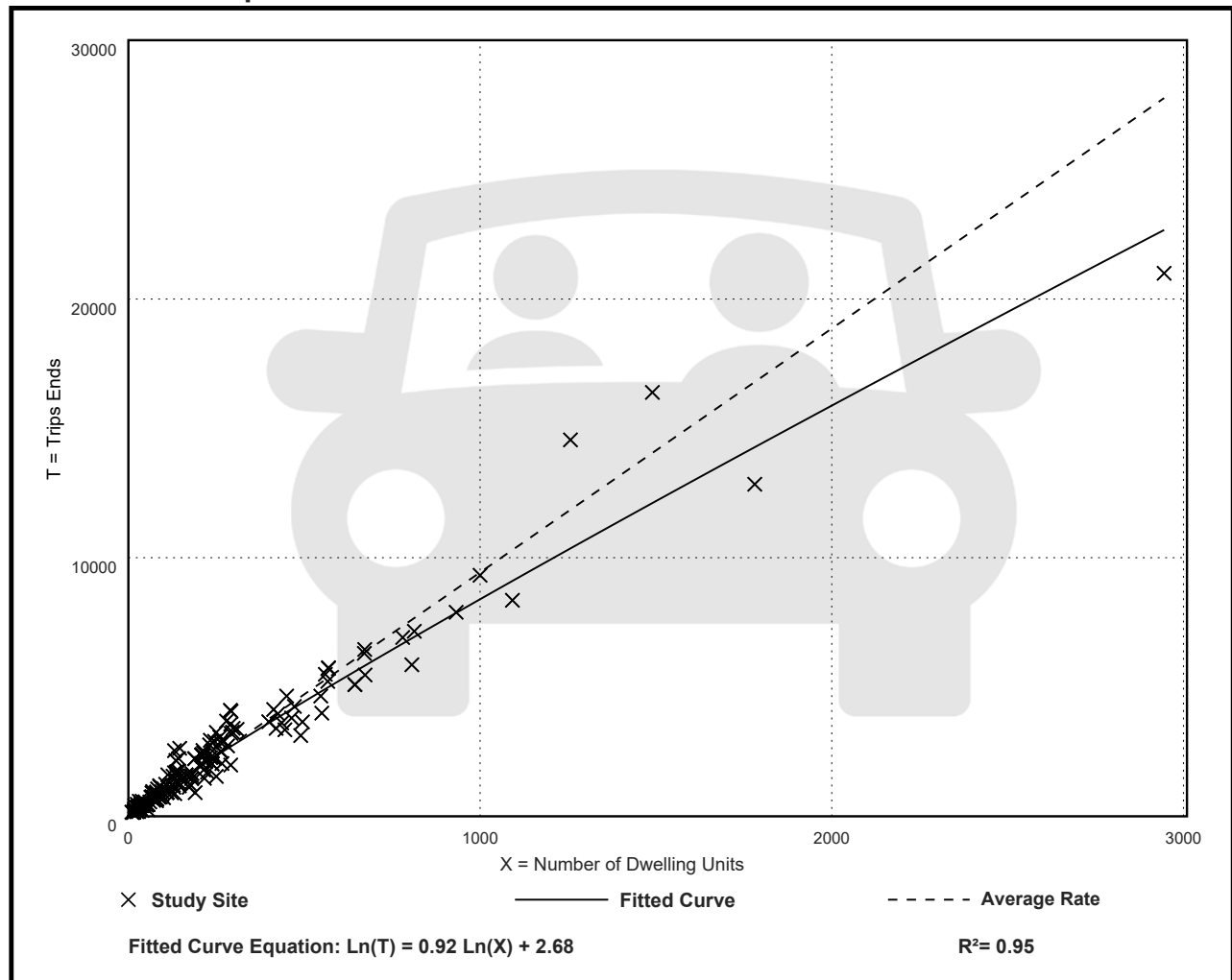
Avg. Num. of Dwelling Units: 246

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 192

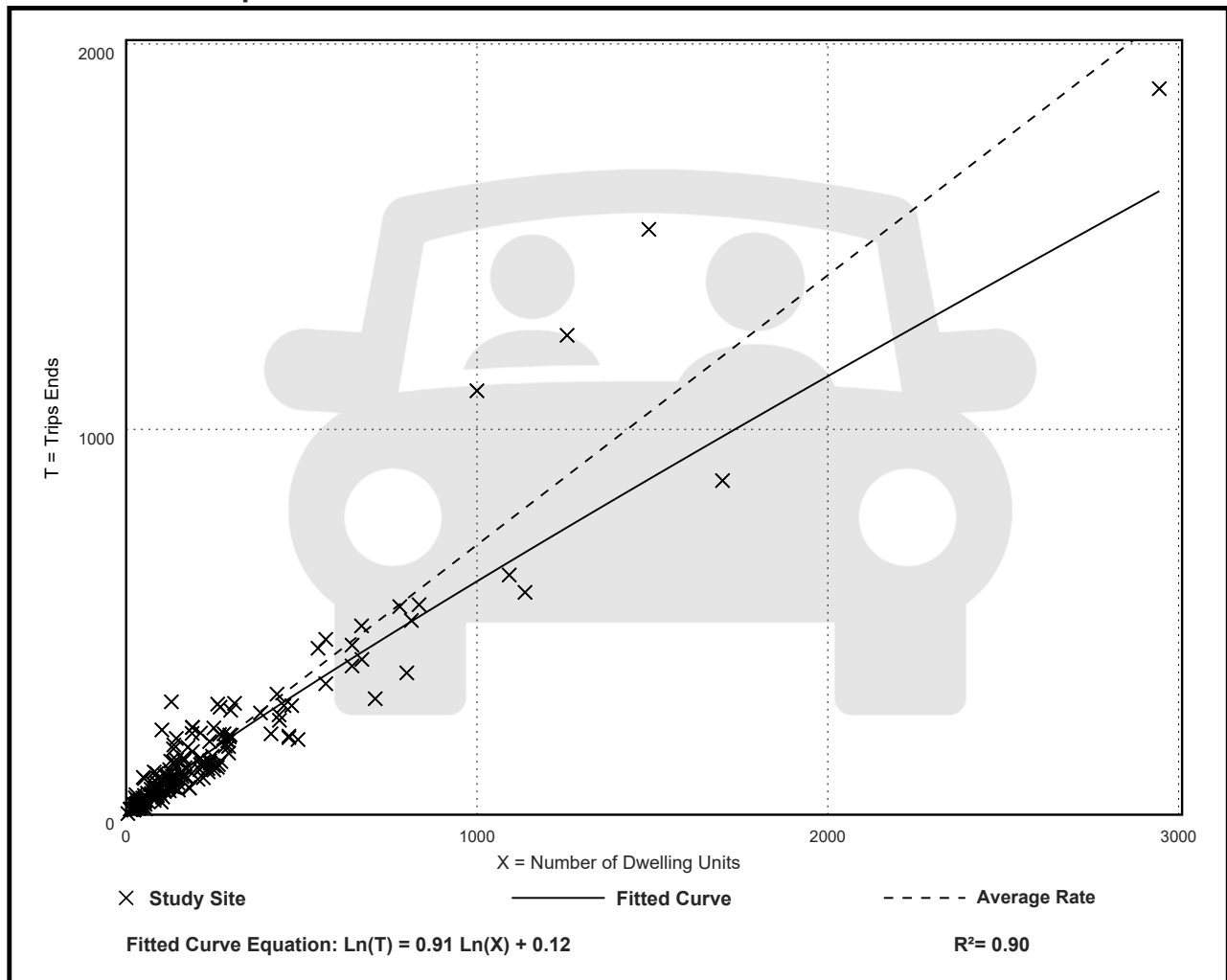
Avg. Num. of Dwelling Units: 226

Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 208

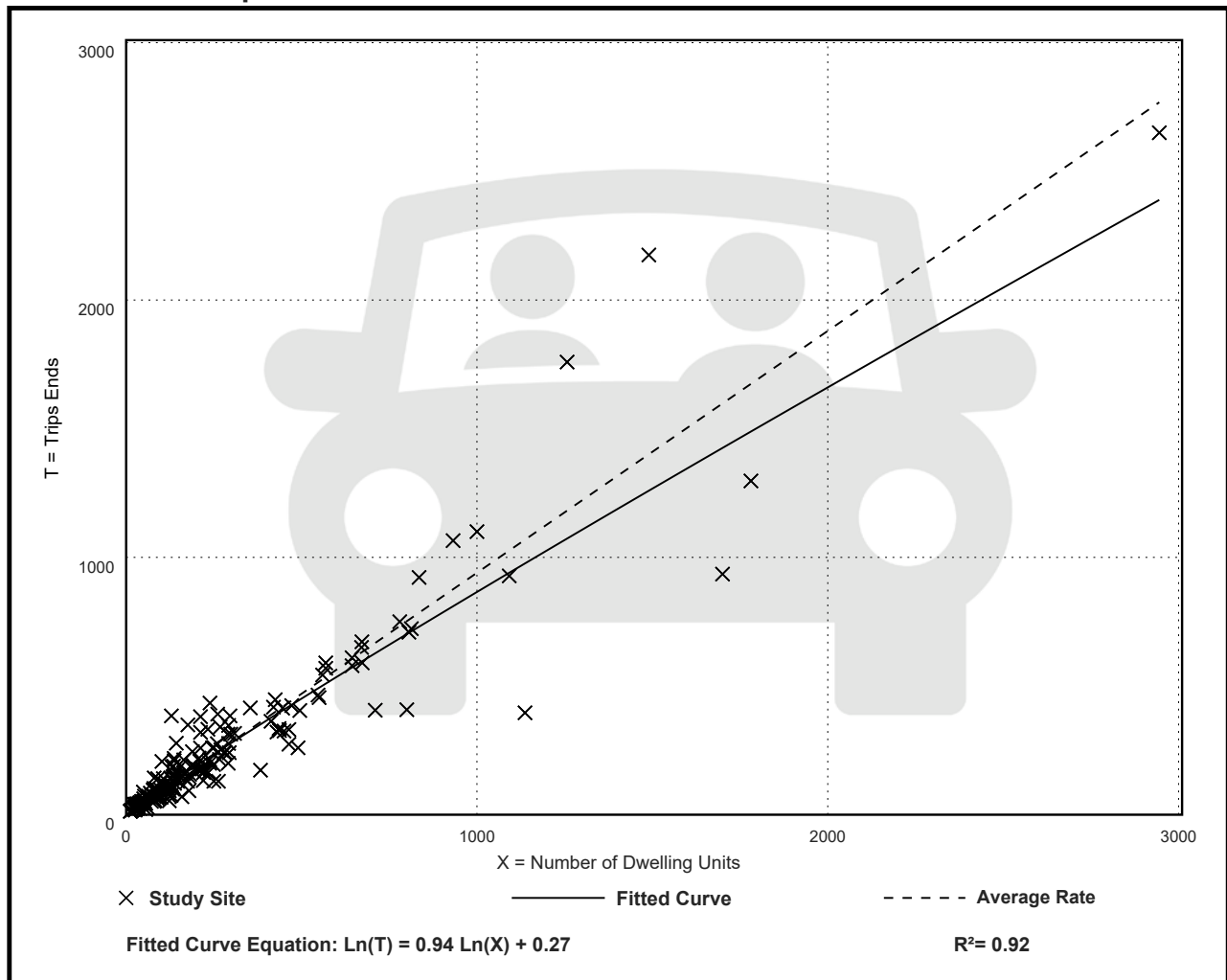
Avg. Num. of Dwelling Units: 248

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



Attachment C
Model Plot


Appendix C: Lake County CMS

Appendix D: Traffic Volumes

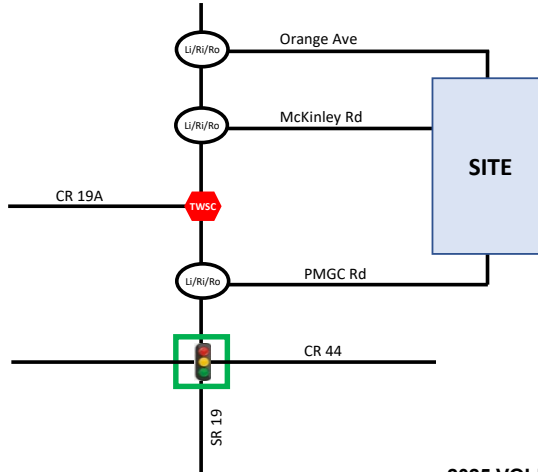
INTERSECTION TRAFFIC VOLUMES



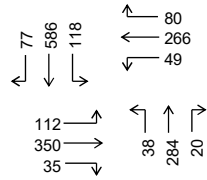
Intx 1: SR 19 & CR 44
AM Peak Hour

 - Subject Intersection

*Background + <Pass-By Vol> + (Project Vol) = Total Volume

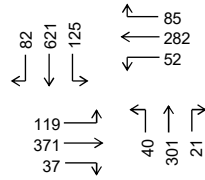


2023 VOLUMES



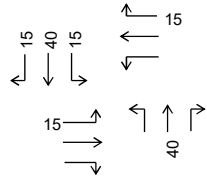
*SF applied = 1.06

2025 VOLUMES

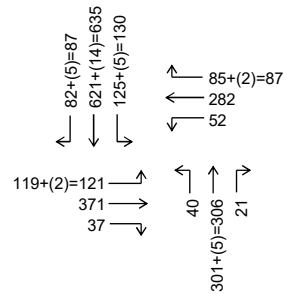


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES




Note: +/- errors due to rounding

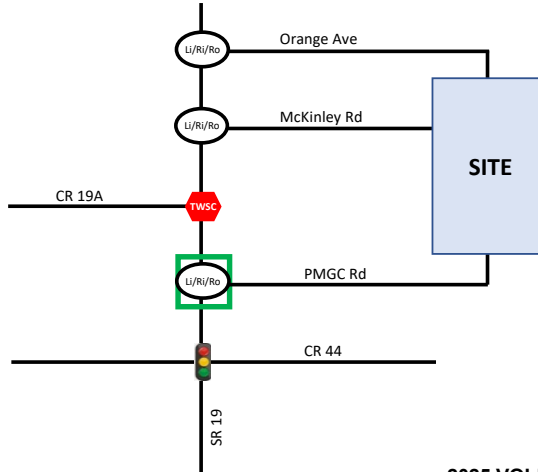
INTERSECTION TRAFFIC VOLUMES

Intx 2: SR 19 & PMGC Rd
AM Peak Hour

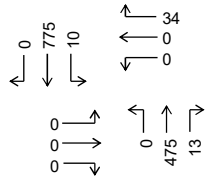


 - Subject Intersection

*Background + <Pass-By Vol> + (Project Vol) = Total Volume

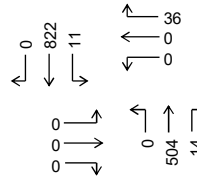


2023 VOLUMES



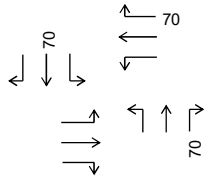
*SF applied = 1.06

2025 VOLUMES

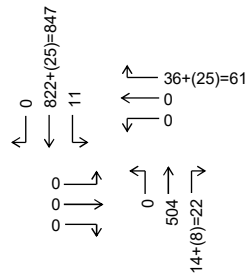


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES




Note: +/- errors due to rounding

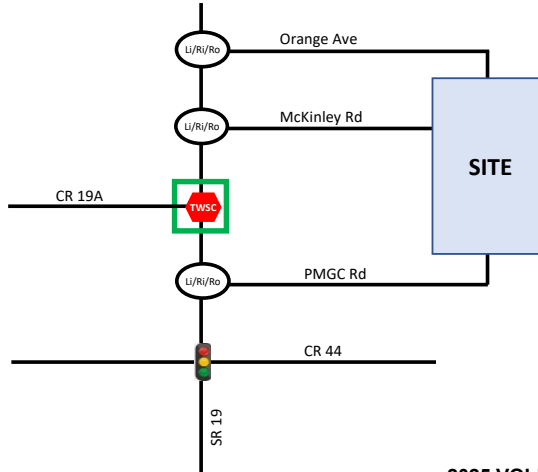
INTERSECTION TRAFFIC VOLUMES

Intx 3: SR 19 & CR 19A
AM Peak Hour

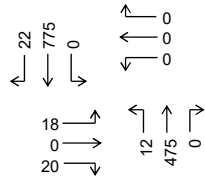


 - Subject Intersection

*Background + <Pass-By Vol> + (Project Vol) = Total Volume

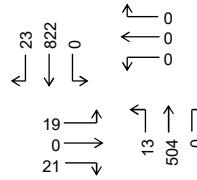


2023 VOLUMES



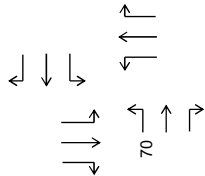
*SF applied = 1.06

2025 VOLUMES

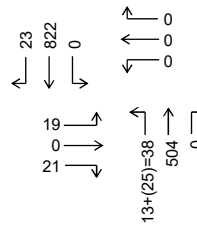


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES



Note: +/- errors due to rounding

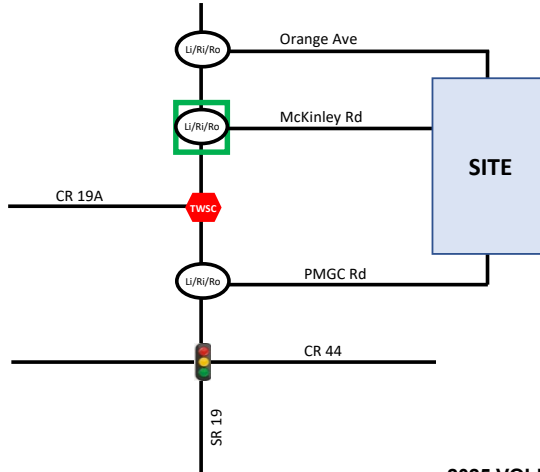
INTERSECTION TRAFFIC VOLUMES

Intx 4: SR 19 & McKinley Rd
AM Peak Hour

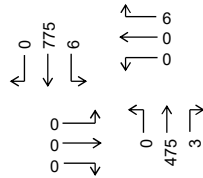


- Subject Intersection

*Background + <Pass-By Vol> + (Project Vol) = Total Volume

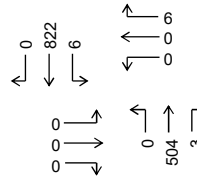


2023 VOLUMES



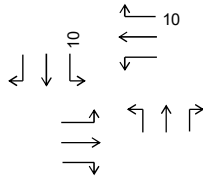
*SF applied = 1.06

2025 VOLUMES

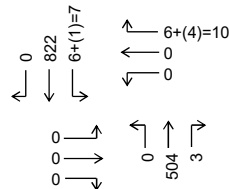


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES




Note: +/- errors due to rounding

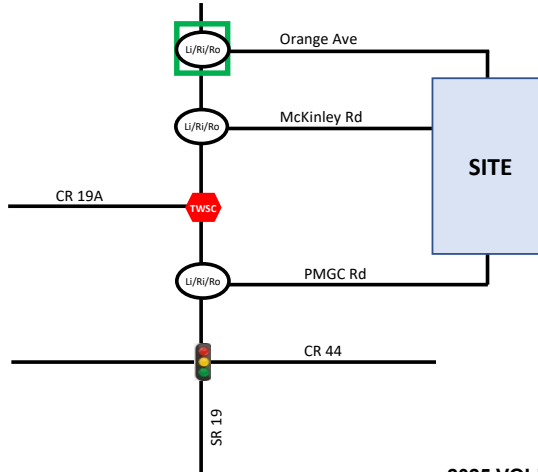
INTERSECTION TRAFFIC VOLUMES

Intx 5: SR 19 & Orange Ave
AM Peak Hour

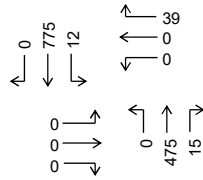


 - Subject Intersection

*Background + <Pass-By Vol> + (Project Vol) = Total Volume

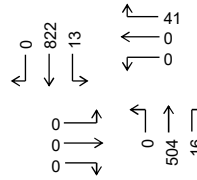


2023 VOLUMES



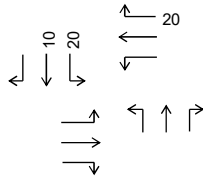
*SF applied = 1.06

2025 VOLUMES

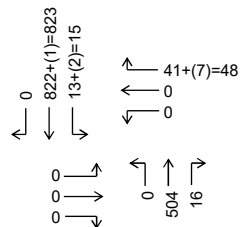


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES




Note: +/- errors due to rounding

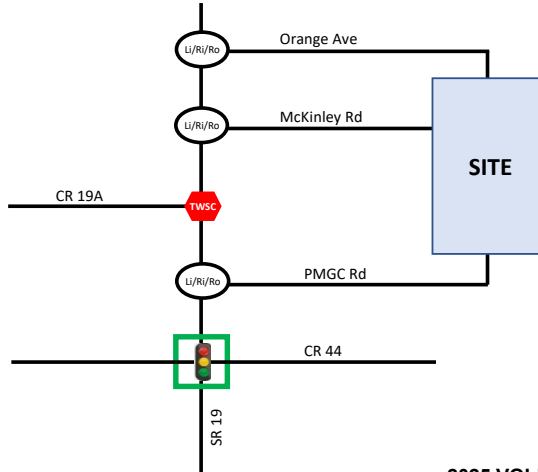
INTERSECTION TRAFFIC VOLUMES



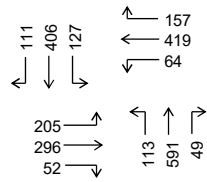
Intx 1: SR 19 & CR 44
PM Peak Hour

 - Subject Intersection

*Background + <Pass-By Vol> + (Project Vol) = Total Volume

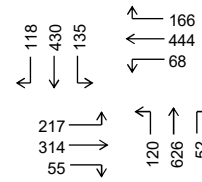


2023 VOLUMES



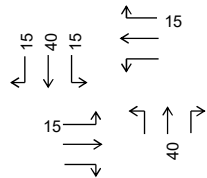
*SF applied = 1.06

2025 VOLUMES

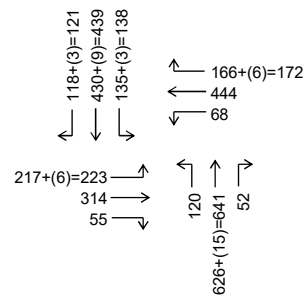


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES



Note: +/- errors due to rounding

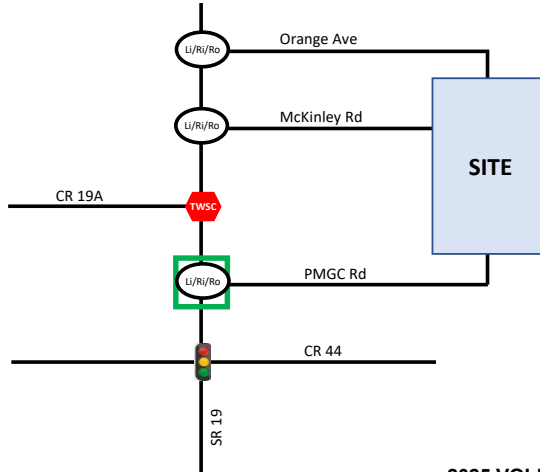
INTERSECTION TRAFFIC VOLUMES

Intx 2: SR 19 & PMGC Rd
PM Peak Hour

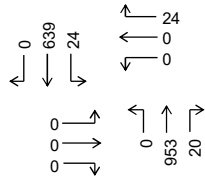


- Subject Intersection

*Background + <Pass-By Vol> + (Project Vol) = Total Volume

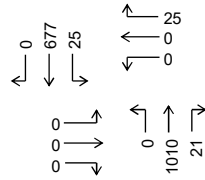


2023 VOLUMES



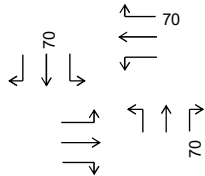
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2025 VOLUMES

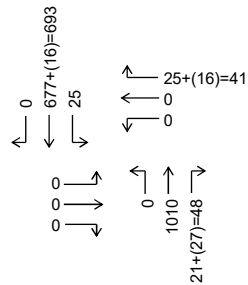


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES



Note: +/- errors due to rounding

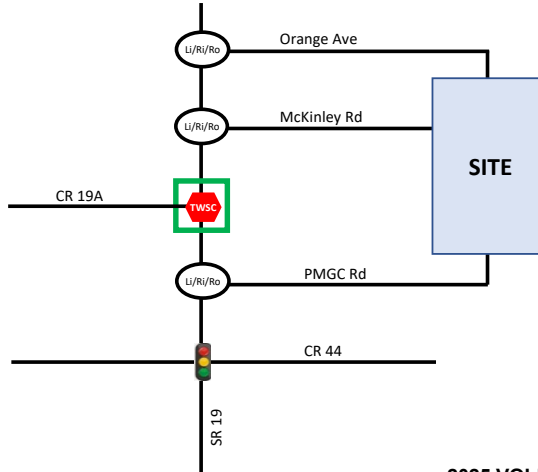
INTERSECTION TRAFFIC VOLUMES

Intx 3: SR 19 & CR 19A
PM Peak Hour

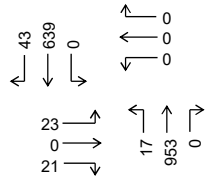


- Subject Intersection

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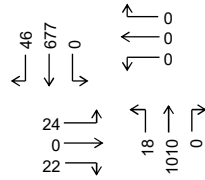


2023 VOLUMES



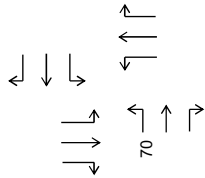
*SF applied = 1.06

2025 VOLUMES

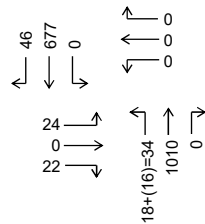


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES




Note: +/- errors due to rounding

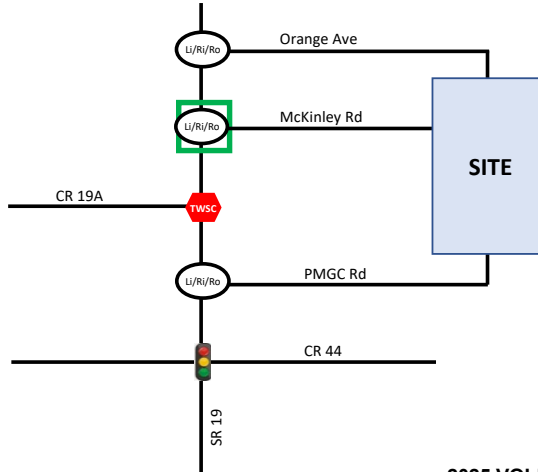
INTERSECTION TRAFFIC VOLUMES

Intx 4: SR 19 & McKinley Rd
PM Peak Hour

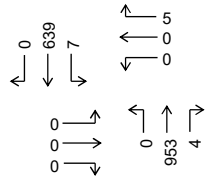


 - Subject Intersection

*Background + <Pass-By Vol> + (Project Vol) = Total Volume

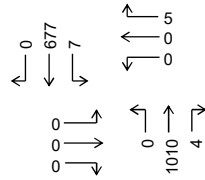


2023 VOLUMES



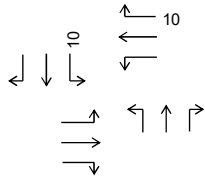
*SF applied = 1.06

2025 VOLUMES

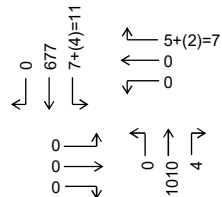


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES




Note: +/- errors due to rounding

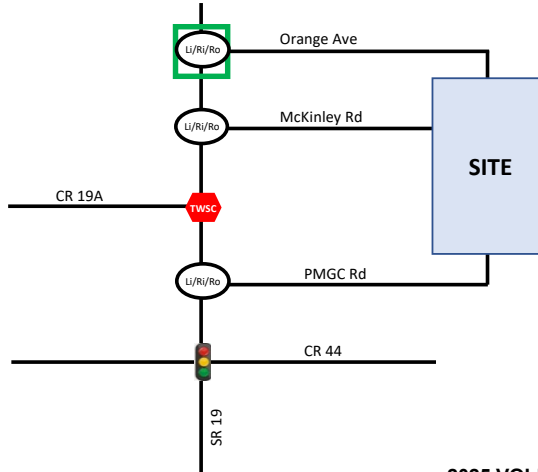
INTERSECTION TRAFFIC VOLUMES

Intx 5: SR 19 & Orange Ave
PM Peak Hour

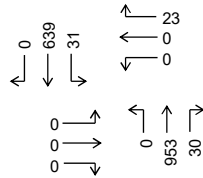


 - Subject Intersection

*Background + <Pass-By Vol> + (Project Vol) = Total Volume

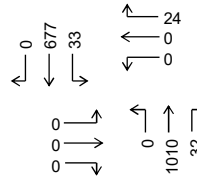


2023 VOLUMES



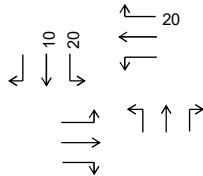
*SF applied = 1.06

2025 VOLUMES

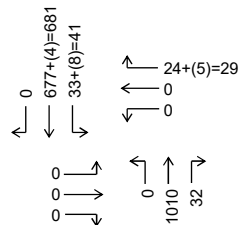


*Growth rate applied = 1.06

TRIP DISTRIBUTION %



PROJECTED VOLUMES



Note: +/- errors due to rounding

15 MINUTE TURNING MOVEMENT COUNTS
(Cars and Trucks)

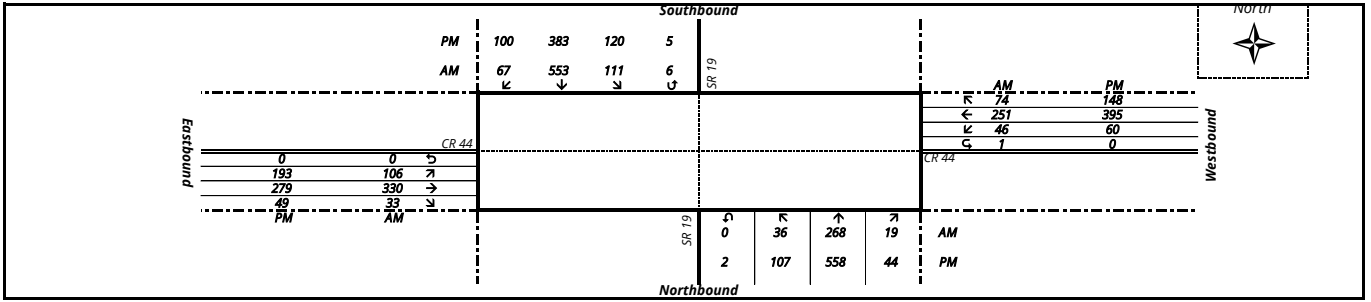
DATE: July 6, 2023 (Thursday)
LOCATION: SR 19 & CR 44

CITY: Eustis LATITUDE: 0
COUNTY: Lake LONGITUDE: 0

TIME BEGIN	SR 19 NORTHBOUND					SR 19 SOUTHBOUND					N/S TOTAL	CR 44 EASTBOUND				CR 44 WESTBOUND				E/W TOTAL	GRAND TOTAL		
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R			U-turn	TOTAL
07:00 AM	7	53	8	0	68	34	123	14	3	174	242	12	77	4	0	93	14	54	12	0	80	173	415
07:15 AM	7	46	5	0	58	25	135	24	1	185	243	26	95	6	0	127	7	46	15	0	68	195	438
07:30 AM	9	71	3	0	83	31	136	10	2	179	262	22	74	11	0	107	7	70	18	0	95	202	464
07:45 AM	14	84	6	0	104	26	125	16	2	169	273	34	83	9	0	126	14	72	27	1	114	240	513
TOTAL	37	254	22	0	313	116	519	64	8	707	1,020	94	329	30	0	453	42	242	72	1	357	810	1,830
08:00 AM	6	67	5	0	78	29	157	17	1	204	282	24	78	7	0	109	18	63	14	0	95	204	486
08:15 AM	8	58	6	0	72	17	107	13	2	139	211	25	55	12	0	92	13	67	10	0	90	182	393
08:30 AM	13	69	3	0	85	35	126	11	2	174	259	25	72	10	0	107	12	64	16	0	92	199	458
08:45 AM	19	71	11	0	101	28	93	8	0	129	230	29	71	17	0	117	14	57	16	0	87	204	434
TOTAL	46	265	25	0	336	109	483	49	5	646	982	103	276	46	0	425	57	251	56	0	364	789	1,771
04:00 PM	21	149	10	0	180	32	79	19	0	130	310	43	71	8	0	122	12	95	30	0	137	259	569
04:15 PM	20	148	13	1	182	26	91	25	1	143	325	57	71	19	0	147	15	88	42	0	145	292	617
04:30 PM	29	127	7	0	163	32	101	29	2	164	327	40	57	9	0	106	18	117	32	0	167	273	600
04:45 PM	21	141	13	0	175	28	90	23	1	142	317	51	84	15	0	150	15	92	42	0	149	299	616
TOTAL	91	565	43	1	700	118	361	96	4	579	1,279	191	283	51	0	525	60	392	146	0	598	1,123	2,402
05:00 PM	37	142	11	1	191	34	101	23	1	159	350	45	67	6	0	118	12	98	32	0	142	260	610
05:15 PM	19	147	13	0	179	26	81	12	4	123	302	72	83	9	0	164	12	105	27	0	144	308	610
05:30 PM	23	155	11	0	189	29	93	17	5	144	333	33	68	5	0	106	12	114	29	1	156	262	595
05:45 PM	13	124	6	0	143	22	79	19	5	125	268	57	96	5	0	158	15	79	30	0	124	282	550
TOTAL	92	568	41	1	702	111	354	71	15	551	1,253	207	314	25	0	546	51	396	118	1	566	1,112	2,365

AM Peak 07:15 AM to 08:15 AM	36	268	19	0	323	111	553	67	6	737	1,060	106	330	33	0	469	46	251	74	1	372	841	1,901
Peak Hour Factor: 0.926																							

PM Peak 04:15 PM to 05:15 PM	107	558	44	2	711	120	383	100	5	608	1,319	193	279	49	0	521	60	395	148	0	603	1,124	2,443
Peak Hour Factor: 0.990																							



15 MINUTE TURNING MOVEMENT COUNTS
(Cars and Trucks)

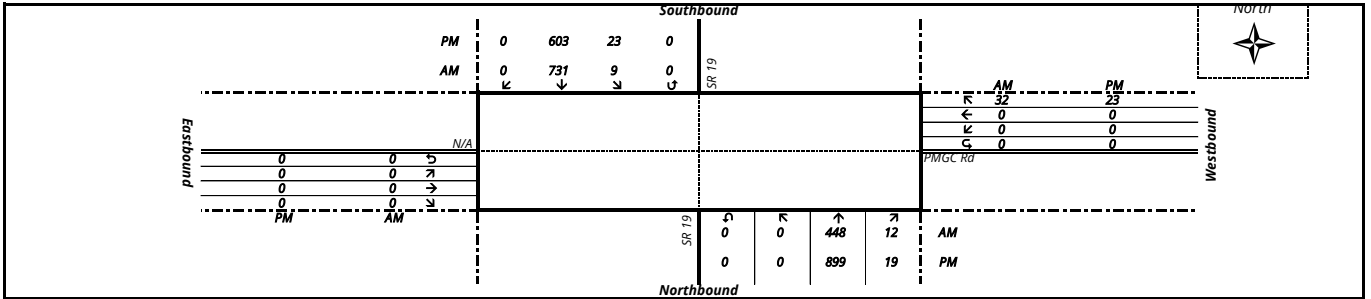
DATE: July 6, 2023 (Thursday)
LOCATION: SR 19 & PMGC Rd

CITY: Eustis LATITUDE: 0
COUNTY: Lake LONGITUDE: 0

TIME BEGIN	SR 19 NORTHBOUND					SR 19 SOUTHBOUND					N/S TOTAL	N/A EASTBOUND					PMGC Rd WESTBOUND					E/W TOTAL	GRAND TOTAL
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		
07:00 AM	0	77	3	0	80	1	171	0	0	172	252	0	0	0	0	0	0	0	6	0	6	6	258
07:15 AM	0	87	2	0	89	3	184	0	0	187	276	0	0	0	0	0	0	8	0	8	8	284	
07:30 AM	0	111	2	0	113	2	177	0	0	179	292	0	0	0	0	0	0	7	0	7	7	299	
07:45 AM	0	145	4	0	149	3	167	0	0	170	319	0	0	0	0	0	0	8	0	8	8	327	
TOTAL	0	420	11	0	431	9	699	0	0	708	1,139	0	0	0	0	0	0	29	0	29	29	1,168	
08:00 AM	0	105	4	0	109	1	203	0	0	204	313	0	0	0	0	0	0	9	0	9	9	322	
08:15 AM	0	93	3	0	96	3	137	0	0	140	236	0	0	0	0	0	0	10	0	10	10	246	
08:30 AM	0	110	5	0	115	2	172	0	0	174	289	0	0	0	0	0	0	13	0	13	13	302	
08:45 AM	0	116	3	0	119	2	129	0	0	131	250	0	0	0	0	0	0	11	0	11	11	261	
TOTAL	0	424	15	0	439	8	641	0	0	649	1,088	0	0	0	0	0	0	43	0	43	43	1,131	
04:00 PM	0	222	3	0	225	5	130	0	0	135	360	0	0	0	0	0	0	7	0	7	7	367	
04:15 PM	0	247	2	0	249	4	142	0	0	146	395	0	0	0	0	0	0	5	0	5	5	400	
04:30 PM	0	199	4	0	203	6	162	0	0	168	371	0	0	0	0	0	0	4	0	4	4	375	
04:45 PM	0	234	6	0	240	7	141	0	0	148	388	0	0	0	0	0	0	6	0	6	6	394	
TOTAL	0	902	15	0	917	22	575	0	0	597	1,514	0	0	0	0	0	0	22	0	22	22	1,536	
05:00 PM	0	219	7	0	226	6	158	0	0	164	390	0	0	0	0	0	0	8	0	8	8	398	
05:15 PM	0	246	6	0	252	4	119	0	0	123	375	0	0	0	0	0	0	9	0	9	9	384	
05:30 PM	0	217	5	0	222	3	139	0	0	142	364	0	0	0	0	0	0	7	0	7	7	371	
05:45 PM	0	211	4	0	215	4	120	0	0	124	339	0	0	0	0	0	0	10	0	10	10	349	
TOTAL	0	893	22	0	915	17	536	0	0	553	1,468	0	0	0	0	0	0	34	0	34	34	1,502	

AM Peak 07:15 AM to 08:15 AM	0	448	12	0	460	9	731	0	0	740	1,200	0	0	0	0	0	0	32	0	32	32	1,232	Peak Hour Factor: 0.942
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PM Peak 04:15 PM to 05:15 PM	0	899	19	0	918	23	603	0	0	626	1,544	0	0	0	0	0	0	23	0	23	23	1,567	Peak Hour Factor: 0.979
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15 MINUTE TURNING MOVEMENT COUNTS
(Cars and Trucks)

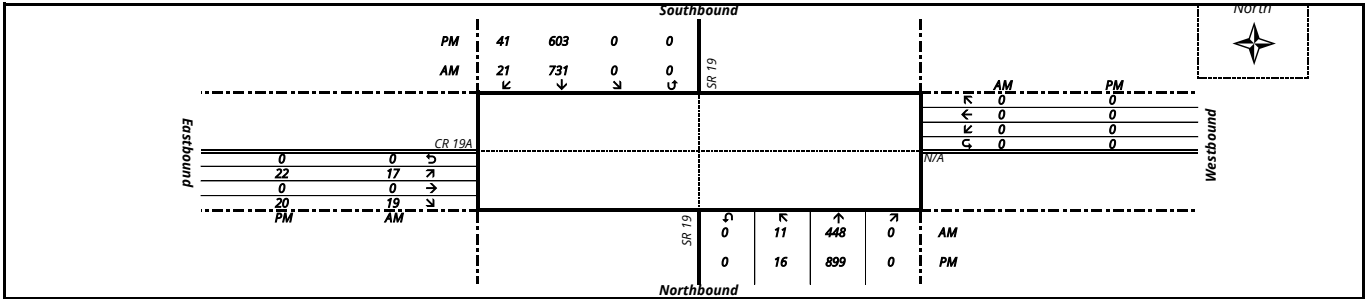
DATE: July 6, 2023 (Thursday)
LOCATION: SR 19 & CR 19A

CITY: Eustis LATITUDE: 0
COUNTY: Lake LONGITUDE: 0

TIME BEGIN	SR 19 NORTHBOUND					SR 19 SOUTHBOUND					N/S TOTAL	CR 19A EASTBOUND					N/A WESTBOUND					E/W TOTAL	GRAND TOTAL
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		
07:00 AM	5	77	0	0	82	0	171	0	0	171	253	4	0	3	0	7	0	0	0	0	0	7	260
07:15 AM	2	87	0	0	89	0	184	4	0	188	277	3	0	4	0	7	0	0	0	0	0	7	284
07:30 AM	4	111	0	0	115	0	177	5	0	182	297	6	0	5	0	11	0	0	0	0	0	11	308
07:45 AM	2	145	0	0	147	0	167	8	0	175	322	5	0	7	0	12	0	0	0	0	0	12	334
TOTAL	13	420	0	0	433	0	699	17	0	716	1,149	18	0	19	0	37	0	0	0	0	0	37	1,186
08:00 AM	3	105	0	0	108	0	203	4	0	207	315	3	0	3	0	6	0	0	0	0	0	6	321
08:15 AM	6	93	0	0	99	0	137	8	0	145	244	7	0	4	0	11	0	0	0	0	0	11	255
08:30 AM	0	110	0	0	110	0	172	4	0	176	286	5	0	6	0	11	0	0	0	0	0	11	297
08:45 AM	7	116	0	0	123	0	129	6	0	135	258	6	0	5	0	11	0	0	0	0	0	11	269
TOTAL	16	424	0	0	440	0	641	22	0	663	1,103	21	0	18	0	39	0	0	0	0	0	39	1,142
04:00 PM	2	222	0	0	224	0	130	8	0	138	362	6	0	4	0	10	0	0	0	0	0	10	372
04:15 PM	5	247	0	0	252	0	142	10	0	152	404	6	0	5	0	11	0	0	0	0	0	11	415
04:30 PM	6	199	0	0	205	0	162	13	0	175	380	8	0	7	0	15	0	0	0	0	0	15	395
04:45 PM	2	234	0	0	236	0	141	10	0	151	387	4	0	5	0	9	0	0	0	0	0	9	396
TOTAL	15	902	0	0	917	0	575	41	0	616	1,533	24	0	21	0	45	0	0	0	0	0	45	1,578
05:00 PM	3	219	0	0	222	0	158	8	0	166	388	4	0	3	0	7	0	0	0	0	0	7	395
05:15 PM	10	246	0	0	256	0	119	9	0	128	384	5	0	6	0	11	0	0	0	0	0	11	395
05:30 PM	7	217	0	0	224	0	139	5	0	144	368	7	0	8	0	15	0	0	0	0	0	15	383
05:45 PM	8	211	0	0	219	0	120	7	0	127	346	4	0	4	0	8	0	0	0	0	0	8	354
TOTAL	28	893	0	0	921	0	536	29	0	565	1,486	20	0	21	0	41	0	0	0	0	0	41	1,527

AM Peak 07:15 AM to 08:15 AM	11	448	0	0	459	0	731	21	0	752	1,211	17	0	19	0	36	0	0	0	0	0	36	1,247	Peak Hour Factor: 0.933
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PM Peak 04:15 PM to 05:15 PM	16	899	0	0	915	0	603	41	0	644	1,559	22	0	20	0	42	0	0	0	0	0	42	1,601	Peak Hour Factor: 0.964
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15 MINUTE TURNING MOVEMENT COUNTS
(Cars and Trucks)

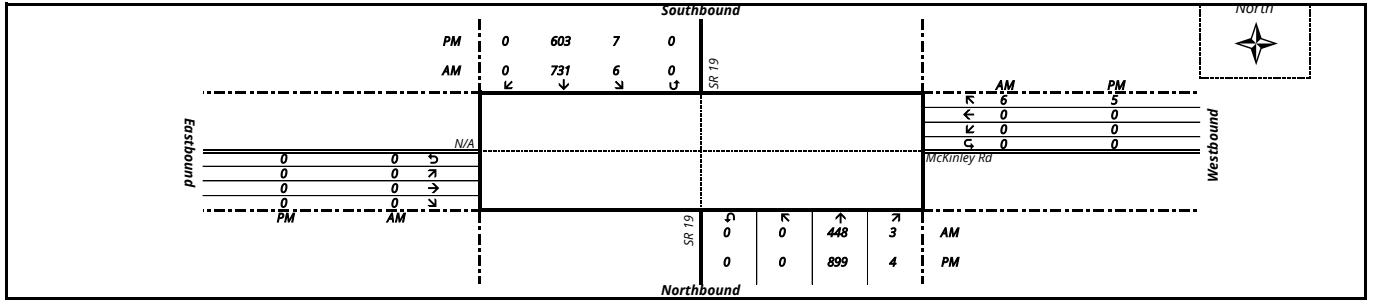
DATE: July 6, 2023 (Thursday)
LOCATION: SR 19 & McKinley Rd

CITY: Eustis LATITUDE: 0
COUNTY: Lake LONGITUDE: 0

TIME BEGIN	SR 19 NORTHBOUND					SR 19 SOUTHBOUND					N/S TOTAL	N/A EASTBOUND					McKinley Rd WESTBOUND					E/W TOTAL	GRAND TOTAL
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		
07:00 AM	0	77	0	0	77	0	171	0	0	171	248	0	0	0	0	0	0	0	1	0	1	1	249
07:15 AM	0	87	1	0	88	1	184	0	0	185	273	0	0	0	0	0	0	1	0	1	1	274	
07:30 AM	0	111	0	0	111	2	177	0	0	179	290	0	0	0	0	0	0	2	0	2	2	292	
07:45 AM	0	145	2	0	147	1	167	0	0	168	315	0	0	0	0	0	0	2	0	2	2	317	
TOTAL	0	420	3	0	423	4	699	0	0	703	1,126	0	0	0	0	0	0	6	0	6	6	1,132	
08:00 AM	0	105	0	0	105	2	203	0	0	205	310	0	0	0	0	0	0	1	0	1	1	311	
08:15 AM	0	93	1	0	94	1	137	0	0	138	232	0	0	0	0	0	0	2	0	2	2	234	
08:30 AM	0	110	1	0	111	2	172	0	0	174	285	0	0	0	0	0	0	2	0	2	2	287	
08:45 AM	0	116	0	0	116	1	129	0	0	130	246	0	0	0	0	0	0	3	0	3	3	249	
TOTAL	0	424	2	0	426	6	641	0	0	647	1,073	0	0	0	0	0	0	8	0	8	8	1,081	
04:00 PM	0	222	2	0	224	1	130	0	0	131	355	0	0	0	0	0	0	4	0	4	4	359	
04:15 PM	0	247	2	0	249	2	142	0	0	144	393	0	0	0	0	0	0	1	0	1	1	394	
04:30 PM	0	199	0	0	199	2	162	0	0	164	363	0	0	0	0	0	0	1	0	1	1	364	
04:45 PM	0	234	1	0	235	1	141	0	0	142	377	0	0	0	0	0	0	0	0	0	0	377	
TOTAL	0	902	5	0	907	6	575	0	0	581	1,488	0	0	0	0	0	0	6	0	6	6	1,494	
05:00 PM	0	219	1	0	220	2	158	0	0	160	380	0	0	0	0	0	0	3	0	3	3	383	
05:15 PM	0	246	1	0	247	1	119	0	0	120	367	0	0	0	0	0	0	1	0	1	1	368	
05:30 PM	0	217	1	0	218	2	139	0	0	141	359	0	0	0	0	0	0	2	0	2	2	361	
05:45 PM	0	211	3	0	214	3	120	0	0	123	337	0	0	0	0	0	0	2	0	2	2	339	
TOTAL	0	893	6	0	899	8	536	0	0	544	1,443	0	0	0	0	0	0	8	0	8	8	1,451	

AM Peak 07:15 AM to 08:15 AM	0	448	3	0	451	6	731	0	0	737	1,188	0	0	0	0	0	0	6	0	6	6	1,194	Peak Hour Factor: 0.942
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PM Peak 04:15 PM to 05:15 PM	0	899	4	0	903	7	603	0	0	610	1,513	0	0	0	0	0	0	5	0	5	5	1,518	Peak Hour Factor: 0.963
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15 MINUTE TURNING MOVEMENT COUNTS
(Cars and Trucks)

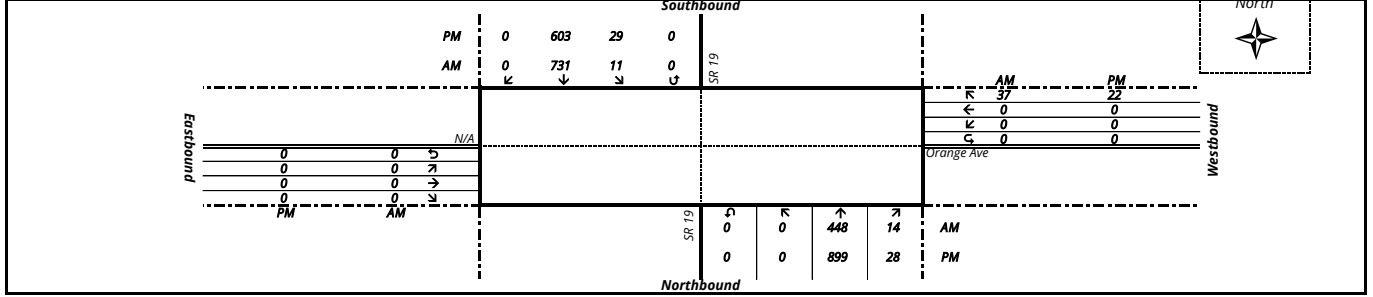
DATE: July 6, 2023 (Thursday)
LOCATION: SR 19 & Orange Ave

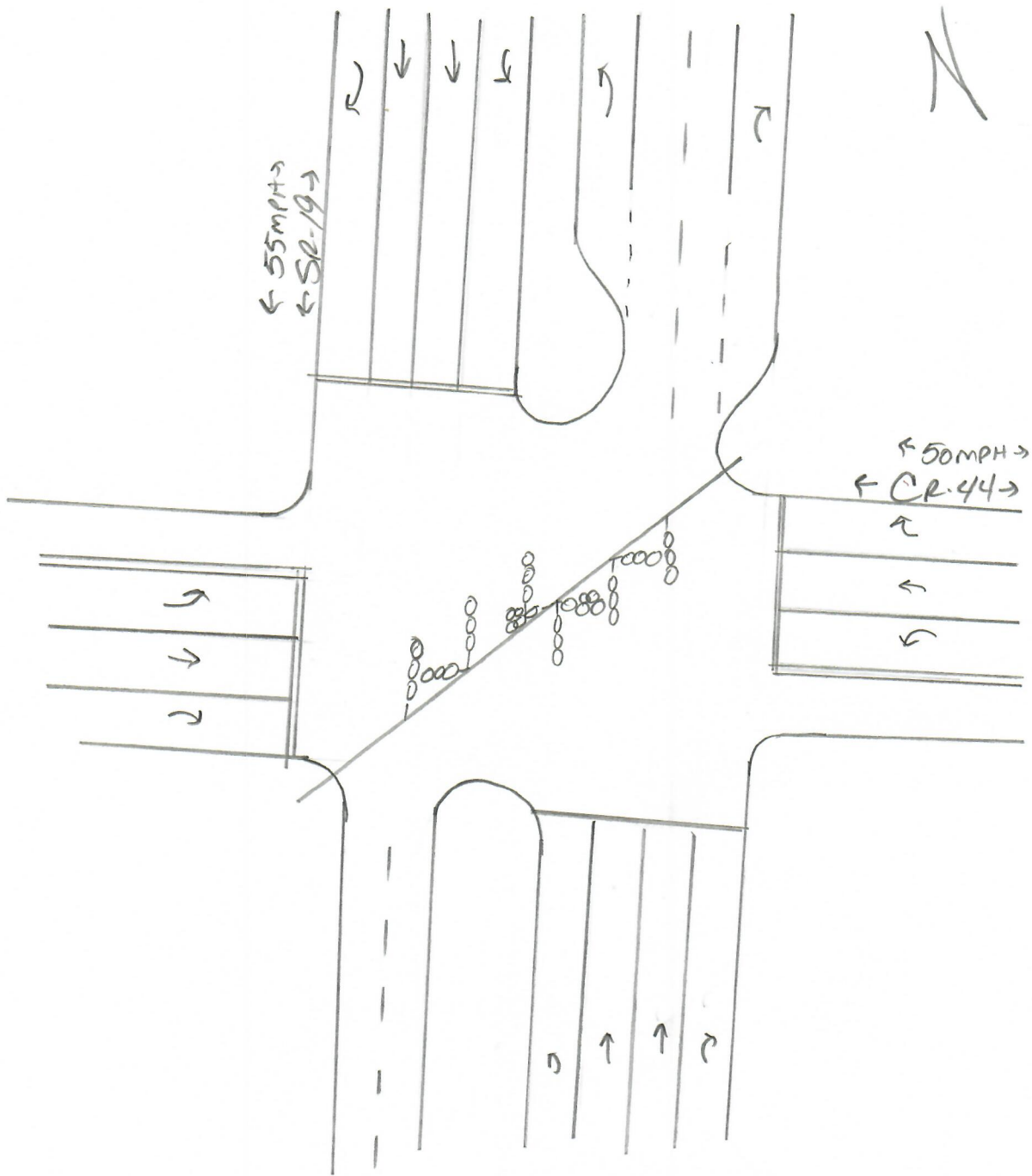
CITY: Eustis LATITUDE: 0
COUNTY: Lake LONGITUDE: 0

TIME BEGIN	SR 19 NORTHBOUND					SR 19 SOUTHBOUND					N/S TOTAL	N/A EASTBOUND					Orange Ave WESTBOUND					E/W TOTAL	GRAND TOTAL
	L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		L	T	R	U-turn	TOTAL	L	T	R	U-turn	TOTAL		
07:00 AM	0	77	3	0	80	3	171	0	0	174	254	0	0	0	0	0	0	0	8	0	8	8	262
07:15 AM	0	87	2	0	89	2	184	0	0	186	275	0	0	0	0	0	0	7	0	7	7	282	
07:30 AM	0	111	4	0	115	4	177	0	0	181	296	0	0	0	0	0	0	10	0	10	10	306	
07:45 AM	0	145	5	0	150	2	167	0	0	169	319	0	0	0	0	0	0	9	0	9	9	328	
TOTAL	0	420	14	0	434	11	699	0	0	710	1,144	0	0	0	0	0	0	34	0	34	34	1,178	
08:00 AM	0	105	3	0	108	3	203	0	0	206	314	0	0	0	0	0	0	11	0	11	11	325	
08:15 AM	0	93	4	0	97	4	137	0	0	141	238	0	0	0	0	0	0	9	0	9	9	247	
08:30 AM	0	110	3	0	113	3	172	0	0	175	288	0	0	0	0	0	0	7	0	7	7	295	
08:45 AM	0	116	2	0	118	2	129	0	0	131	249	0	0	0	0	0	0	6	0	6	6	255	
TOTAL	0	424	12	0	436	12	641	0	0	653	1,089	0	0	0	0	0	0	33	0	33	33	1,122	
04:00 PM	0	222	4	0	226	9	130	0	0	139	365	0	0	0	0	0	0	3	0	3	3	368	
04:15 PM	0	247	7	0	254	8	142	0	0	150	404	0	0	0	0	0	0	5	0	5	5	409	
04:30 PM	0	199	9	0	208	7	162	0	0	169	377	0	0	0	0	0	0	7	0	7	7	384	
04:45 PM	0	234	6	0	240	6	141	0	0	147	387	0	0	0	0	0	0	5	0	5	5	392	
TOTAL	0	902	26	0	928	30	575	0	0	605	1,533	0	0	0	0	0	0	20	0	20	20	1,553	
05:00 PM	0	219	6	0	225	8	158	0	0	166	391	0	0	0	0	0	0	5	0	5	5	396	
05:15 PM	0	246	5	0	251	7	119	0	0	126	377	0	0	0	0	0	0	4	0	4	4	381	
05:30 PM	0	217	4	0	221	6	139	0	0	145	366	0	0	0	0	0	0	3	0	3	3	369	
05:45 PM	0	211	3	0	214	9	120	0	0	129	343	0	0	0	0	0	0	2	0	2	2	345	
TOTAL	0	893	18	0	911	30	536	0	0	566	1,477	0	0	0	0	0	0	14	0	14	14	1,491	

AM Peak 07:15 AM to 08:15 AM	0	448	14	0	462	11	731	0	0	742	1,204	0	0	0	0	0	0	37	0	37	37	1,241	Peak Hour Factor: 0.946
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PM Peak 04:15 PM to 05:15 PM	0	899	28	0	927	29	603	0	0	632	1,559	0	0	0	0	0	0	22	0	22	22	1,581	Peak Hour Factor: 0.966
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2022 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 1100 LAKE COUNTYWIDE

WEEK	DATES	SF	MOCF: 0.95 PSCF
1	01/01/2022 - 01/01/2022	0.99	1.04
2	01/02/2022 - 01/08/2022	1.01	1.06
3	01/09/2022 - 01/15/2022	1.03	1.08
4	01/16/2022 - 01/22/2022	1.02	1.07
5	01/23/2022 - 01/29/2022	1.00	1.05
* 6	01/30/2022 - 02/05/2022	0.98	1.03
* 7	02/06/2022 - 02/12/2022	0.97	1.02
* 8	02/13/2022 - 02/19/2022	0.95	1.00
* 9	02/20/2022 - 02/26/2022	0.95	1.00
*10	02/27/2022 - 03/05/2022	0.94	0.99
*11	03/06/2022 - 03/12/2022	0.94	0.99
*12	03/13/2022 - 03/19/2022	0.93	0.98
*13	03/20/2022 - 03/26/2022	0.94	0.99
*14	03/27/2022 - 04/02/2022	0.95	1.00
*15	04/03/2022 - 04/09/2022	0.95	1.00
*16	04/10/2022 - 04/16/2022	0.96	1.01
*17	04/17/2022 - 04/23/2022	0.97	1.02
*18	04/24/2022 - 04/30/2022	0.98	1.03
19	05/01/2022 - 05/07/2022	0.99	1.04
20	05/08/2022 - 05/14/2022	0.99	1.04
21	05/15/2022 - 05/21/2022	1.00	1.05
22	05/22/2022 - 05/28/2022	1.01	1.06
23	05/29/2022 - 06/04/2022	1.02	1.07
24	06/05/2022 - 06/11/2022	1.03	1.08
25	06/12/2022 - 06/18/2022	1.04	1.09
26	06/19/2022 - 06/25/2022	1.05	1.11
27	06/26/2022 - 07/02/2022	1.05	1.11
28	07/03/2022 - 07/09/2022	1.06	1.12
29	07/10/2022 - 07/16/2022	1.06	1.12
30	07/17/2022 - 07/23/2022	1.06	1.12
31	07/24/2022 - 07/30/2022	1.05	1.11
32	07/31/2022 - 08/06/2022	1.05	1.11
33	08/07/2022 - 08/13/2022	1.04	1.09
34	08/14/2022 - 08/20/2022	1.04	1.09
35	08/21/2022 - 08/27/2022	1.05	1.11
36	08/28/2022 - 09/03/2022	1.06	1.12
37	09/04/2022 - 09/10/2022	1.07	1.13
38	09/11/2022 - 09/17/2022	1.08	1.14
39	09/18/2022 - 09/24/2022	1.05	1.11
40	09/25/2022 - 10/01/2022	1.02	1.07
41	10/02/2022 - 10/08/2022	1.00	1.05
42	10/09/2022 - 10/15/2022	0.97	1.02
43	10/16/2022 - 10/22/2022	0.98	1.03
44	10/23/2022 - 10/29/2022	0.99	1.04
45	10/30/2022 - 11/05/2022	0.99	1.04
46	11/06/2022 - 11/12/2022	1.00	1.05
47	11/13/2022 - 11/19/2022	1.01	1.06
48	11/20/2022 - 11/26/2022	1.00	1.05
49	11/27/2022 - 12/03/2022	1.00	1.05
50	12/04/2022 - 12/10/2022	0.99	1.04
51	12/11/2022 - 12/17/2022	0.99	1.04
52	12/18/2022 - 12/24/2022	1.01	1.06
53	12/25/2022 - 12/31/2022	1.03	1.08

* PEAK SEASON

23-FEB-2023 09:11:22

830UPD

























5_1100_PKSEASON.TXT

Appendix E: Existing Intersection Analysis Output

HCM 6th Signalized Intersection Summary

1: SR 19 & CR 44

07/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	350	35	49	266	80	38	284	20	118	586	77
Future Volume (veh/h)	112	350	35	49	266	80	38	284	20	118	586	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	380	38	53	289	87	41	309	22	128	637	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	439	372	188	402	341	79	1438	641	158	1597	712
Arrive On Green	0.07	0.23	0.23	0.05	0.21	0.21	0.04	0.40	0.40	0.09	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	122	380	38	53	289	87	41	309	22	128	637	84
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.2	22.8	2.2	2.6	16.8	5.3	2.6	6.6	1.0	8.2	14.1	3.6
Cycle Q Clear(g_c), s	6.2	22.8	2.2	2.6	16.8	5.3	2.6	6.6	1.0	8.2	14.1	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	257	439	372	188	402	341	79	1438	641	158	1597	712
V/C Ratio(X)	0.47	0.86	0.10	0.28	0.72	0.26	0.52	0.21	0.03	0.81	0.40	0.12
Avail Cap(c_a), veh/h	324	952	807	245	904	766	191	1438	641	419	1597	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	42.9	35.0	34.5	42.6	38.1	54.6	22.7	21.0	52.3	21.6	18.7
Incr Delay (d2), s/veh	1.4	5.2	0.1	0.8	2.4	0.4	5.3	0.3	0.1	9.5	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	11.1	0.9	1.2	8.0	2.1	1.3	2.8	0.4	4.1	6.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.9	48.1	35.2	35.3	45.0	38.5	59.9	23.0	21.1	61.8	22.3	19.1
LnGrp LOS	C	D	D	D	D	D	E	C	C	E	C	B
Approach Vol, veh/h		540			429			372			849	
Approach Delay, s/veh		44.2			42.5			27.0			28.0	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.9	53.8	12.2	34.0	11.7	59.0	14.6	31.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	27.5	37.5	9.5	59.5	12.5	52.5	12.5	56.5				
Max Q Clear Time (g_c+I1), s	10.2	8.6	4.6	24.8	4.6	16.1	8.2	18.8				
Green Ext Time (p_c), s	0.3	2.2	0.0	2.7	0.0	5.3	0.1	2.1				
Intersection Summary												
HCM 6th Ctrl Delay			34.6									
HCM 6th LOS			C									

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Traffic Vol, veh/h	0	34	475	13	10	775
Future Vol, veh/h	0	34	475	13	10	775
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	-	185	350	-
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	37	516	14	11	842

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	258	0	0	530
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22
Pot Cap-1 Maneuver	0	741	-	-	1033
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	741	-	-	1033
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	741	1033
HCM Lane V/C Ratio	-	-	0.05	0.011
HCM Control Delay (s)	-	-	10.1	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑↑	↑↑	↔
Traffic Vol, veh/h	18	20	12	475	775	22
Future Vol, veh/h	18	20	12	475	775	22
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	-	350	-	-	275
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	20	22	13	516	842	24

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1126	421	866	0	-	0
Stage 1	842	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	199	581	773	-	-	-
Stage 1	383	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	196	581	773	-	-	-
Mov Cap-2 Maneuver	196	-	-	-	-	-
Stage 1	376	-	-	-	-	-
Stage 2	739	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.9	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	773	-	301	-	-
HCM Lane V/C Ratio	0.017	-	0.137	-	-
HCM Control Delay (s)	9.7	-	18.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕		↖	↕
Traffic Vol, veh/h	0	6	475	3	6	775
Future Vol, veh/h	0	6	475	3	6	775
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	-	-	350	-
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	7	516	3	7	842

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	260	0	0	519
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22
Pot Cap-1 Maneuver	0	739	-	-	1043
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	739	-	-	1043
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	739	1043
HCM Lane V/C Ratio	-	-	0.009	0.006
HCM Control Delay (s)	-	-	9.9	8.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
5: SR 19 & Orange Ave

07/11/2023

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Traffic Vol, veh/h	0	39	475	15	12	775
Future Vol, veh/h	0	39	475	15	12	775
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	-	185	350	-
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	42	516	16	13	842

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	258	0	0	532
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22
Pot Cap-1 Maneuver	0	741	-	-	1032
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	741	-	-	1032
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

























Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	741	1032
HCM Lane V/C Ratio	-	-	0.057	0.013
HCM Control Delay (s)	-	-	10.2	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 6th Signalized Intersection Summary

1: SR 19 & CR 44

07/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	296	52	64	419	157	113	591	49	127	406	111
Future Volume (veh/h)	205	296	52	64	419	157	113	591	49	127	406	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	322	57	70	455	171	123	642	53	138	441	121
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	240	589	499	307	510	432	146	1287	574	164	1323	590
Arrive On Green	0.09	0.31	0.31	0.05	0.27	0.27	0.08	0.36	0.36	0.09	0.37	0.37
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	223	322	57	70	455	171	123	642	53	138	441	121
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	12.5	20.1	3.6	3.9	33.0	12.4	9.6	19.8	3.1	10.7	12.5	7.3
Cycle Q Clear(g_c), s	12.5	20.1	3.6	3.9	33.0	12.4	9.6	19.8	3.1	10.7	12.5	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	589	499	307	510	432	146	1287	574	164	1323	590
V/C Ratio(X)	0.93	0.55	0.11	0.23	0.89	0.40	0.84	0.50	0.09	0.84	0.33	0.20
Avail Cap(c_a), veh/h	240	789	669	344	750	635	158	1287	574	347	1323	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	40.0	34.3	34.8	49.3	41.8	63.8	35.0	29.7	63.0	31.7	30.1
Incr Delay (d2), s/veh	39.1	0.8	0.1	0.4	9.4	0.6	30.5	1.4	0.3	10.9	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	9.4	1.4	1.8	16.7	5.0	5.6	8.9	1.3	5.4	5.6	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.5	40.8	34.4	35.1	58.7	42.4	94.3	36.4	30.0	73.9	32.4	30.8
LnGrp LOS	E	D	C	D	E	D	F	D	C	E	C	C
Approach Vol, veh/h		602			696			818			700	
Approach Delay, s/veh		53.4			52.3			44.7			40.3	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.5	57.6	13.0	50.9	18.0	59.0	19.0	44.9				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	27.5	37.5	9.5	59.5	12.5	52.5	12.5	56.5				
Max Q Clear Time (g_c+I1), s	12.7	21.8	5.9	22.1	11.6	14.5	14.5	35.0				
Green Ext Time (p_c), s	0.3	4.1	0.0	2.3	0.0	3.7	0.0	3.5				
Intersection Summary												
HCM 6th Ctrl Delay			47.3									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Traffic Vol, veh/h	0	24	953	20	24	639
Future Vol, veh/h	0	24	953	20	24	639
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	-	185	350	-
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	26	1036	22	26	695

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	518	0	0	1058
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22
Pot Cap-1 Maneuver	0	502	-	-	654
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	502	-	-	654
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	502	654
HCM Lane V/C Ratio	-	-	0.052	0.04
HCM Control Delay (s)	-	-	12.6	10.7
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘		↘	↑↑	↑↑	↘
Traffic Vol, veh/h	23	21	17	953	639	43
Future Vol, veh/h	23	21	17	953	639	43
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	-	350	-	-	275
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	25	23	18	1036	695	47

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1249	348	742	0	-	0
Stage 1	695	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	165	648	861	-	-	-
Stage 1	456	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	162	648	861	-	-	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	539	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.6	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	861	-	252	-	-
HCM Lane V/C Ratio	0.021	-	0.19	-	-
HCM Control Delay (s)	9.3	-	22.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕		↖	↕
Traffic Vol, veh/h	0	5	953	4	7	639
Future Vol, veh/h	0	5	953	4	7	639
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	-	-	350	-
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	5	1036	4	8	695

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	520	0 1040
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	- 4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	- 2.22
Pot Cap-1 Maneuver	0	501	- 664
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	-	501	- 664
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	501	664
HCM Lane V/C Ratio	-	-	0.011	0.011
HCM Control Delay (s)	-	-	12.3	10.5
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Traffic Vol, veh/h	0	23	953	30	31	639
Future Vol, veh/h	0	23	953	30	31	639
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	-	185	350	-
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	25	1036	33	34	695

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	518	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	-
Pot Cap-1 Maneuver	0	502	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	-	502	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0.5
HCM LOS	B		

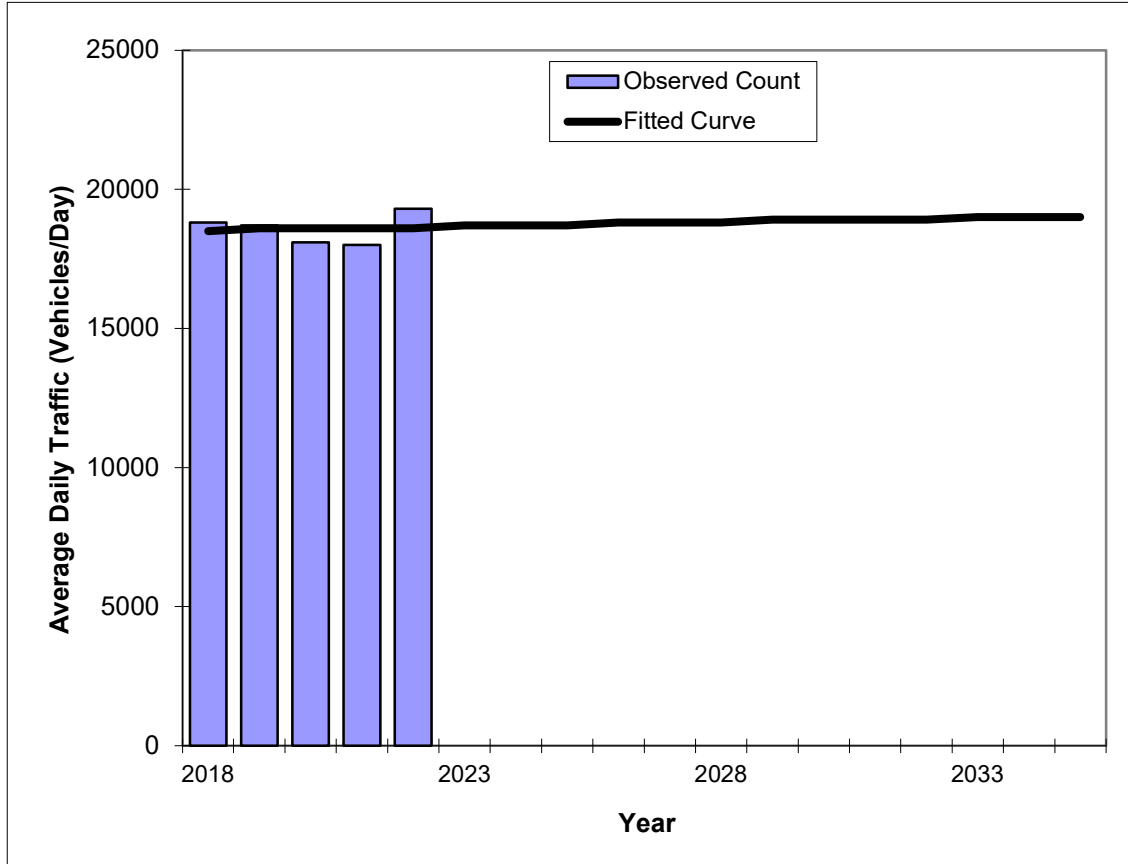
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	502	648
HCM Lane V/C Ratio	-	-	0.05	0.052
HCM Control Delay (s)	-	-	12.5	10.9
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0.2

Appendix F: Historical Trends Analysis

Traffic Trends - V3.0
SR 19 -- 0.049 MI. N OF UMITILLA PL

FIN#	0
Location	1

County:	Orange (75)
Station #:	750592
Highway:	SR 19



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2018	18800	18500
2019	18700	18600
2020	18100	18600
2021	18000	18600
2022	19300	18600
2023 Opening Year Trend		
2023	N/A	18700
2024 Mid-Year Trend		
2024	N/A	18700
2025 Design Year Trend		
2025	N/A	18700
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	30
Trend R-squared:	0.78%
Trend Annual Historic Growth Rate:	0.14%
Trend Growth Rate (2022 to Design Year):	0.18%
Printed:	03-Jul-23
Straight Line Growth Option	

*Axle-Adjusted

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 11 - LAKE

SITE: 0008 - ON SR-19 0.049 MI. N OF UMITILLA PL (RVL)

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR	
2022	19300	C	N	9800	S	9500	9.00	54.50	7.90
2021	18000	S	N	9000	S	9000	9.00	53.80	9.40
2020	18100	F	N	9000	S	9100	9.00	54.10	9.40
2019	18700	C	N	9300	S	9400	9.00	54.30	9.40
2018	18800	C	N	9400	S	9400	9.00	54.20	10.60
2017	18500	C	N	9200	S	9300	9.00	54.20	9.80
2016	18400	C	N	9200	S	9200	9.00	53.90	11.00
2015	18600	C	N	9300	S	9300	9.00	54.60	14.10
2014	18900	C	N	9500	S	9400	9.00	54.50	12.90
2013	17800	C	N	8900	S	8900	9.00	54.70	8.70
2012	16600	C	N	8300	S	8300	9.00	55.10	9.20
2011	17000	C	N	8400	S	8600	9.00	54.20	8.70
2010	18100	C	N	8800	S	9300	9.86	54.75	5.70
2009	18100	C	N	8800	S	9300	9.96	54.94	8.50
2008	17100	C	N	7700	S	9400	10.42	55.39	7.00
2007	19700	C	N	9700	S	10000	10.24	59.56	7.70

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 G: Projected Intersection Analysis Output

HCM 6th Signalized Intersection Summary

1: SR 19 & CR 44

02/19/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	371	37	52	282	87	40	307	21	132	639	89
Future Volume (veh/h)	121	371	37	52	282	87	40	307	21	132	639	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	132	403	40	57	307	95	43	334	23	143	695	97
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	261	463	392	188	419	355	79	1377	614	173	1565	698
Arrive On Green	0.07	0.25	0.25	0.05	0.22	0.22	0.04	0.39	0.39	0.10	0.44	0.44
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	132	403	40	57	307	95	43	334	23	143	695	97
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.7	24.7	2.3	2.9	18.2	5.9	2.8	7.6	1.1	9.4	16.2	4.4
Cycle Q Clear(g_c), s	6.7	24.7	2.3	2.9	18.2	5.9	2.8	7.6	1.1	9.4	16.2	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	261	463	392	188	419	355	79	1377	614	173	1565	698
V/C Ratio(X)	0.51	0.87	0.10	0.30	0.73	0.27	0.54	0.24	0.04	0.82	0.44	0.14
Avail Cap(c_a), veh/h	318	933	791	241	886	751	187	1377	614	411	1565	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	43.1	34.7	34.6	42.9	38.2	55.8	24.7	22.7	52.8	23.2	19.9
Incr Delay (d2), s/veh	1.5	5.2	0.1	0.9	2.5	0.4	5.6	0.4	0.1	9.4	0.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	12.0	0.9	1.3	8.7	0.0	1.4	3.3	0.4	4.7	7.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.9	48.3	34.8	35.5	45.4	38.6	61.4	25.1	22.8	62.2	24.1	20.3
LnGrp LOS	C	D	C	D	D	D	E	C	C	E	C	C
Approach Vol, veh/h		575			459			400			935	
Approach Delay, s/veh		44.3			42.8			28.9			29.6	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.1	52.7	12.4	36.0	11.8	59.0	15.2	33.2				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	27.5	37.5	9.5	59.5	12.5	52.5	12.5	56.5				
Max Q Clear Time (g_c+I1), s	11.4	9.6	4.9	26.7	4.8	18.2	8.7	20.2				
Green Ext Time (p_c), s	0.3	2.3	0.0	2.8	0.0	5.9	0.1	2.3				
Intersection Summary												
HCM 6th Ctrl Delay			35.6									
HCM 6th LOS			D									

HCM 6th TWSC
2: SR 19 & PMGC Rd

02/19/2024

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Traffic Vol, veh/h	0	67	504	25	11	853
Future Vol, veh/h	0	67	504	25	11	853
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	-	185	350	-
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	73	548	27	12	927

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	274	0	0	575
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22
Pot Cap-1 Maneuver	0	724	-	-	994
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	724	-	-	994
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	724	994
HCM Lane V/C Ratio	-	-	0.101	0.012
HCM Control Delay (s)	-	-	10.5	8.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗		↘	↑↑	↑↑	↘
Traffic Vol, veh/h	19	21	44	504	822	23
Future Vol, veh/h	19	21	44	504	822	23
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	-	350	-	-	275
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	21	23	48	548	893	25

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1263	447	918	0	-	0
Stage 1	893	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	162	559	739	-	-	-
Stage 1	360	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	151	559	739	-	-	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	337	-	-	-	-	-
Stage 2	669	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.8	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	739	-	245	-	-
HCM Lane V/C Ratio	0.065	-	0.177	-	-
HCM Control Delay (s)	10.2	-	22.8	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	-	-

HCM 6th TWSC
4: SR 19 & McKinley Rd

02/19/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕		↖	↕
Traffic Vol, veh/h	0	10	504	3	8	822
Future Vol, veh/h	0	10	504	3	8	822
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	-	-	350	-
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	11	548	3	9	893

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	276	0	0	551
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22
Pot Cap-1 Maneuver	0	721	-	-	1015
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	721	-	-	1015
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	721	1015
HCM Lane V/C Ratio	-	-	0.015	0.009
HCM Control Delay (s)	-	-	10.1	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
5: SR 19 & Orange Ave

02/19/2024

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Traffic Vol, veh/h	0	50	504	16	16	824
Future Vol, veh/h	0	50	504	16	16	824
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	-	185	350	-
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	54	548	17	17	896

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	274	0	0	565
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22
Pot Cap-1 Maneuver	0	724	-	-	1003
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	724	-	-	1003
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	724	1003
HCM Lane V/C Ratio	-	-	0.075	0.017
HCM Control Delay (s)	-	-	10.4	8.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

HCM 6th Signalized Intersection Summary

1: SR 19 & CR 44

02/19/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗	↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	223	314	55	68	444	172	120	641	52	138	439	121
Future Volume (veh/h)	223	314	55	68	444	172	120	641	52	138	439	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	242	341	60	74	483	187	130	697	57	150	477	132
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	612	519	306	537	455	152	1240	553	176	1287	574
Arrive On Green	0.09	0.33	0.33	0.05	0.29	0.29	0.09	0.35	0.35	0.10	0.36	0.36
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	242	341	60	74	483	187	130	697	57	150	477	132
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	12.5	21.7	3.8	4.2	36.0	13.8	10.4	23.0	3.5	12.0	14.3	8.4
Cycle Q Clear(g_c), s	12.5	21.7	3.8	4.2	36.0	13.8	10.4	23.0	3.5	12.0	14.3	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	612	519	306	537	455	152	1240	553	176	1287	574
V/C Ratio(X)	1.04	0.56	0.12	0.24	0.90	0.41	0.85	0.56	0.10	0.85	0.37	0.23
Avail Cap(c_a), veh/h	233	768	651	341	729	618	154	1240	553	338	1287	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	40.1	34.1	34.6	49.7	41.8	65.4	38.2	31.9	64.3	34.1	32.2
Incr Delay (d2), s/veh	69.5	0.8	0.1	0.4	11.4	0.6	34.6	1.8	0.4	11.1	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.4	10.2	1.5	1.9	18.5	5.5	6.2	10.4	1.4	6.0	6.4	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.2	40.9	34.2	35.0	61.1	42.4	100.0	40.1	32.2	75.4	34.9	33.1
LnGrp LOS	F	D	C	D	E	D	F	D	C	E	C	C
Approach Vol, veh/h		643			744			884			759	
Approach Delay, s/veh		66.0			53.8			48.4			42.6	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.8	57.1	13.1	53.9	18.9	59.0	19.0	48.1				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	27.5	37.5	9.5	59.5	12.5	52.5	12.5	56.5				
Max Q Clear Time (g_c+I1), s	14.0	25.0	6.2	23.7	12.4	16.3	14.5	38.0				
Green Ext Time (p_c), s	0.3	4.0	0.0	2.4	0.0	4.0	0.0	3.6				

Intersection Summary

HCM 6th Ctrl Delay	52.0
HCM 6th LOS	D

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Traffic Vol, veh/h	0	41	1010	48	25	693
Future Vol, veh/h	0	41	1010	48	25	693
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	-	185	350	-
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	45	1098	52	27	753

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	549	0 0 1150 0
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -
Critical Hdwy	-	6.94	- - 4.14 -
Critical Hdwy Stg 1	-	-	- - - -
Critical Hdwy Stg 2	-	-	- - - -
Follow-up Hdwy	-	3.32	- - 2.22 -
Pot Cap-1 Maneuver	0	480	- - 603 -
Stage 1	0	-	- - - -
Stage 2	0	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	-	480	- - 603 -
Mov Cap-2 Maneuver	-	-	- - - -
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	480	603
HCM Lane V/C Ratio	-	-	0.093	0.045
HCM Control Delay (s)	-	-	13.3	11.3
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗		↘	↑↑	↑↑	↘
Traffic Vol, veh/h	24	22	34	1010	677	46
Future Vol, veh/h	24	22	34	1010	677	46
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	-	350	-	-	275
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	26	24	37	1098	736	50

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1359	368	786	0	-	0
Stage 1	736	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	140	629	829	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	134	629	829	-	-	-
Mov Cap-2 Maneuver	134	-	-	-	-	-
Stage 1	415	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.7	0.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	829	-	215	-	-
HCM Lane V/C Ratio	0.045	-	0.233	-	-
HCM Control Delay (s)	9.5	-	26.7	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕		↖	↕
Traffic Vol, veh/h	0	7	1010	4	11	677
Future Vol, veh/h	0	7	1010	4	11	677
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	-	-	350	-
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	8	1098	4	12	736

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	551	0	0	1102
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22
Pot Cap-1 Maneuver	0	478	-	-	629
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	478	-	-	629
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	478	629
HCM Lane V/C Ratio	-	-	0.016	0.019
HCM Control Delay (s)	-	-	12.7	10.8
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0	0.1

HCM 6th TWSC
5: SR 19 & Orange Ave

02/19/2024

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Traffic Vol, veh/h	0	29	1010	32	41	681
Future Vol, veh/h	0	29	1010	32	41	681
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	-	185	350	-
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	32	1098	35	45	740

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	549	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	-
Pot Cap-1 Maneuver	0	480	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	-	480	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	480	612
HCM Lane V/C Ratio	-	-	0.066	0.073
HCM Control Delay (s)	-	-	13	11.3
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0.2