DRAFT

PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

District One

State Road 544 (Lucerne Park Road) from Martin Luther King Boulevard to State Road 17

Project Development & Environment Study

Polk County, Florida

Financial Management Number: 440273-1-22-01

ETDM Number: 5873

January 2025

DRAFT

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated May 26, 2022, and executed by Federal Highway Administration and FDOT.

CERTIFICATION

AGENCY: Florida Department of Transportation District One
801 North Broadway Avenue
Bartow, Florida 33831-1249

I hereby certify that I am a registered professional engineer in the State of Florida and that I have supervised the preparation of, and approved the analysis, findings, opinions, conclusions and technical advice hereby reported for:

REPORT: SR 544/Old Lucerne Park Road (West End) Intersection Control Evaluation (ICE) - Stage 1

PROJECT: SR 544 Project Development and Environment (PD&E) Study

LOCATION: SR 544 from Martin Luther King Boulevard to SR 17
Polk County, Florida

ROADWAY ID: 16140000

MILEPOST No: 5.749

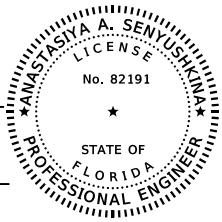
FPID No.: 440273-1-22-01

I acknowledge that the procedures and references used to develop the information contained in this memorandum are standard to the professional practice of transportation engineering as applied through professional judgement and experience.

Engineer in Responsible Charge: Anastasiya A. Senyushkina

Professional Registration No.: 82191

Date: 1/17/2023



Anastasiya A Senyushkina 2023.01.17 14:47:21-05'00'

AIM Engineering & Surveying, Inc.

MEMORANDUM

Tampa Office
201 E. Kennedy Boulevard, Suite 1800
Tampa, Florida 33602
813-627-4144
www.aimengr.com

Date:	January 17, 2023
To:	David C. Turley, P.E. – FDOT District One DEMO Project Manager Abra Horne – FDOT District One Planning and Environmental Administrator
From:	Greg Root/Anastasiya Senyushkina, P.E.
Subject:	SR 544/Old Lucerne Park Road (west end) Intersection (Polk County) — Stage 1+ Intersection Control Evaluation

INTRODUCTION/PROJECT BACKGROUND

This memorandum documents the Intersection Control Evaluation (ICE) conducted for the Old Lucerne Park Road (west end) intersection. This analysis was conducted in support of the SR 544 Project Development & Environment (PD&E) Study from Martin Luther King Boulevard to SR 17 in Polk County. The length of this study corridor is approximately 8.1 miles. SR 544 is a two-lane undivided roadway with 12-foot travel lanes both west and east of Old Lucerne Park Road. There is a five-foot paved shoulder and a four-foot sidewalk on the south side of SR 544 both west and east of Lake Smart Estates Drive. There is also a five-foot paved shoulder on the north side of SR 544 west of Old Lucerne Park Road. There is no sidewalk on the north side of this roadway. The proposed SR 544 typical section in this area is a four-lane divided roadway that consists of two 11-foot inside travel lanes, two 12-foot outside travel lanes, a 22-foot raised median, and 10-foot shared use paths on both sides of the road. The design speed and target speed is 45 mph.

This memorandum documents the Stage 1 CAP-X and SPICE analyses, as well as the more detailed traffic operations analyses conducted using the SIDRA software. The opening year (2025) and design year (2045) Average Annual Daily Traffic (AADT) volumes documented in the FDOT approved Project Traffic Analysis Report (PTAR) are provided in **Appendix A** along with the 2045 a.m. and p.m. peak hour volumes documented in this same report.

EXISTING INTERSECTION CHARACTERISTICS

This intersection is a four-legged unsignalized intersection. The western end of Old Lucerne Park Road is the north leg of this intersection and Lake Smart Estates Drive is the southern leg. The south leg provides the only access to the Lake Smart Estates residential community. There are 126 single family dwelling units in this community. Residential development exists in both the southeast and southwest quadrants of the intersection. There are six driveways on the west side of Old Lucerne Park Road within approximately 440 feet of the intersection that provide access to single family homes. There is also one single family home in the northeast quadrant of the intersection that has access on Old Lucerne Park Road. The north and south legs of this intersection are controlled by stop signs. There are also four cross streets on the south side of SR 544 located within 1,000 feet of this intersection. All four of these

cross streets are west of this intersection and provide access to a small mobile home park (i.e., Lucerne Lakeside). An aerial image depicting the Old Lucerne Park Road intersection and the adjacent Lucerne Lakeside residential area is provided in **Figure 1**, which is included in **Appendix A.** The posted speed limit on SR 544 in the vicinity of the intersection is 55 miles per hour (mph) and this changes from 55 mph to 45 mph between Old Lucerne Park Road and Avenue Y. The posted speed limit on Old Lucerne Park Road is 40 mph.

Crash data was provided by District One for the years 2014 through 2019. The data sources were the FDOT's Crash Analysis Reporting System (CARS) and Signal Four Analytics. The crash data is included in **Appendix A**. This intersection has experienced 32 crashes over this six-year period, resulting in 25 injuries and no fatalities. The most prevalent crash types are left-turn/angle crashes (17) and rear-end crashes (14). There were no crashes involving bicyclists or pedestrians.

INTERSECTION CONTROL EVALUATION

The PD&E study goals are to determine the location and conceptual design of the improvement(s) that satisfy the purpose and need for the project, while also minimizing the impacts to the natural and social environment and satisfying the requirements of the National Environmental Policy Act (NEPA). District One conducted a traffic signal warrant analysis for this intersection in April 2018 and the results of this study indicated that a traffic signal was not warranted. In addition, low average vehicle delays were also observed. These delays ranged from 15 seconds (in the morning) to 24 seconds (in the afternoon) for the northbound left-turn/through lane and from 12 seconds (in the morning) to 10 seconds (in the afternoon) for the southbound approach. This signal warrant analysis is provided in **Appendix B**.

The following alternative intersection control strategies were initially analyzed for this intersection:

- Two-way stop control
- All-way stop control
- Unsignalized Restricted Crossing U-Turn (RCUT)
- Unsignalized Thru-Cut
- Two-lane (SR 544) x one-lane (Old Lucerne Park Road) roundabout
- Two-lane x two-lane roundabout

The results of the 2045 CAP-X and SPICE analyses are summarized in **Table 1**. The CAP-X and SPICE analysis summary sheets for this intersection are provided in **Appendix C**. Based on the high v/c ratios estimated for the stop control intersections, as well as the unsignalized RCUT and Thru-Cut intersections, these alternatives were eliminated from any further consideration. Design year (2045) peak hour SIDRA analyses were conducted for a two-lane roundabout and the results are summarized in **Table 2.** All of the movements are projected to operate under capacity during both peak hours. In addition, the overall average vehicle delays are projected to be less than 15 seconds per vehicle during both peak hours. The design year SIDRA analysis summary sheets are provided in **Appendix D**.

An initial geometric improvement concept was developed for this alternative and is provided in **Appendix E**. This roundabout alternative requires additional right-of-way in three of the four intersection quadrants and results in at least one residential relocation. In addition, the raised splitter island on the north leg of the roundabout would require vehicles entering and exiting several other single family dwelling units to make u-turn movements through the roundabout.

Table 1: Stage 1 ICE Analysis Summary - Old Lucerne Park Road (West) Intersection

Intersection Type	2045 V/C Ratios		Life-Cycle Crashes		SSI Scores	
	AM Peak Hour	PM Peak Hour	Total	Fatal & Injury	Opening Year	Design Year
Two-Way Stop Control	**3.86**	**9.77**	83	31	41	18
All-Way Stop Control	**2.02**	**1.92**	71	28	86	77
Unsignalized RCUT	**4.25**	**1.25**	n/a	n/a	58	35
Unsignalized Thru-Cut	**10.13**	**97.60**	n/a	n/a	63	39
Roundabout (2EW x 1NS)	**1.16**	0.78	180	34	89	82
Roundabout (2EW x 2NS)	**1.10**	0.78	180	34	89	82

Red font denotes a v/c ratio > 1.00

Lowest number of crashes of all alternatives analyzed

n/a = No Safety Performance Function (SPF) available

Table 2: Design Year (2045) Peak Hour Operational Analysis Summary - Old Lucerne Park Road (West) Intersection

AM Peak Hour

Intersection Approach	Existing Old Lucerne Park Rd Alignment			Realigned Old Lucerne Park Road		
	Max V/C [1]	Avg. Delay	LOS	Max V/C [1]	Avg. Delay	LOS
Northbound	0.18	14.3	B	0.22	15.1	C
Southbound	0.69	38.6	E	0.68	36.7	E
Westbound	0.70	13.7	B	0.69	13.4	B
Eastbound	0.62	10.2	B	0.62	10.2	B
Overall	0.70	14.9	B	0.69	14.6	B

PM Peak Hour

Intersection Approach	Existing Old Lucerne Park Rd Alignment			Realigned Old Lucerne Park Road		
	Max V/C [1]	Avg. Delay	LOS	Max V/C [1]	Avg. Delay	LOS
Northbound	0.09	14.1	B	0.15	15.0	C
Southbound	0.21	12.9	B	0.22	13.2	B
Westbound	0.72	16.5	C	0.74	17.2	C
Eastbound	0.69	12.1	B	0.69	12.2	B
Overall	0.72	13.9	B	0.74	14.3	B

[1] *Highest volume-to-capacity ratio for the individual movements on this approach*

Vista del Lago Drive is located approximately 1,325 feet to the east of Old Lucerne Park Road. The SR 544 access management plan that was previously approved by District One provides an unsignalized full median opening at this location. In an attempt to minimize the impacts to the residences in the immediate vicinity of the Old Lucerne Park Road intersection and provide an increased level of safety at the Vista del Lago Drive intersection, a second roundabout concept was developed.

This second concept includes a realignment of the southern end of Old Lucerne Park Road to "line-up" directly across from Vista del Lago Drive. In addition, a cul-de-sac is provided on Old Lucerne Park Road just south of the beginning of the realigned roadway. All property owners located between SR 544 and the cul-de-sac will need to travel on the existing southern end of Old Lucerne Park Road. This revised geometric improvement concept is also provided in **Appendix E**. No existing peak hour turning movement count data was available for the Vista del Lago Drive intersection, so the design year a.m. and p.m. peak hour volumes were estimated using the Institute of Transportation Engineers Trip

Generation Handbook (11th Edition). Vista del Lago Drive serves as the entrance/exit to the Villas at Lake Smart apartment community (a 220-unit apartment complex) and this roadway only connects to SR 544. The a.m. and p.m. peak hour trip generation estimates for this apartment complex are provided in **Appendix F**. The 2045 peak hour inbound and outbound trips estimated for the Villas at Lake Smart were distributed onto eastbound and westbound SR 544 based on a 50%/50% distribution since the AADT volumes on SR 544 east of Old Lucerne Park Road and west of Lucerne Loop Road were equal. Slight adjustments were made to the 2045 peak hour volumes previously estimated for the Old Lucerne Park Road intersection to account for the eastern realignment of this roadway.

Design year (2045) peak hour SIDRA analyses were conducted for this revised two-lane roundabout and the results are also summarized in **Table 2.** All of the movements are projected to operate under capacity during both peak hours. In addition, the overall average vehicle delays are projected to be less than 15 seconds per vehicle during both peak hours. The design year SIDRA analysis summary sheets for this revised concept are also provided in **Appendix D**.

RECOMMENDED INTERSECTION CONTROL STRATEGY

The implementation of a two-lane roundabout is expected to help facilitate speed control in this area. Reduced vehicle speeds should provide additional safety benefits for the older driving population accessing SR 544 from the 55+ Lucerne Lakeside Mobile Home Park, as well as the westbound vehicles approaching the horizontal curve at Lake Rochelle Estates. The roundabout is also projected to have the lowest opening year and design year SSI scores of all the alternatives analyzed and is expected to result in very low design year peak hour vehicle delays. Consequently, the PD&E study is recommending a roundabout for the Old Lucerne Park Road (west end) intersection. The PD&E study is also recommending a realignment of the southern portion of this roadway to connect directly across from Vista del Lago Drive. This realignment will eliminate the need for any residential relocations.

Appendix A

Existing Geometry, Existing/Future Year Traffic Volumes and Historic Crash Data

Figure 1: Existing SR 544/Old Lucerne Park Road (West End) Intersection

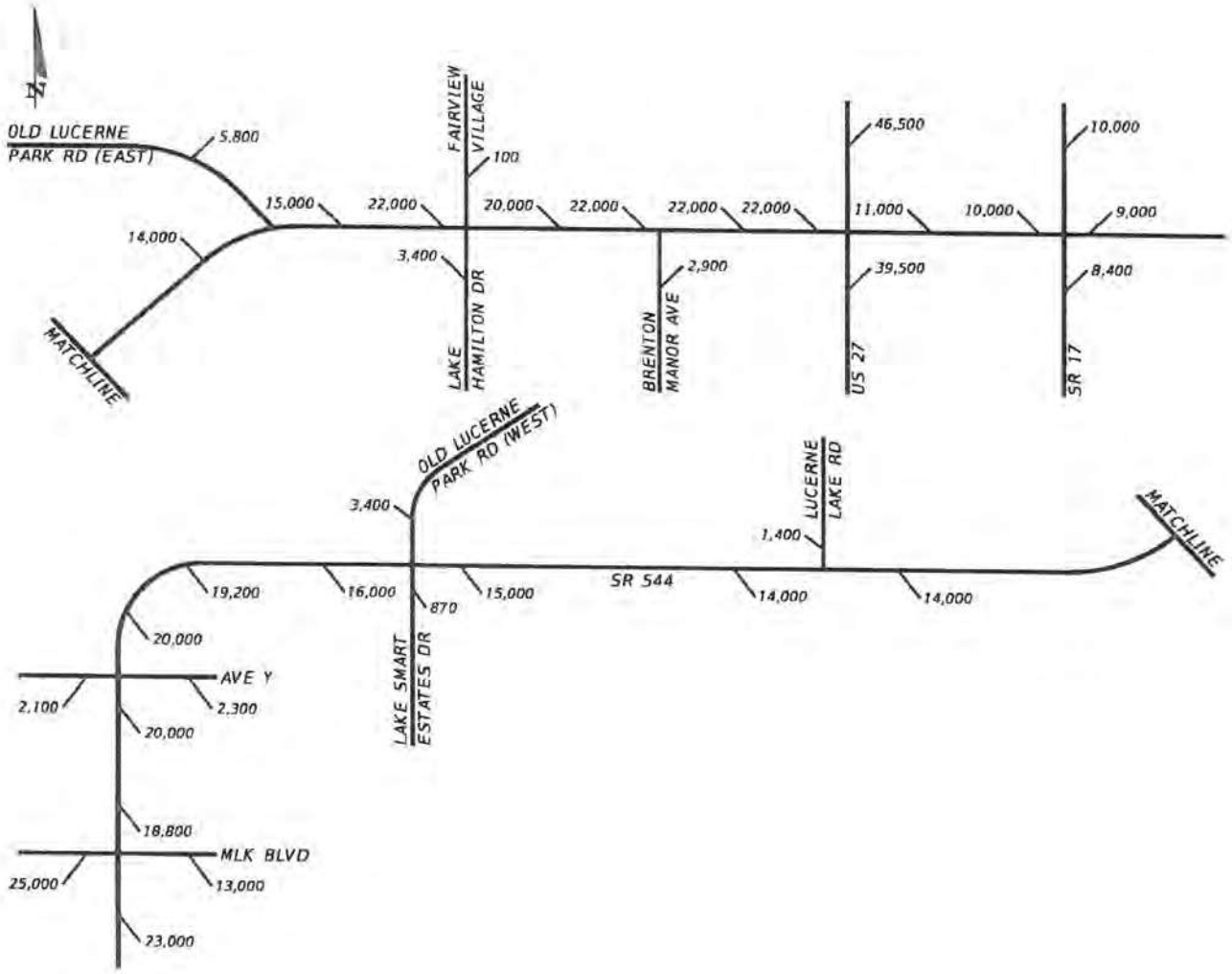


Figure 2-2: Existing (2019) AADT Volumes

Table 2-2: Twenty-Four Hour Volume Counts and Existing (2019) AADT Volumes (SR 544 Mainline)

Location	Date	Count	SF [1]	AF [2]	AADT [3]	Growth Factor	2019 AADT [4]	2019 AADT [5]	2019 AADT [6]	Average	Final 2019 AADT
South of M. L. King Boulevard [7]	4/17/2018	21,686	0.96	0.95	19,778	1.0319	20,409	20,000	23,000	21,500	**23,000** [8]
North of M. L. King Boulevard [7]	4/17/2018	17,212	0.96	0.95	15,697	1.0319	16,198	16,000	18,800	17,400	**18,800** [9]
South of Avenue Y [7]	2/16/2016	19,748	0.96	0.97	18,389	1.0988	20,206	20,000	n/a		**20,000**
North of Avenue Y [7]	2/16/2016	19,936	0.96	0.97	18,564	1.0988	20,399	20,000	n/a		**20,000**
South of Lake Conine Drive									19,200		**19,200**
West of Old Lucerne Park Road (west end) [7]	1/9/2018	16,214	1.01	0.94	15,394	1.0577	16,282	16,000	n/a		**16,000**
East of Old Lucerne Park Road (west end) [7]	1/9/2018	15,212	1.01	0.94	14,442	1.0543	15,226	15,000	n/a		**15,000**
West of Lucerne Lake Road	10/1/2019	14,506	1.03	0.94	14,045	1.0000	14,045	14,000	14,000	14,000	**14,000**
East of Lucerne Lake Road	10/1/2019	14,608	1.03	0.94	14,143	1.0000	14,143	14,000	n/a		**14,000**
West of Old Lucerne Park Road (east end) [7]	1/9/2018	18,070	1.01	0.94	17,156	1.0706	18,367	18,000	14,000	16,000	**14,000** [10]
East of Old Lucerne Park Road (east end) [7]	1/9/2018	14,682	1.01	0.94	13,939	1.0706	14,923	15,000	n/a		**15,000**
West of Lake Hamilton Drive/Fairview Village	10/1/2019	22,630	1.03	0.94	21,910	1.0000	21,910	22,000	n/a		**22,000**
East of Lake Hamilton Drive/Fairview Village	10/1/2019	20,472	1.03	0.94	19,821	1.0000	19,821	20,000	n/a		**20,000**
West of Brenton Manor Avenue	10/1/2019	23,035	1.03	0.94	22,302	1.0000	22,302	22,000	n/a		**22,000**
East of Brenton Manor Avenue	10/1/2019	23,127	1.03	0.94	22,392	1.0000	22,392	22,000	n/a		**22,000**
West of Hide-A-Way Lane (Hidden Cove Entr)									21,000		**21,000**
West of US 27	10/1/2019	22,701	1.03	0.94	21,979	1.0000	21,979	22,000	n/a		**22,000**
East of US 27	10/1/2019	10,954	1.03	0.94	10,606	1.0000	10,606	11,000	11,000	11,000	**11,000**
West of SR 17	10/1/2019	10,500	1.03	0.94	10,166	1.0000	10,166	10,000	n/a		**10,000**
East of SR 17	10/1/2019	9,534	1.03	0.94	9,231	1.0000	9,231	9,200	8,800	9,000	**9,000**

[1] SF = Weekly Seasonal Adjustment Factor
[2] AF = Axle Adjustment Factor
[3] AADT = Count x SF x AF
[4] 2019 AADT = AADT x Growth Factor
[5] 2019 AADT (rounded)
[6] 2019 AADT obtained from the FDOT Florida Traffic Online website
[7] Approach count only at this location. The two-way volume was assumed to be equal to twice the approach volume.
[8] FDOT count station value was used because the AADT volume has been greater than 21,000 vpd for the last five years.
[9] FDOT count station value was used because the AADT volume has been greater than 16,000 vpd for the last five years.
[10] FDOT count station value was used because the 2018 AADT volume at this permanent count station was equal to 13,600 vpd.

Table 2-3: Twenty-Four Hour Volume Counts and Existing (2019) AADT Volumes (SR 544 Cross Streets)

Location	Date	Count	SF [1]	AF [2]	AADT [3]	Growth Factor	2019 AADT [4]	2019 AADT [5]	2019 AADT [6]	Average	Final 2019 AADT
M. L. King Boulevard West of SR 544 [7]	4/17/2018	26,560	0.96	0.95	24,223	1.0319	24,995	25,000	25,000	25,000	**25,000**
M. L. King Boulevard East of SR 544 [7]	4/17/2018	13,582	0.96	0.95	12,387	1.0319	12,782	13,000	13,500	13,250	**13,000**
Avenue Y West of SR 544 [7]	2/16/2016	1,960	0.96	1.00	1,882	1.0988	2,068	2,100	n/a		**2,100**
Avenue Y East of SR 544 [7]	2/16/2016	2,174	0.96	1.00	2,087	1.0988	2,293	2,300	n/a		**2,300**
Old Lucerne Park Road (west end) North of SR 544[7]	1/9/2018	3,206	1.01	0.98	3,173	1.0560	3,351	3,400	n/a		**3,400**
Lake Smart Estates Drive South of SR 544[7]	1/9/2018	862	1.01	1.00	871	1.0000	871	870	n/a		**870**
Lucerne Lake Road North of SR 544	10/1/2019	1,730	1.03	0.81	1,443	1.0000	1,443	1,400	n/a		**1,400**
Old Lucerne Park Road (east end) North of SR 544[7]	1/9/2018	5,454	1.01	0.98	5,398	1.0706	5,779	5,800	n/a		**5,800**
Fairview Village North of SR 544	10/1/2019	96	1.03	1.00	99	1.0000	99	100	n/a		**100**
Lake Hamilton Drive South of SR 544	10/1/2019	3,344	1.03	1.00	3,444	1.0000	3,444	3,400	n/a		**3,400**
Brenton Manor Avenue South of SR 544	10/1/2019	2,916	1.03	0.98	2,943	1.0000	2,943	2,900	n/a		**2,900**
US 27 North of SR 544	10/1/2019	45,009	1.04	0.94	44,001	1.0000	44,001	44,000	46,500	45,250	**46,500** [8]
US 27 South of SR 544	10/1/2019	34,554	1.04	0.94	33,780	1.0000	33,780	34,000	39,500	36,750	**39,500** [9]
SR 17 North of SR 544	10/1/2019	10,764	1.03	0.95	10,533	1.0000	10,533	11,000	9,700	10,350	**10,000**
SR 17 South of SR 544	10/1/2019	8,680	1.03	0.95	8,493	1.0000	8,493	8,500	8,300	8,400	**8,400**

Note: Red font denotes assumed values used for this study.

[1] SF = Weekly Seasonal Adjustment Factor
[2] AF = Axle Adjustment Factor
[3] AADT = Count x SF x AF
[4] 2019 AADT = AADT x Growth Factor
[5] 2019 AADT (rounded)
[6] 2019 AADT obtained from the FDOT Florida Traffic Online website
[7] Approach count only at this location. The two-way volume was assumed to be equal to twice the approach volume.
[8] FDOT count station value was used because the AADT volume has been greater than 44,000 vpd for the last four years.
[9] FDOT count station value was used because the AADT volume has been greater than 34,000 vpd for four of the last five years.

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 16 - POLK

SITE: 0096 - SR 544 SOUTH OF CONINE DRIVE, WH

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2019	19200 C	N 9600	S 9600	9.00	56.00	7.60
2018	18100 C	N 9000	S 9100	9.00	54.50	7.00
2017	17000 C	N 8500	S 8500	9.00	54.50	7.00
2016	16000 C	N 7900	S 8100	9.00	53.30	7.40
2015	15600 C	N 7700	S 7900	9.00	55.70	7.00
2014	14400 S	N 7100	S 7300	9.00	55.60	7.50
2013	14200 F	N 7000	S 7200	9.00	55.90	7.50
2012	14200 C	N 7000	S 7200	9.00	55.80	7.50
2011	15100 S	N 7500	S 7600	9.00	55.70	6.40
2010	15100 F	N 7500	S 7600	9.55	56.07	6.40
2009	15300 C	N 7600	S 7700	9.36	56.35	6.40
2008	14400 C	N 7100	S 7300	9.78	55.29	7.70
2007	15400 C	N 7700	S 7700	9.66	55.30	7.40
2006	15900 C	N 7900	S 8000	9.62	55.83	8.10
2005	15200 C	N 7600	S 7600	9.30	54.80	3.80
2004	14000 C	N 7100	S 6900	9.50	55.70	3.80

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

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 16 - POLK

SITE: 0009 - SR 544 E OF WINTER HAVEN BOULEVARD N OF LK FANNIE

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2019	14000 C	E 7100	W 6900	9.00	56.00	8.60
2018	13800 C	E 7000	W 6800	9.00	54.50	8.60
2017	12500 C	E 6300	W 6200	9.00	54.50	9.90
2016	12600 C	E 6200	W 6400	9.00	53.30	9.10
2015	11500 C	E 5600	W 5900	9.00	55.70	8.40
2014	10600 S	E 5300	W 5300	9.00	55.60	9.70
2013	10400 F	E 5200	W 5200	9.00	55.90	9.70
2012	10400 C	E 5200	W 5200	9.00	55.80	9.70
2011	11100 S	E 5500	W 5600	9.00	55.70	8.20
2010	11100 F	E 5500	W 5600	9.55	56.07	8.20
2009	11300 C	E 5600	W 5700	9.36	56.35	8.20
2008	10700 C	E 5300	W 5400	9.78	55.29	9.70
2007	11300 C	E 5700	W 5600	9.66	55.30	9.10
2006	13300 C	E 6600	W 6700	9.62	55.83	11.90
2005	11500 C	E 5600	W 5900	9.30	54.80	3.60
2004	13500 C	E 6700	W 6800	9.50	55.70	3.60

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

Table 2-7: Existing (2019) A.M. and P.M. Peak Hour Truck Volumes and Percentages

Intersection	Movement	AM Peak Hour (7:15 - 8:15)			PM Peak Hour (4:45 -5:45)		
		Total Volume	Truck Volume	Truck %	Total Volume	Truck Volume	Truck %
Martin Luther King Blvd	NB LT	269	7	2.6%	299	0	0.0%
	NB TH	275	11	4.0%	413	3	0.7%
	NB RT	119	1	0.8%	139	0	0.0%
	NB APPROACH	663	19	2.9%	851	3	0.4%
	SB LT	17	7	41.2%	23	0	0.0%
	SB TH	436	10	2.3%	353	3	0.8%
	SB RT	115	12	10.4%	180	15	8.3%
	SB APPROACH	568	29	5.1%	556	18	3.2%
	WB LT	134	5	3.7%	113	2	1.8%
	WB TH	462	10	2.2%	366	6	1.6%
	WB RT	14	2	14.3%	9	0	0.0%
	WB APPROACH	610	17	2.8%	488	8	1.6%
	EB LT	208	12	5.8%	243	13	5.3%
	EB TH	330	7	2.1%	409	9	2.2%
	EB RT	419	6	1.4%	309	3	1.0%
	EB APPROACH	957	25	2.6%	961	25	2.6%
Avenue Y [1]	NB LT	12	0	0.0%	13	0	0.0%
	NB TH	447	39	8.7%	735	17	2.3%
	NB RT	23	1	4.3%	41	0	0.0%
	NB APPROACH	482	40	8.3%	789	17	2.2%
	SB LT	23	0	0.0%	18	0	0.0%
	SB TH	692	36	5.2%	423	24	5.7%
	SB RT	36	2	5.6%	18	0	0.0%
	SB APPROACH	751	38	5.1%	459	24	5.2%
	WB LT	17	0	0.0%	13	0	0.0%
	WB TH	15	0	0.0%	17	0	0.0%
	WB RT	25	1	4.0%	34	1	2.9%
	WB APPROACH	57	1	1.8%	64	1	1.6%
	EB LT	19	2	10.5%	36	2	5.6%
	EB TH	10	1	10.0%	14	0	0.0%
	EB RT	8	0	0.0%	28	0	0.0%
	EB APPROACH	37	3	8.1%	78	2	2.6%
Old Lucerne Park Rd (West End)	NB LT	32	0	0.0%	N/A	N/A	N/A
	NB TH	0	0	0.0%	N/A	N/A	N/A
	NB RT	14	0	0.0%	N/A	N/A	N/A
	NB APPROACH	46	0	0.0%	N/A	N/A	N/A
	SB LT	3	0	0.0%	N/A	N/A	N/A
	SB TH	1	0	0.0%	N/A	N/A	N/A
	SB RT	149	4	2.7%	N/A	N/A	N/A
	SB APPROACH	153	4	2.6%	N/A	N/A	N/A
	WB LT	4	0	0.0%	N/A	N/A	N/A
	WB TH	576	30	5.2%	N/A	N/A	N/A
	WB RT	4	0	0.0%	N/A	N/A	N/A
	WB APPROACH	584	30	5.1%	N/A	N/A	N/A
	EB LT	51	4	7.8%	N/A	N/A	N/A
	EB TH	448	26	5.8%	N/A	N/A	N/A
	EB RT	14	0	0.0%	N/A	N/A	N/A
	EB APPROACH	513	30	5.8%	N/A	N/A	N/A

A review of the existing a.m. and p.m. peak hour truck volumes indicates that, with one exception, the a.m. peak hour volumes are higher than the p.m. peak hour volumes. The ratio of the a.m. and p.m. peak hour truck volume was calculated for each location and then the overall average ratio for the study corridor was calculated. The average overall ratio was equal to 1.50. A revised estimate of the 2025 and 2045 a.m. peak hour truck volumes was obtained by multiplying the initial estimate of the 2025 and 2045 a.m. peak hour truck volumes by 1.50. The revised 2025 and 2045 a.m. peak hour truck volumes are also provided in **Table 3-9** and Table 3-10. The final recommended 2045 and 2025 peak hour truck volumes and percentages are provided in **Table 3-11** and **Table 3-12**, respectively. Based on these assumptions, the following SR 544 mainline peak hour truck percentages (i.e., T_{PkHr}-factors) are recommended for use in the SR 544 PD&E study:

Opening Year (2025) – AM Peak Hour

- 5.6% from Martin Luther King Boulevard to US 27
- 9.6% from US 27 to SR 17

Opening Year (2025) – PM Peak Hour

- 3.7% from Martin Luther King Boulevard to US 27
- 6.4% from US 27 to SR 17

Design Year (2045) – AM Peak Hour

- 4.5% from Martin Luther King Boulevard to US 27
- 8.1 % from US 27 to SR 17

Design Year (2045) – PM Peak Hour

- 3.0% from Martin Luther King Boulevard to US 27
- 5.4 % from US 27 to SR 17

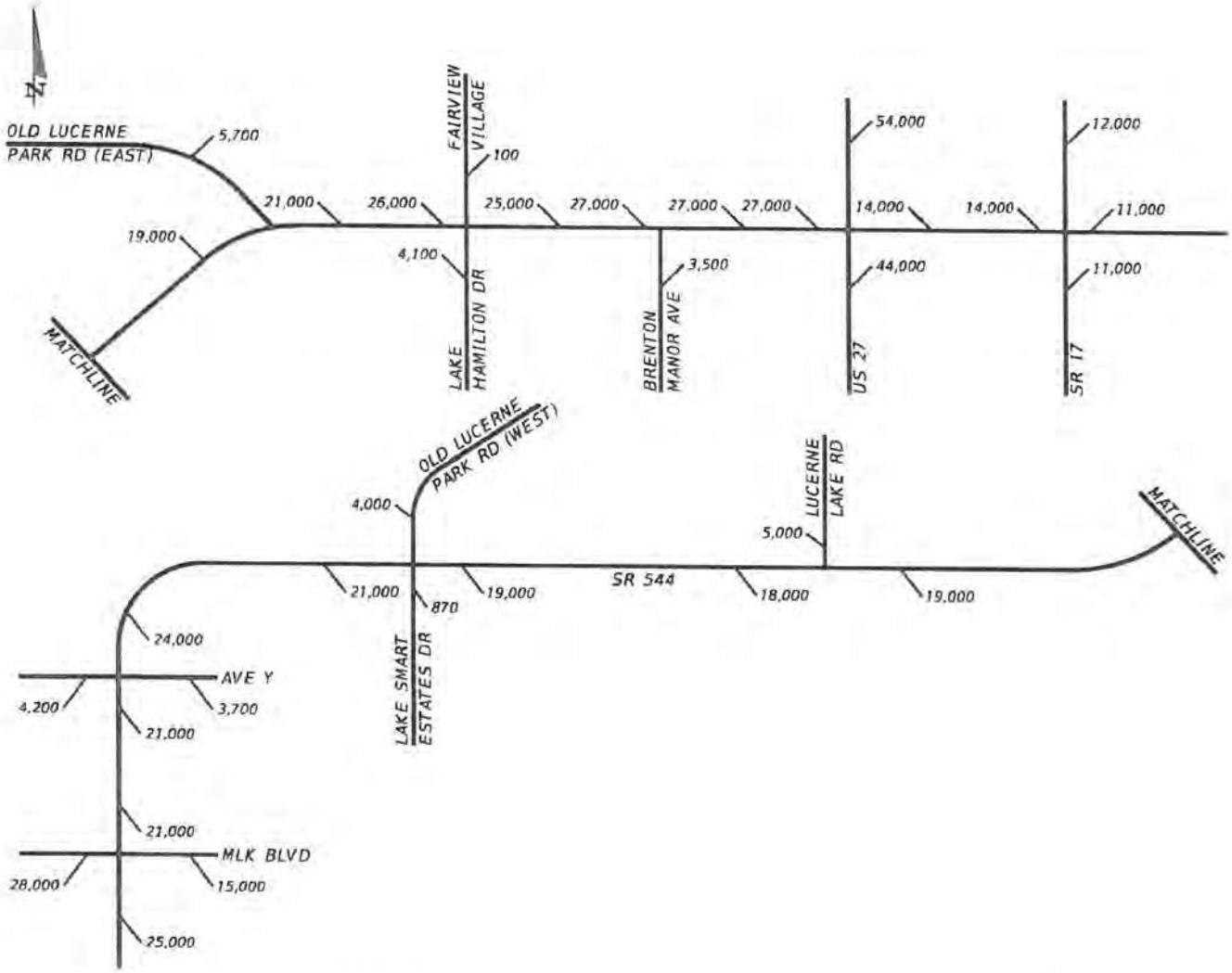


Figure 3-11: Opening Year (2025) AADT Volumes –Build Alternative No. 2

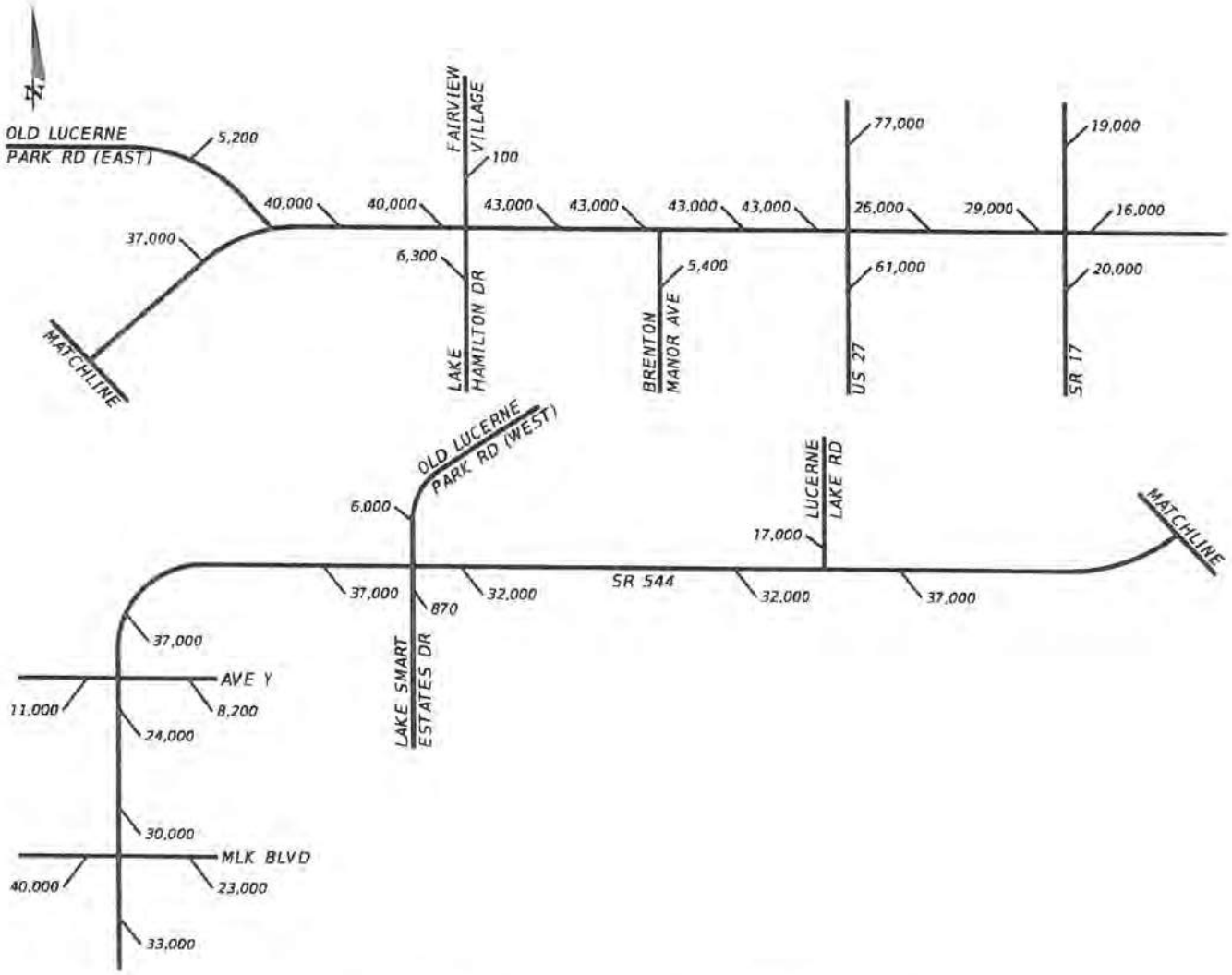


Figure 3-7: Design Year (2045) AADT Volumes – Build Alternative No. 2

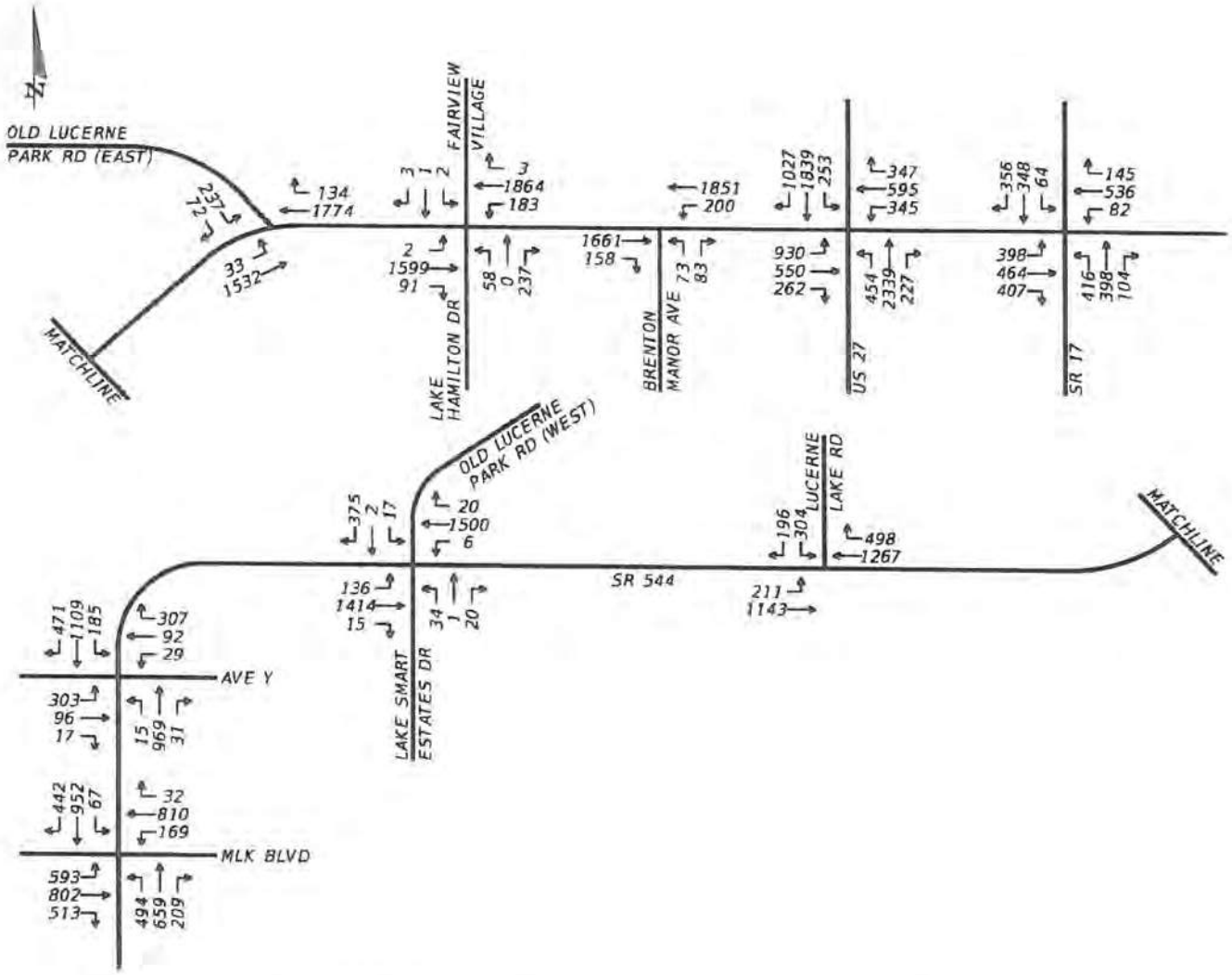


Figure 3-21: Design Year (2045) A.M. Peak Hour Intersection Volumes – Build Alternative No. 2

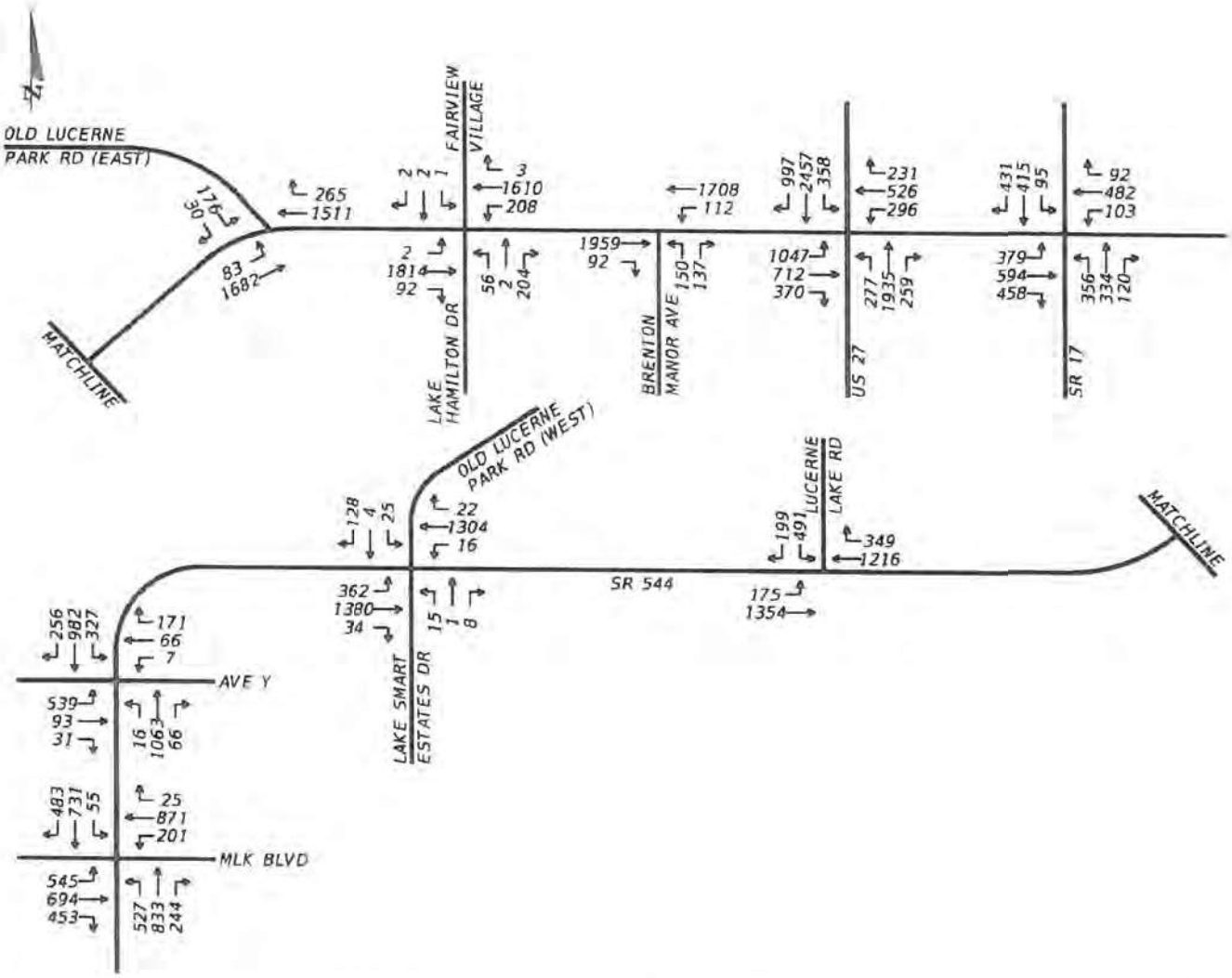


Figure 3-22: Design Year (2045) P.M. Peak Hour Intersection Volumes – Build Alternative No. 2

OLD LUCERNE PARK ROAD (WEST END) INTERSECTION

DESIGN YEAR (2045) PEAK HOUR APPROACH TRUCK PERCENTAGES

AM PEAK HOUR								
EB LT		EB TH		EB RT		EB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
136	0.03	1414	0.05	15	0.00	1565	74.78	4.8%
WB LT		WB TH		WB RT		WB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
6	0.00	1500	0.05	20	0.03	1526	75.6	5.0%
PM PEAK HOUR								
EB LT		EB TH		EB RT		EB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
362	0.03	1380	0.03	34	0.00	1776	52.26	2.9%
WB LT		WB TH		WB RT		WB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
16	0.00	1304	0.03	22	0.03	1342	39.78	3.0%

HSMV_Rep	Agency_Re	Reporting_	Form_Type	Crash_Date	Crash_Tim	City	County	Crash_Street	Intersecting_Street	Offset_Dis	Offset_Dir	Crash_Typ	Vehicles	Non_Motorist	Fatalities	Injuries	Alcohol_R	Distraction	Drug_Relat	Estimated_
84998090	2015-0563	Winter Ha	Long	9/22/2015	2:48 PM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	SR 544 LUCERNE PARK RD	0		Rear End	2	0	0	1	N	N	N	$200
85155491	FHPC16OF	FHP	Long	2/16/2016	10:14 AM	Unincorpo	Polk	SR544 (LUCERNE PARK RD)	OLD LUCERNE PARK RD(WEST)*	0		Left Turn	2	0	0	2	N	N	N	$10,000
86440010	2016-0069	Winter Ha	Long	2/1/2016	8:15 AM	Winter Ha	Polk	SR 544	OLD LUCERNE PARK RD(WEST)*	50	East	Rear End	2	0	0	0	N	N	N	$7,000
86440103	2016-0110	Winter Ha	Short	2/17/2016	2:30 PM	Winter Ha	Polk	SR 544	OLD LUCERNE PARK RD(WEST)*	100	West	Rear End	2	0	0	0	N	N	N	$1,000
86440853	2016-0463	Winter Ha	Long	7/20/2016	8:28 AM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	SR 544	0		Rear End	2	0	0	1	N	N	N	$3,500
86441327	2016-0690	Winter Ha	Short	10/26/2016	1:30 PM	Winter Ha	Polk	SR 544	OLD LUCERNE PARK RD(WEST)*	0		Rear End	2	0	0	0	N	N	N	$3,500
86441569	2016-0811	Winter Ha	Long	12/16/2016	1:45 PM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	SR 544	0		Rear End	2	0	0	0	N	Y	N	$3,000
86441677	2017-0022	Winter Ha	Short	1/10/2017	3:45 PM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	SR 544	0		Rear End	2	0	0	0	N	N	N	$2,000
86444392	2017-0036	Polk Co SO	Long	1/22/2017	6:14 PM	Unincorpo	Polk	OLD LUCERNE PARK ROAD(WEST	LUCERNE PARK ROAD	0		Other	1	0	0	1	N	N	N	$0
86993385	2017-0175	Winter Ha	Long	3/18/2017	4:07 PM	Winter Ha	Polk	SR 544	OLD LUCERNE PARK RD(WEST)*	0		Left Turn	2	0	0	2	N	N	N	$20,000
86993682	2017-0306	Winter Ha	Long	5/11/2017	2:23 PM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	LUCERNE PARK RD	0		Rear End	2	0	0	0	N	N	N	$400
86993899	2017-0401	Winter Ha	Short	6/21/2017	3:20 PM	Winter Ha	Polk	LUCERNE PARK RD	OLD LUCERNE PARK RD(WEST)*	92	West	Rear End	2	0	0	0	N	N	N	$3,000
86993972	2017-0442	Winter Ha	Long	7/10/2017	5:07 AM	Winter Ha	Polk	LUCERNE PARK RD	OLD LUCERNE PARK RD(WEST)*	0		Other	2	0	0	0	N	N	N	$8,000
86994037	2017-0471	Winter Ha	Long	7/21/2017	4:16 PM	Winter Ha	Polk	OLD LUCERNE PARK RD (WEST)*	LUCERNE PARK RD	21	North	Other	2	0	0	1	N	N	N	$7,000
87549272	2017-0704	Winter Ha	Long	10/30/2017	6:26 AM	Winter Ha	Polk	SR 544	OLD LUCERNE PARK RD(WEST)*	122	West	Left Turn	2	0	0	2	N	N	N	$8,000
87549430	2017-0768	Winter Ha	Long	11/28/2017	6:00 AM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	LUCERNE PARK RD	0		Left Turn	2	0	0	0	N	N	N	$5,000
87549732	2018-0085	Winter Ha	Long	2/7/2018	11:59 AM	Winter Ha	Polk	LUCERNE PARK RD	OLD LUCERNE PARK RD(WEST)*	0		Left Turn	2	0	0	0	N	N	N	$10,000
87549828	2018-0120	Winter Ha	Short	2/22/2018	12:15 PM	Winter Ha	Polk	OLD LUCERNE PARK RD (WEST)*	LUCERNE PARK RD	5	North	Rear End	2	0	0	0	N	Y	N	$1,100
87549868	2018-0146	Winter Ha	Long	3/5/2018	11:13 AM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	LUCERNE PARK RD	0		Left Turn	3	0	0	3	N	N	N	$12,000
87549970	2018-0187	Winter Ha	Short	3/22/2018	8:45 AM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	LUCERNE PARK RD	0		Rear End	2	0	0	0	N	N	N	$2,000
87550040	2018-0219	Winter Ha	Short	4/5/2018	3:55 PM	Winter Ha	Polk	LUCERNE PARK RD	OLD LUCERNE PARK RD(WEST)*	163	West	Left Turn	2	0	0	0	N	N	N	$500
87550925	2018-0633	Winter Ha	Long	9/30/2018	8:50 PM	Winter Ha	Polk	OLD LUCERNE PARK RD (WEST)*	LUCERNE PARK RD	0		Angle	2	0	0	2	N	N	N	$5,000
87551019	2018-0666	Winter Ha	Short	10/16/2018	7:55 AM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	LUCERNE PARK RD	0		Other	2	0	0	0	N	N	N	$7,000
87551030	2018-0672	Winter Ha	Long	10/18/2018	2:37 PM	Winter Ha	Polk	LUCERNE PARK RD	OLD LUCERNE PARK RD (WEST)*	0		Left Turn	2	0	0	3	N	N	N	$18,000
89119456	2019-0213	Winter Ha	Short	4/2/2019	1:12 PM	Winter Ha	Polk	OLD LUCERNE PARK RD (WEST)*	LUCERNE PARK RD	5	North	Rear End	2	0	0	0	N	Y	N	$4,800
89119561	2019-0253	Winter Ha	Long	4/18/2019	10:00 AM	Winter Ha	Polk	LUCERNE PARK RD	LUCERNE PARK RD (WEST)*	75	North	Rear End	2	0	0	1	N	N	N	$1,000
89119621	2019-0283	Winter Ha	Long	4/30/2019	5:20 PM	Winter Ha	Polk	OLD LUCERNE PARK RD(WEST)*	LUCERNE PARK RD	0		Left Turn	2	0	0	2	N	N	N	$20,000
89119697	2019-0328	Winter Ha	Long	5/19/2019	5:28 PM	Winter Ha	Polk	OLD LUCERNE PARK RD	LUCERNE PARK RD (WEST)*	0		Angle	2	0	0	1	N	N	N	$3,000
89120479	2019-0653	Winter Ha	Long	10/7/2019	4:18 PM	Winter Ha	Polk	LUCERNE PARK RD	OLD LUCERNE PARK RD (WEST)*	0		Left Turn	2	0	0	1	N	N	N	$11,000
89339461	2019-0675	Winter Ha	Long	10/16/2019	9:55 AM	Winter Ha	Polk	LUCERNE PARK RD	OLD LUCERNE PARK RD (WEST)*	0		Left Turn	2	0	0	2	N	N	N	$10,000
89339479	2019-0684	Winter Ha	Short	10/21/2019	9:52 AM	Winter Ha	Polk	LUCERNE PARK ROAD	OLD LUCERNE PARK ROAD (WEST	0		Left Turn	2	0	0	0	N	N	N	$10,000
89339701	2019-0798	Winter Ha	Long	12/7/2019	6:52 PM	Winter Ha	Polk	LUCERNE PARK RD	OLD LUCERNE PARK RD (WEST)*	0		Angle	2	0	0	0	N	N	N	$2,000

Weather_(	Light_Con	Street_Nu	Crash_Type_D	Crash_Typ	Crash_Sev	Within_Cit	Manner_of_C	First_Harmful	First_HE_Locati	First_HE_Relat	First_HE_V	Type_of_Inter	Road_Sys_	Type_of_S	Road_Surf	Contrib_Ci	Contrib_Ci	Contrib_Ci	Contrib_Ci	Contrib_Ci	Contrib_Ci	School_Bu	Work_Zon
Clear	Daylight		Rear End	S	Injury	Y	Front to Rear	Motor Vehicle	On Roadway	Intersection	N	T-Intersection	Local	Unpaved	Dry	None		None				N	N
Clear	Daylight		Left Entering	E	Injury	N	Angle	Motor Vehicle	On Roadway	Intersection	Y	T-Intersection	State	Paved	Dry	None		None				N	N
Clear	Daylight		Rear End	W	Property D	Y	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	State	Unpaved	Dry	None		None				N	N
Clear	Daylight		Rear End		Property D	Y	Front to Rear	Motor Vehicle	On Roadway		N	T-Intersection	State	Unpaved	Dry							N	N
Clear	Daylight		Rear End	W	Injury	Y	Front to Rear	Other Non-Fix	On Roadway	Non-Junction	N	T-Intersection	Local	Unpaved	Dry	None		None				N	N
Clear	Daylight		Rear End		Property D	Y	Front to Rear	Motor Vehicle	On Roadway		Y	T-Intersection	State	Unpaved	Dry							N	N
Clear	Daylight		Rear End	S	Property D	Y	Front to Rear	Other Non-Fix	On Roadway	Non-Junction	N	T-Intersection	Local	Unpaved	Dry	None		None				N	N
Clear	Daylight		Rear End	E	Property D	Y	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	Local	Unpaved	Dry							N	N
Clear	Dark - Lighted		Single Vehicle		Injury	N	Other	Motor Vehicle	On Roadway	Intersection	N	Y-Intersection	County	Unpaved	Dry	None		None				N	N
Clear	Daylight		Left Entering	E	Injury	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	Y	T-Intersection	State	Paved	Dry	None		None				N	N
Clear	Daylight		Rear End	S	Property D	Y	Front to Rear	Motor Vehicle	On Roadway	Intersection-R	N	T-Intersection	Local	Unpaved	Dry	None		None				N	N
Clear	Daylight		Rear End		Property D	Y	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	Not at Intersec	Local	Curb	Dry	None		None				N	N
Clear	Dark - Not Lighted		Other	E	Property D	Y	Angle	Motor Vehicle	On Roadway	Intersection-R	N	T-Intersection	Local	Unpaved	Dry	Unknown		Unknown				N	N
Rain	Daylight		Other	E	Injury	Y	Angle	Other Non-Fix	On Roadway	Intersection-R	Y	Y-Intersection	Local	Paved	Wet	None		None				N	N
Clear	Dark - Unknown Lighti		Left Entering	E	Injury	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	Not at Intersec	State	Unpaved	Dry	None		None				N	N
Clear	Dawn		Left Entering	S	Property D	Y	Angle	Other Non-Fix	On Roadway	Non-Junction	N	T-Intersection	Local	Unpaved	Dry	None		None				N	N
Clear	Daylight		Left Leaving		Property D	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	State	Paved	Dry	None		None				N	N
Clear	Daylight		Rear End		Property D	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	Not at Intersec	Local	Curb	Dry	None		None				N	N
Clear	Daylight		Left Leaving		Injury	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	Y	T-Intersection	Local	Unpaved	Dry	None		None				N	N
Clear	Daylight		Rear End		Property D	Y	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	Local	Curb	Dry	None		None				N	N
Clear	Daylight		Left Rear		Property D	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	Other	State	Paved	Dry	None		None				N	N
Clear	Dark - Not Lighted		Right Angle	SW	Injury	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	Local	Unpaved	Dry	None		None				N	N
Clear	Daylight		Other	S	Property D	Y	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	Local	Unpaved	Dry	None		Glare				N	N
Clear	Daylight		Left Leaving	S	Injury	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	State	Unpaved	Dry	None		None				N	N
Clear	Daylight		Rear End	S	Property D	Y	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	Not at Intersec	Local	Curb	Dry	None		None				N	N
Clear	Daylight		Rear End	S	Injury	Y	Front to Rear	Motor Vehicle	On Roadway	Through Road	N	Not at Intersec	Local	Paved	Dry	None		None				N	N
Clear	Daylight		Left Entering	N	Injury	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	Other	Local	Unpaved	Dry	None		None				N	N
Clear	Daylight		Right Angle	SE	Injury	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	State	Unpaved	Dry	None		None				N	N
Rain	Daylight		Left Entering	E	Injury	Y	Angle	Motor Vehicle	On Roadway	Intersection	N	T-Intersection	Local	Paved	Wet	None		Other				Y	N
Clear	Daylight		Left Entering	S	Injury	Y	Other	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	State	Paved	Dry	None		None				N	N
Clear	Daylight		Left Entering	S	Property D	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	Local	Unpaved	Dry	None		None				N	N
Clear	Dark - Not Lighted		Right Angle	SE	Property D	Y	Angle	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	Interstate	Paved	Dry	None		None				N	N

Type_of_V	Loc_in_Wc	Workers_i	Law_Enfor	Mopeds	Motorcycl	Passenger	Bicyclists	Pedestrian	Fatalities_I	Injuries_U
				0	0	2	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	1	0	0	0	0
				0	0	4	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	1	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	1	0	0	0	0
				0	0	4	0	0	0	0
				0	0	1	0	0	0	0
				0	0	1	0	0	0	0
				0	0	0	0	0	0	0
				0	0	1	0	0	0	0
				0	0	2	0	0	0	0
				0	0	1	0	0	0	0
				0	0	1	0	0	0	0
				0	0	0	0	0	0	0
				0	0	1	0	0	0	0
				0	0	1	0	0	0	0
				0	0	3	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	4	0	0	0	0

Appendix B

FDOT Traffic Signal Warrant Study

Florida Department of Transportation

RICK SCOTT
GOVERNOR

801 North Broadway Avenue
Bartow, FL 33830

MIKE DEW
SECRETARY

MEMORANDUM

Date: **April 19, 2018**

To: **Nathan Kautz, P.E., Traffic Services Engineer III**

From: **Lorraine Edwards, Traffic Specialist IV**

CC: **Tanya King, P.E., Traffic Services Engineer II**

Subject: **Signal Warrant Analysis for SR 544 at Old Lucerne Park Road/Lake Smart Estates Drive**
Roadway Section: 16140-000, M.P. 5.749

Upon receiving a request from a citizen, the Traffic Operations Office conducted a signal warrant analysis at the intersection of SR 544 and Old Lucerne Park Road/Lake Smart Estates Drive. Traffic count data and delay studies were conducted at this intersection on February 5, 2018 and February 8, 2018 respectively.

A signal warrant analysis was performed using the procedure outlined in the Manual on Uniform Traffic Control Devices (MUTCD). The 8-hour traffic volumes were analyzed (see attached) for all nine warrants. However, the analysis shows that the 105 volume threshold for Warrant 1A was not met. The eight-hour volumes ranged from 33 vehicles between 7 AM and 8 AM to 8 vehicles between 12 PM and 1 PM. Warrant 1B was also considered, which accounts for delay at the intersection. The department considers excessive delay to be greater than or equal to 60 seconds. The delay at this intersection ranged from 15 seconds in the morning to 24 seconds in the afternoon for the northbound left/through approach and from 12 seconds in the morning to 10 seconds in the afternoon for the southbound approach, therefore Warrant 1B is not met.

Crashes were also evaluated at this intersection for the past three years (2015-2018). The only crashes that are considered correctable by a signal are angle crashes. There has to be five angle crashes per year for a signal to be considered at this intersection. In the past three years, 3 angle crashes occurred at this intersection.

Based on the analysis, the SR 544 at Old Lucerne Park Road/Lake Smart Estates Drive does not meet warrants for a signal.

Summary of Signal Warrant Analysis

Warrant		Applicable	Satisfied	Comments
1A	Minimum Vehicular Volume	Yes	No	The side street traffic volumes do not meet the requirements of this warrant.
1B	Interruption of Continuous Traffic	No	No	The side street traffic does not suffer excessive delay. Therefore, this Warrant is not applicable.
2	Four Hour Vehicular Volume	Yes	No	The side street traffic volumes meet the requirements of this warrant.
3	Peak Hour	No	No	This warrant is not applicable. It is intended to be *applied only in unusual cases, such as office complexes, manufacturing plants, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*
4	Pedestrian Volume	No	No	There were no observed pedestrians crossing SR 544 during the study period.
5	School Crossing	No	No	This warrant is not applicable.
6	Coordinated Signal System	No	No	This warrant is not applicable.
7	Crash Experience	Yes	No	Three correctable (angle) crashes were reported during the required 12-month period, which falls below the 5-crash minimum. Therefore, this warrant is not satisfied.
8	Roadway Network	No	No	This warrant is not applicable.
9	Grade Crossing	No	No	This warrant is not applicable.

None of the standard warrants for signalization are met.

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING - 11/14

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

CONCLUSIONS

Remarks: **None of the warrants for signalization are met.**

WARRANTS SATISFIED:

☐	Warrant 1	☐ Not Applicable
☐	Warrant 2	☐ Not Applicable
☐	Warrant 3	☑ Not Applicable
☐	Warrant 4	☑ Not Applicable
☐	Warrant 5	☑ Not Applicable
☐	Warrant 6	☑ Not Applicable
☐	Warrant 7	☐ Not Applicable
☐	Warrant 8	☑ Not Applicable
☐	Warrant 9	☑ Not Applicable

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING - 11/14

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied for eight hours. ☐ Yes ☑ No

Warrant 1 is also satisfied if both Condition A and Condition B are "80%" satisfied. ☐ Yes ☑ No

Condition A - Minimum Vehicular Volume

Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

100% Satisfied: ☐ Yes ☑ No

80% Satisfied: ☐ Yes ☑ No

70% Satisfied: ☐ Yes ☑ No ☐ N/A

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	Minor	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	7-8	8-9	10-11	11-12	13-14	14-15	15-16	16-17
Major	1,057	942	871	893	918	946	1,034	1,136
Minor	33	18	7	9	10	8	13	20

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where Condition A is not satisfied and the traffic volume on a major street is so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Applicable:	☐ Yes	☑ No	
100% Satisfied:	☐ Yes	☑ No	
80% Satisfied:	☐ Yes	☑ No	
70% Satisfied:	☐ Yes	☑ No	☐ N/A

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Eight Highest Hours								
Street	**7-8**	**8-9**	**10-11**	**11-12**	**13-14**	**14-15**	**15-16**	**16-17**
Major	1,057	942	871	893	918	946	1,034	1,136
Minor	33	18	7	9	10	8	13	20

Existing Volumes

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING - 11/14

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ Yes ☐ No

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

Applicable: ☑ Yes ☐ No

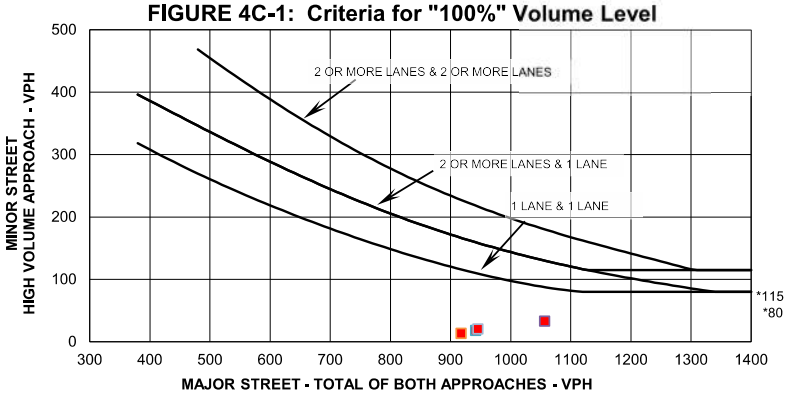
Satisfied: ☐ Yes ☑ No

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
7-8	1057	33
8-9	942	18
13-14	918	13
14-15	946	20

Plot four volume combinations on the applicable figure below.

FIGURE 4C-1: Criteria for "100%" Volume Level



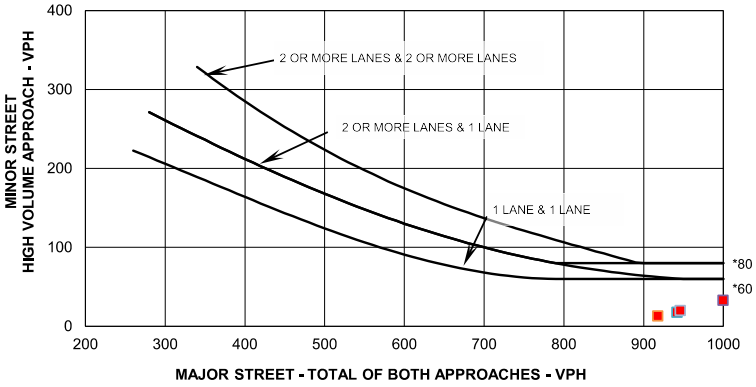
** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
7-8	1057	33
8-9	942	18
13-14	918	13
14-15	946	20

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

*If all three criteria are fulfilled **or** the plotted point lies above the appropriate line, then the warrant is satisfied.*

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☑ No

Unusual condition justifying use of warrant:

N/A

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
12:00 AM	0	0

Criteria

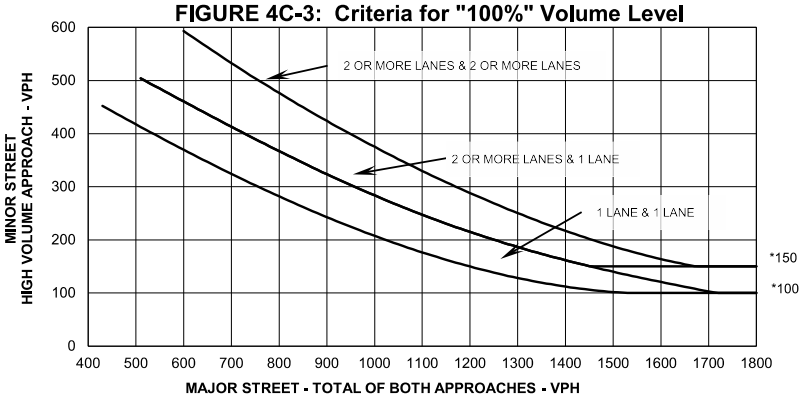
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*	1.5	
Fulfilled?:	☐ Yes	☑ No

2. Volume on Minor Approach One-Direction *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*	89	
Fulfilled?:	☐ Yes	☑ No

3. Total Intersection Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		1,084
Fulfilled?:	☑ Yes	☐ No

Plot volume combination on the applicable figure below.

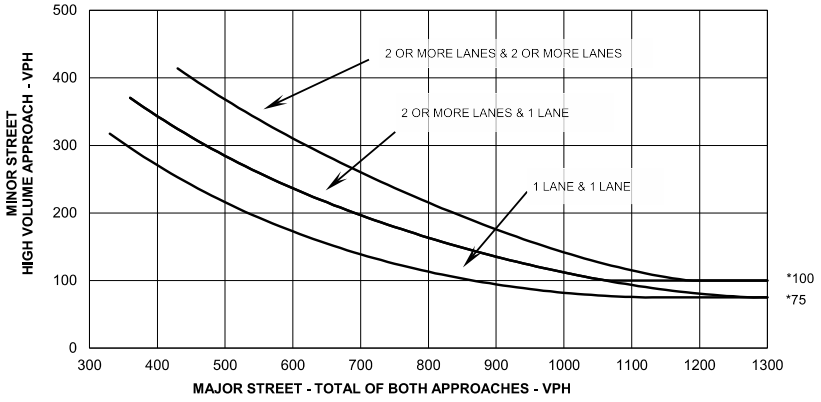
FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING - 11/14

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☑ 100%

WARRANT 4 - PEDESTRIAN VOLUME

For each of any 4 hours of an average day, the plotted points lie above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☑ No

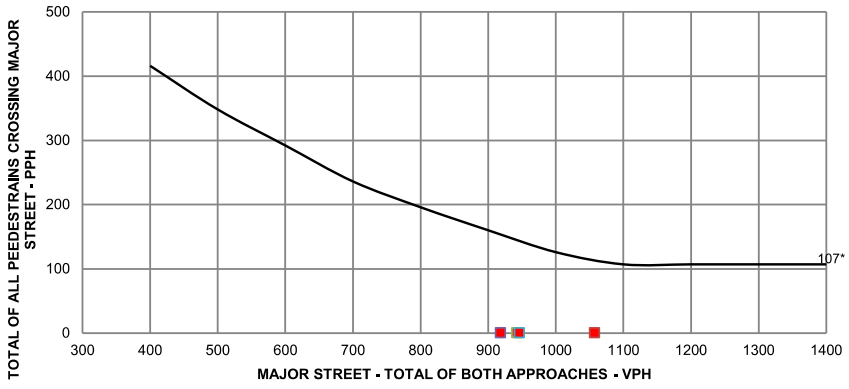
Satisfied: ☐ Yes ☑ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total
7-8	1057	0
8-9	942	0
13-14	918	0
14-15	946	0

Figure 4C-5. Criteria for "100%" Volume Level

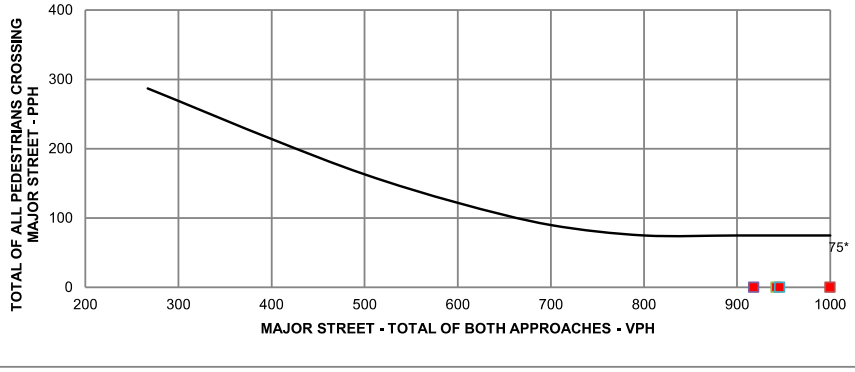


** Note: 107 pph applies as the lower threshold volume*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total
7-8	1057	0
8-9	942	0
13-14	918	0
14-15	946	0

Figure 4C-6 Criteria for "70%" Volume Level



** Note: 75 pph applies as the lower threshold volume*

WARRANT 4 - PEDESTRIAN VOLUME

For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point falls above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☑ No

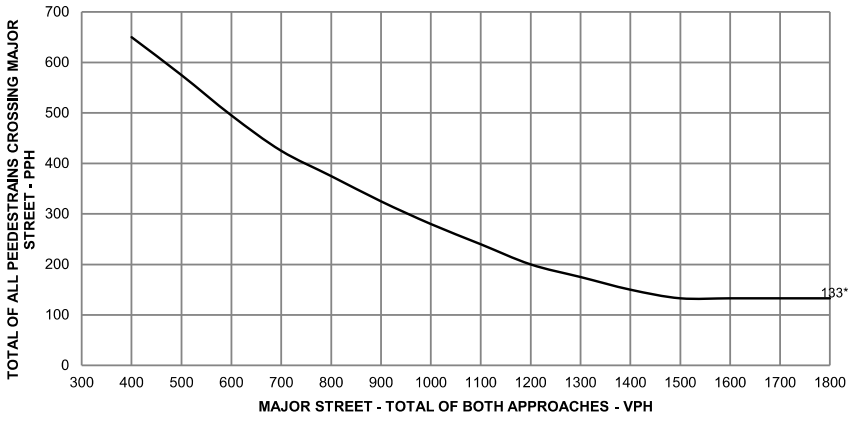
Satisfied: ☐ Yes ☑ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
12:00 AM	0	0

Figure 4C-7. Criteria for "100%" Volume Level - Peak Hour



** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
12:00 AM	0	0

Figure 4C-8 Criteria for "70%" Volume Level - Peak Hour

** Note: 93 pph applies as the lower threshold volume*

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING - 11/14

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 5 - SCHOOL CROSSING

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria				Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students: 0	Hour:			X
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the established school crossing than the number of minutes in the same period.		Minutes:	Gaps:		X
3. The nearest traffic signal along the major street is located more than 300 ft. (90 m) away, or the nearest signal is within 300 ft. (90 m) but the proposed traffic signal will not restrict the progressive movement of traffic.					X

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING - 11/14

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 6 - COORDINATED SIGNAL SYSTEM

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft.).

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.		X
2. On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.		X

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING - 11/14

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 7 - CRASH EXPERIENCE

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☑ Yes ☐ No

Satisfied: ☐ Yes ☑ No

Criteria		Hour	Volume		Met?		Fulfilled?	
			Major	Minor	Yes	No	Yes	No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)					X		X
	Warrant 1, Condition B (80% satisfied)					X		
	Warrant 4, Pedestrian Volume at 80% of volume requirements: # ped/hr for four (4) hours or # ped/hr for one (1) hour.					x		
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:						No
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-month period.		Observed Crash Types: Angle	Number of crashes per 12 months:			3		No

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING - 11/14

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 8 - ROADWAY NETWORK

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the Major Route characteristics listed.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria							Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.		Entering Volume:							X
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.	Warrant:	1	2	3					
		Satisfied?:								
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)						← Hour				X
						←Volume				

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:				X
	Minor Street:				
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:				
	Minor Street:				
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING - 11/14

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Heaven	Engineer:	LE
County:	16 – Polk	Date:	April 17, 2018
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	55
Minor Street:	Lake Smart Estates Dr	Lanes:	1	Minor Approach Speed:	40

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Approach Lane Criteria

1. How many approach lanes are there at the track crossing?

☐ 1 ☑ 2 or more

If there is 1 lane, use Figure 4C-9 and if there are 2 or more, use Figure 4C-10.

☐ Fig 4C-9 ☑ Fig 4C-10

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing.

Indicate if both criteria are fulfilled in the boxes provided. The warrant is satisfied if both criteria are met.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and	☐	☑
2. During the highest traffic volume hour during which the rail uses the crossing, the plotted point falls above the applicable curve for the existing combination of approach lanes over the track and the distance D (clear storage distance).	☐	☑

Use the following tables (4C-2, 4C-3, and 4C-4 to appropriately adjust the minor-street approach volume).

Inputs		Adjustment Factors from Tables
Occurrences of Rail traffic per day		
% of High Occupancy Buses on Minor-Street Approach	0%	1.00
Enter D (feet)	136	
% of Tractor-Trailer Trucks on Minor-Street Approach	2.00%	0.50

Table 4C-2. Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-3. Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor Street Approach	Adjustment Factor
0%	1
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people

Table 4C-4. Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

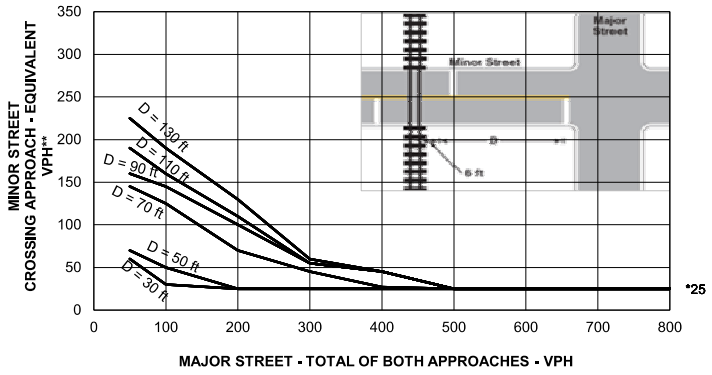
Input the major and minor street volumes before adjustment factors are applied

1 Approach Lane		
136	805	162
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

1 Approach Lane w/Factors		
136	805	
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-9: Criteria for 1 Approach Lane at the Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

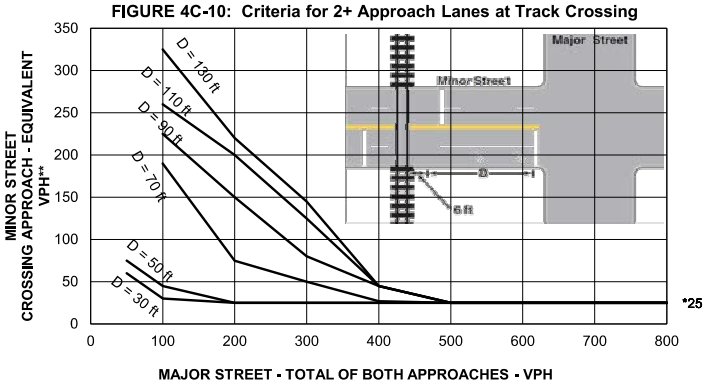
Input D and the major and minor street volumes before adjustment factors are applied

2 or more Approach Lanes		
136	805	162
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

2+ Approach Lane w/Factors		
136	805	
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-10: Criteria for 2+ Approach Lanes at Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

Appendix C

CAP-X and SPICE Analysis Summary Sheets

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Old Lucerne Park Road (West End)
Date:	Design Year (2045) AM Peak Hour
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	136	1414	15	3.00%	0.00%
Westbound	0	6	1500	20	3.00%	0.00%
Southbound	0	17	2	375	3.00%	0.00%
Northbound	0	34	1	20	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone		**C3R-Suburban Residential**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2 X 2	1.10	1	5.6	Fair	Good	Good
1NS X 2EW	1.16	2	5.6	Fair	Good	Good
All-Way Stop Control	2.02	3	6.7	Good	Good	Good
Two-Way Stop Control E-W	3.86	4	3.7	Poor	Fair	Good
Unsignalized Restricted Crossing U-Turn E-W	4.25	5	4.4	Fair	Fair	Fair
Unsignalized ThruCut E-W	10.13	6	3.3	Poor	Fair	Fair
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Capacity Analysis for Planning of Junctions

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Old Lucerne Park Road (West End)
Date:	Design Year (2045) AM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	136	1414	15	3.00%	0.00%
Westbound	0	6	1500	20	3.00%	0.00%
Southbound	0	17	2	375	3.00%	0.00%
Northbound	0	34	1	20	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone		**C3R-Suburban Residential**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Two-Way Stop Control	E-W		1	1	0		1	1	1		1	2	0		1	2	0
All-Way Stop Control	FULL		1	1	0		1	1	1		1	2	0		1	2	0
Unsignalized Restricted Crossing U-Turn	E-W				1				1	1	1	2	0	1	1	2	0
Unsignalized ThruCut	E-W		1		1		1		1		1	2	0		1	2	0

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Two-Way Stop Control	E-W									--	3.86	3.86	Poor	Fair	Good
All-Way Stop Control	FULL									3644	2.02	2.02	Good	Good	Good
Unsignalized Restricted Crossing U-Turn	E-W	1590	4.25	1483	*0.47*	1572	*0.11*	1611	*0.06*			4.25	Fair	Fair	Fair
Unsignalized ThruCut	E-W									--	10.13	10.13	Poor	Fair	Fair

Capacity Analysis for Planning of Junctions

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1NS X 2EW	1.16			0.60	0.65		0.16			0.68	0.72		1.16	Fair	Good	Good
2 X 2	0.07	1.10		0.68	0.72		0.12	0.06		0.60	0.65		1.10	Fair	Good	Good

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Old Lucerne Park Road (West End)
Date:	Design Year (2045) PM Peak Hour
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	362	1380	34	5.00%	0.00%
Westbound	0	16	1304	22	5.00%	0.00%
Southbound	0	25	4	128	3.00%	0.00%
Northbound	0	15	1	8	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone		**C3R-Suburban Residential**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
1NS X 2EW	0.78	1	5.6	Fair	Good	Good
2 X 2	0.78	1	5.6	Fair	Good	Good
Unsignalized Restricted Crossing U-Turn E-W	1.25	3	4.4	Fair	Fair	Fair
All-Way Stop Control	1.92	4	6.7	Good	Good	Good
Two-Way Stop Control E-W	9.77	5	3.7	Poor	Fair	Good
Unsignalized ThruCut E-W	97.60	6	3.3	Poor	Fair	Fair
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Old Lucerne Park Road (West End)
Date:	Design Year (2045) PM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	362	1380	34	5.00%	0.00%
Westbound	0	16	1304	22	5.00%	0.00%
Southbound	0	25	4	128	3.00%	0.00%
Northbound	0	15	1	8	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3R-Suburban Residential**	
Critical Lane Volume Threshold: 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold: 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold: 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Two-Way Stop Control	E-W		1	1	0		1	1	1		1	2	0		1	2	0
All-Way Stop Control	FULL		1	1	0		1	1	1		1	2	0		1	2	0
Unsignalized Restricted Crossing U-Turn	E-W				1				1	1	1	2	0	1	1	2	0
Unsignalized ThruCut	E-W		1		1		1		1		1	2	0		1	2	0

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Two-Way Stop Control	E-W									--	9.77	9.77	Poor	Fair	Good
All-Way Stop Control	FULL									3460	1.92	1.92	Good	Good	Good
Unsignalized Restricted Crossing U-Turn	E-W	1396	1.25	1495	0.21	1409	0.04	1865	0.12			1.25	Fair	Fair	Fair
Unsignalized ThruCut	E-W									--	97.60	97.60	Poor	Fair	Fair

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1NS X 2EW	0.40			0.71	0.76		0.09			0.74	0.78		0.78	Fair	Good	Good
2 X 2	0.08	0.32		0.74	0.78		0.06	0.03		0.71	0.76		0.78	Fair	Good	Good

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 544 PD&E Study from MLK Blvd to SR 17	**Intersection Type**	At-Grade Intersections
Intersection:	SR 544/Old Lucerne Park Road (West End)	**Opening Year**	2025
Agency:	FDOT District One	**Design Year**	2045
Project Reference:	FPID No.: 440273-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Polk County	**Number of Legs**	4-leg
State:	Florida	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	12/12/2022	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	AIM Engineering & Surveying, Inc.	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Minor Road Stop	Total	2.97	4.93	82.89	2	Yes	Calibrated SPF w/ EB	41	18	5
	Fatal & Injury	1.07	1.89	30.96						
All Way Stop	Total	2.53	4.27	71.26	1	N/A	N/A	86	77	2
	Fatal & Injury	0.95	1.74	28.08						
2-lane Roundabout	Total	6.07	11.14	180.01	3	No	Uncalibrated SPF	89	82	1
	Fatal & Injury	1.10	2.15	33.83						
Unsignalized RCUT	Total	No SPF	No SPF	No SPF	--	Yes	Uncalibrated SPF	58	35	4
	Fatal & Injury	No SPF	No SPF	No SPF						
Unsignalized Thru-Cut	Total	No SPF	No SPF	No SPF	--	N/A	N/A	63	39	3
	Fatal & Injury	No SPF	No SPF	No SPF						
Other 1*	Total	No SPF	No SPF	No SPF	--	N/A	CMF	--	--	--
	Fatal & Injury	No SPF	No SPF	No SPF						
Other 2*	Total	No SPF	No SPF	No SPF	--	N/A	CMF	--	--	--
	Fatal & Injury	No SPF	No SPF	No SPF						

Appendix D

SIDRA Analysis Summary Sheets

Table 2: Design Year (2045) Peak Hour Operational Analysis Summary - Old Lucerne Park Road (West) Intersection

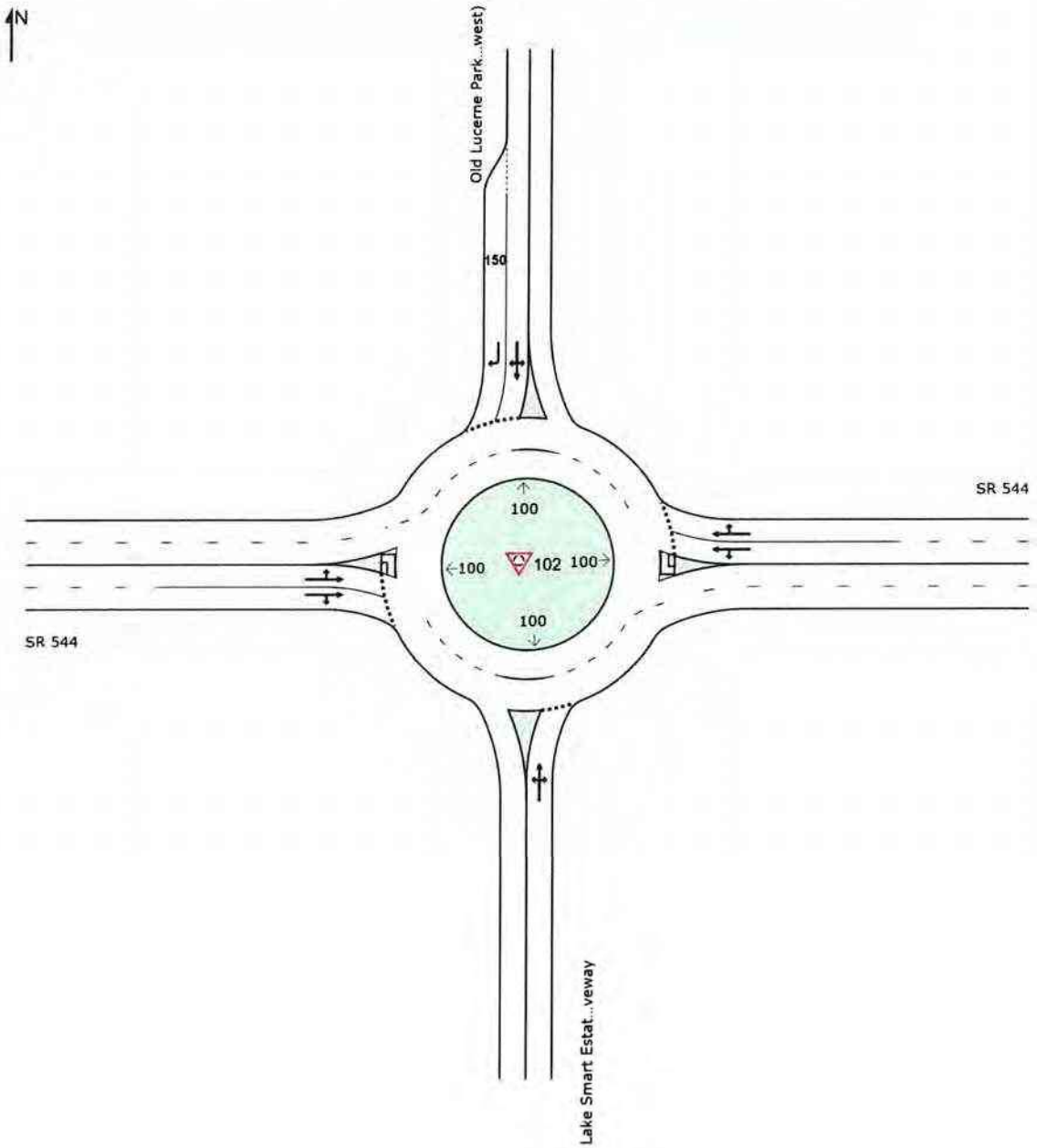
AM Peak Hour							
		Existing Old Lucerne Park Rd Alignment			Realigned Old Lucerne Park Road		
Intersection	Movement	V/C	Avg. Delay	LOS	V/C	Avg. Delay	LOS
Old Lucerne Park Rd (west end)	NB LT	0.18	14.3	B	0.22	15.1	C
	NB TH	0.18	14.3	B	0.22	15.1	C
	NB RT	0.18	14.3	B	0.22	15.1	C
	NB Approach	n/a	14.3	B	n/a	15.1	C
	SB LT	0.69	41.5	E	0.68	39.5	E
	SB TH	0.69	41.2	E	0.68	39.1	E
	SB RT	0.69	38.4	E	0.68	36.5	E
	SB Approach	n/a	38.6	E	n/a	36.7	E
	WB LT	0.70	13.6	B	0.69	13.2	B
	WB TH	0.70	13.7	B	0.69	13.4	B
	WB RT	0.70	13.6	B	0.69	13.3	B
	WB Approach	n/a	13.7	B	n/a	13.4	B
	EB LT	0.62	10.2	B	0.62	10.1	B
	EB TH	0.62	10.2	B	0.62	10.2	B
	EB RT	0.62	10.1	B	0.62	10.1	B
	EB Approach	n/a	10.2	B	n/a	10.2	B
	ALL	n/a	14.9	B	n/a	14.6	B
PM Peak Hour							
		Existing Old Lucerne Park Rd Alignment			Realigned Old Lucerne Park Road		
Intersection	Movement	V/C	Avg. Delay	LOS	V/C	Avg. Delay	LOS
Old Lucerne Park Rd (west end)	NB LT	0.09	14.1	B	0.15	15.0	C
	NB TH	0.09	14.1	B	0.15	15.0	C
	NB RT	0.09	14.1	B	0.15	15.0	C
	NB Approach	n/a	14.1	B	n/a	15.0	C
	SB LT	0.21	13.8	B	0.22	14.2	B
	SB TH	0.21	13.5	B	0.22	13.9	B
	SB RT	0.21	12.7	B	0.22	13.0	B
	SB Approach	n/a	12.9	B	n/a	13.2	B
	WB LT	0.72	16.4	C	0.74	17.1	C
	WB TH	0.72	16.5	C	0.74	17.2	C
	WB RT	0.72	16.5	C	0.74	17.2	C
	WB Approach	n/a	16.5	C	n/a	17.2	C
	EB LT	0.69	12.1	B	0.69	12.2	B
	EB TH	0.69	12.1	B	0.69	12.2	B
	EB RT	0.69	12.0	B	0.69	12.1	B
	EB Approach	n/a	12.1	B	n/a	12.2	B
	ALL	n/a	13.9	B	n/a	14.3	B

SITE LAYOUT

Site: 102 [SR 544/Old Lucerne Park Rd (west end) Intersection (Site Folder: General)]

Design Year (2045) AM Peak Hour - Build Alt
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 102 [SR 544/Old Lucerne Park Rd (west end) Intersection (Site Folder: General)]

Design Year (2045) AM Peak Hour - Build Alt
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Lake Smart Estates Driveway														
3	L2	34	0.0	36	0.0	0.177	14.3	LOS B	0.6	14.0	0.80	0.80	0.80	25.8
8	T1	1	0.0	1	0.0	0.177	14.3	LOS B	0.6	14.0	0.80	0.80	0.80	25.6
18	R2	20	0.0	21	0.0	0.177	14.3	LOS B	0.6	14.0	0.80	0.80	0.80	24.6
Approach		55	0.0	58	0.0	0.177	14.3	LOS B	0.6	14.0	0.80	0.80	0.80	25.3
East: SR 544														
1	L2	6	0.0	6	0.0	0.702	13.6	LOS B	9.0	234.9	0.64	0.56	0.82	24.8
6	T1	1500	5.0	1579	5.0	0.702	13.7	LOS B	9.0	234.9	0.64	0.56	0.82	31.1
16	R2	20	3.0	21	3.0	0.702	13.6	LOS B	9.0	234.9	0.64	0.56	0.82	30.2
Approach		1526	5.0	1606	5.0	0.702	13.7	LOS B	9.0	234.9	0.64	0.56	0.82	31.0
North: Old Lucerne Park Rd (west)														
7	L2	17	3.0	18	3.0	0.692	41.5	LOS E	3.4	86.2	0.92	1.15	1.82	22.3
4	T1	2	0.0	2	0.0	0.692	41.2	LOS E	3.4	86.2	0.92	1.15	1.82	15.9
14	R2	375	3.0	395	3.0	0.692	38.4	LOS E	3.5	89.6	0.91	1.14	1.82	22.5
Approach		394	3.0	415	3.0	0.692	38.6	LOS E	3.5	89.6	0.91	1.14	1.82	22.4
West: SR 544														
5	L2	136	3.0	143	3.0	0.623	10.2	LOS B	5.5	141.5	0.22	0.07	0.22	32.3
2	T1	1414	5.0	1488	5.0	0.623	10.2	LOS B	5.5	141.5	0.22	0.07	0.22	32.4
12	R2	15	0.0	16	0.0	0.623	10.1	LOS B	5.4	140.9	0.22	0.07	0.22	26.9
Approach		1565	4.8	1647	4.8	0.623	10.2	LOS B	5.5	141.5	0.22	0.07	0.22	32.4
All Vehicles		3540	4.6	3726	4.6	0.702	14.9	LOS B	9.0	234.9	0.49	0.41	0.67	30.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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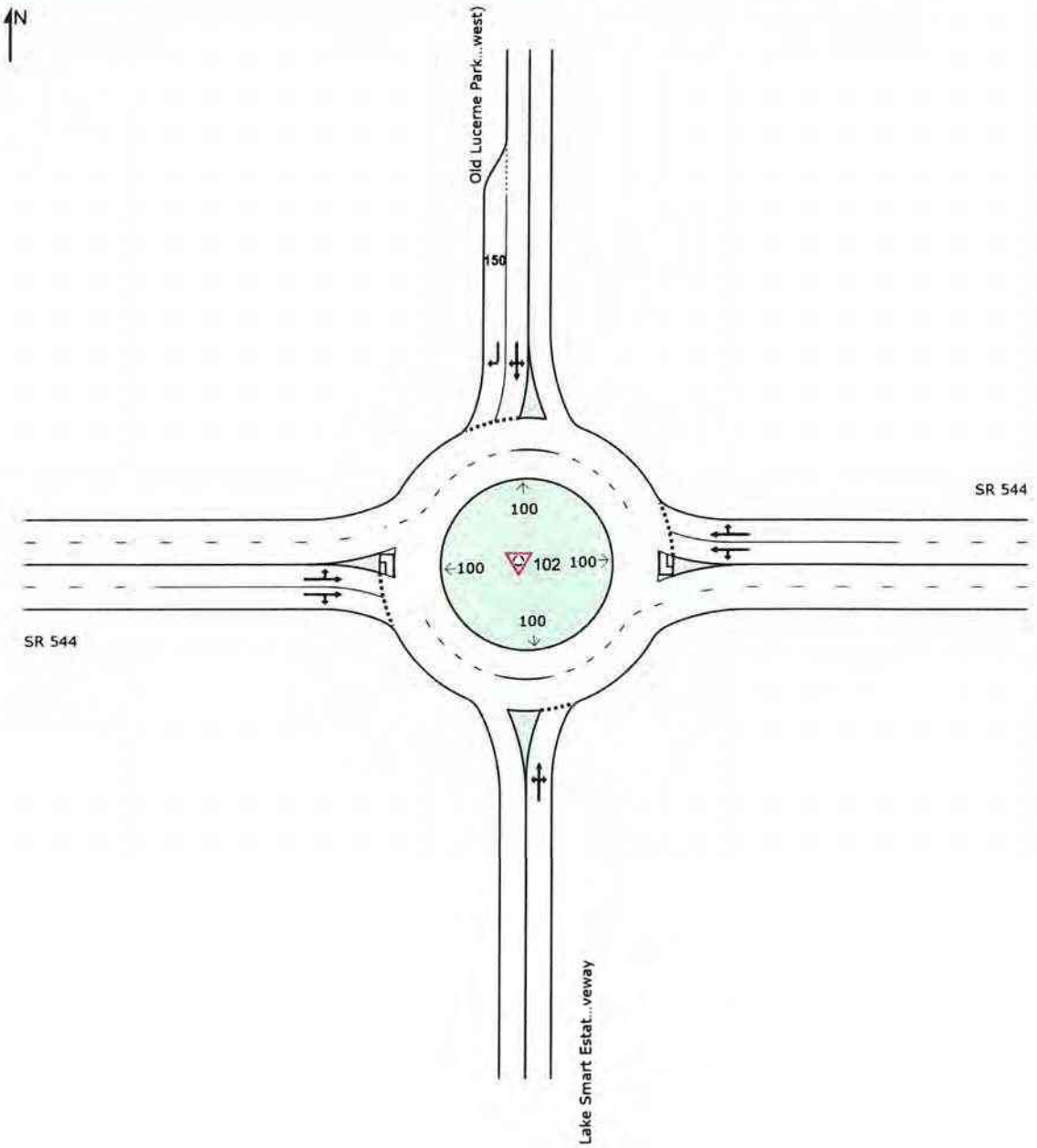
SITE LAYOUT

Site: 102 [SR 544/Old Lucerne Park Rd (west end) Intersection (Site Folder: General)]

Design Year (2045) PM Peak Hour - Build Alt
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 102 [SR 544/Old Lucerne Park Rd (west end) Intersection (Site Folder: General)]

Design Year (2045) PM Peak Hour - Build Alt
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Lake Smart Estates Driveway														
3	L2	15	0.0	15	0.0	0.086	14.1	LOS B	0.3	6.5	0.81	0.81	0.81	25.8
8	T1	1	0.0	1	0.0	0.086	14.1	LOS B	0.3	6.5	0.81	0.81	0.81	25.7
18	R2	8	0.0	8	0.0	0.086	14.1	LOS B	0.3	6.5	0.81	0.81	0.81	24.7
Approach		24	0.0	25	0.0	0.086	14.1	LOS B	0.3	6.5	0.81	0.81	0.81	25.4
East: SR 544														
1	L2	16	0.0	16	0.0	0.722	16.4	LOS C	10.5	268.6	0.81	1.07	1.54	23.5
6	T1	1304	3.0	1344	3.0	0.722	16.5	LOS C	10.5	268.6	0.81	1.07	1.54	29.9
16	R2	22	3.0	23	3.0	0.722	16.5	LOS C	10.5	268.6	0.81	1.07	1.54	29.1
Approach		1342	3.0	1384	3.0	0.722	16.5	LOS C	10.5	268.6	0.81	1.07	1.54	29.9
North: Old Lucerne Park Rd (west)														
7	L2	25	3.0	26	3.0	0.210	13.8	LOS B	0.7	17.5	0.77	0.77	0.77	30.3
4	T1	4	0.0	4	0.0	0.210	13.5	LOS B	0.7	17.5	0.77	0.77	0.77	24.2
14	R2	128	3.0	132	3.0	0.210	12.7	LOS B	0.7	17.5	0.75	0.75	0.75	30.2
Approach		157	2.9	162	2.9	0.210	12.9	LOS B	0.7	17.5	0.76	0.76	0.76	30.1
West: SR 544														
5	L2	362	3.0	373	3.0	0.693	12.1	LOS B	7.3	185.7	0.36	0.15	0.36	31.0
2	T1	1380	3.0	1423	3.0	0.693	12.1	LOS B	7.3	186.1	0.36	0.15	0.36	31.4
12	R2	34	0.0	35	0.0	0.693	12.0	LOS B	7.3	186.1	0.36	0.15	0.36	25.9
Approach		1776	2.9	1831	2.9	0.693	12.1	LOS B	7.3	186.1	0.36	0.15	0.36	31.3
All Vehicles		3299	2.9	3401	2.9	0.722	13.9	LOS B	10.5	268.6	0.57	0.56	0.86	30.6

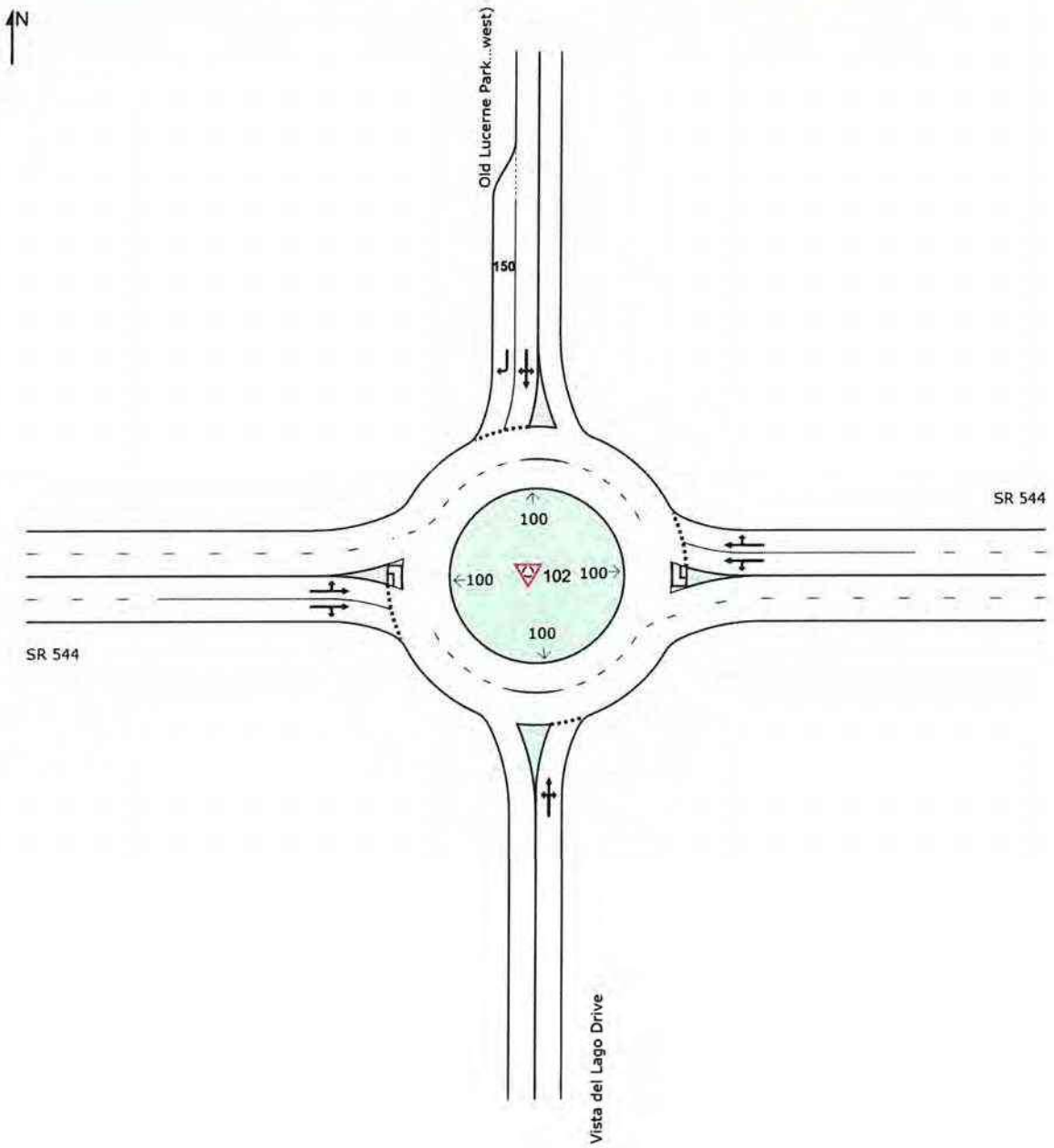
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 102 [SR 544/Realigned Old Lucerne Park Rd (west end) Intersection (Site Folder: General)]

Design Year (2045) AM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 102 [SR 544/Realigned Old Lucerne Park Rd (west end) Intersection (Site Folder: General)]

Design Year (2045) AM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Vista del Lago Drive														
3	L2	35	0.0	37	0.0	0.223	15.1	LOS C	0.7	18.0	0.81	0.82	0.83	25.5
8	T1	1	0.0	1	0.0	0.223	15.1	LOS C	0.7	18.0	0.81	0.82	0.83	25.4
18	R2	34	0.0	36	0.0	0.223	15.1	LOS C	0.7	18.0	0.81	0.82	0.83	24.4
Approach		70	0.0	74	0.0	0.223	15.1	LOS C	0.7	18.0	0.81	0.82	0.83	25.0
East: SR 544														
1	L2	11	0.0	12	0.0	0.692	13.2	LOS B	8.4	218.9	0.63	0.54	0.79	25.0
6	T1	1471	5.0	1548	5.0	0.692	13.4	LOS B	8.4	218.9	0.63	0.54	0.79	31.2
16	R2	20	3.0	21	3.0	0.692	13.3	LOS B	8.4	218.8	0.63	0.54	0.79	30.3
Approach		1502	4.9	1581	4.9	0.692	13.4	LOS B	8.4	218.9	0.63	0.54	0.79	31.2
North: Old Lucerne Park Rd (west)														
7	L2	17	3.0	18	3.0	0.678	39.5	LOS E	3.3	83.8	0.91	1.13	1.78	22.7
4	T1	1	0.0	1	0.0	0.678	39.1	LOS E	3.3	83.8	0.91	1.13	1.78	16.3
14	R2	377	3.0	397	3.0	0.678	36.5	LOS E	3.4	87.0	0.91	1.13	1.77	22.9
Approach		395	3.0	416	3.0	0.678	36.7	LOS E	3.4	87.0	0.91	1.13	1.77	22.9
West: SR 544														
5	L2	137	3.0	144	3.0	0.620	10.1	LOS B	5.4	139.0	0.24	0.08	0.24	32.3
2	T1	1403	5.0	1477	5.0	0.620	10.2	LOS B	5.4	139.0	0.24	0.08	0.24	32.4
12	R2	11	0.0	12	0.0	0.620	10.1	LOS B	5.3	138.4	0.24	0.08	0.24	27.0
Approach		1551	4.8	1633	4.8	0.620	10.2	LOS B	5.4	139.0	0.24	0.08	0.24	32.4
All Vehicles		3518	4.6	3703	4.6	0.692	14.6	LOS B	8.4	218.9	0.49	0.41	0.66	30.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
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Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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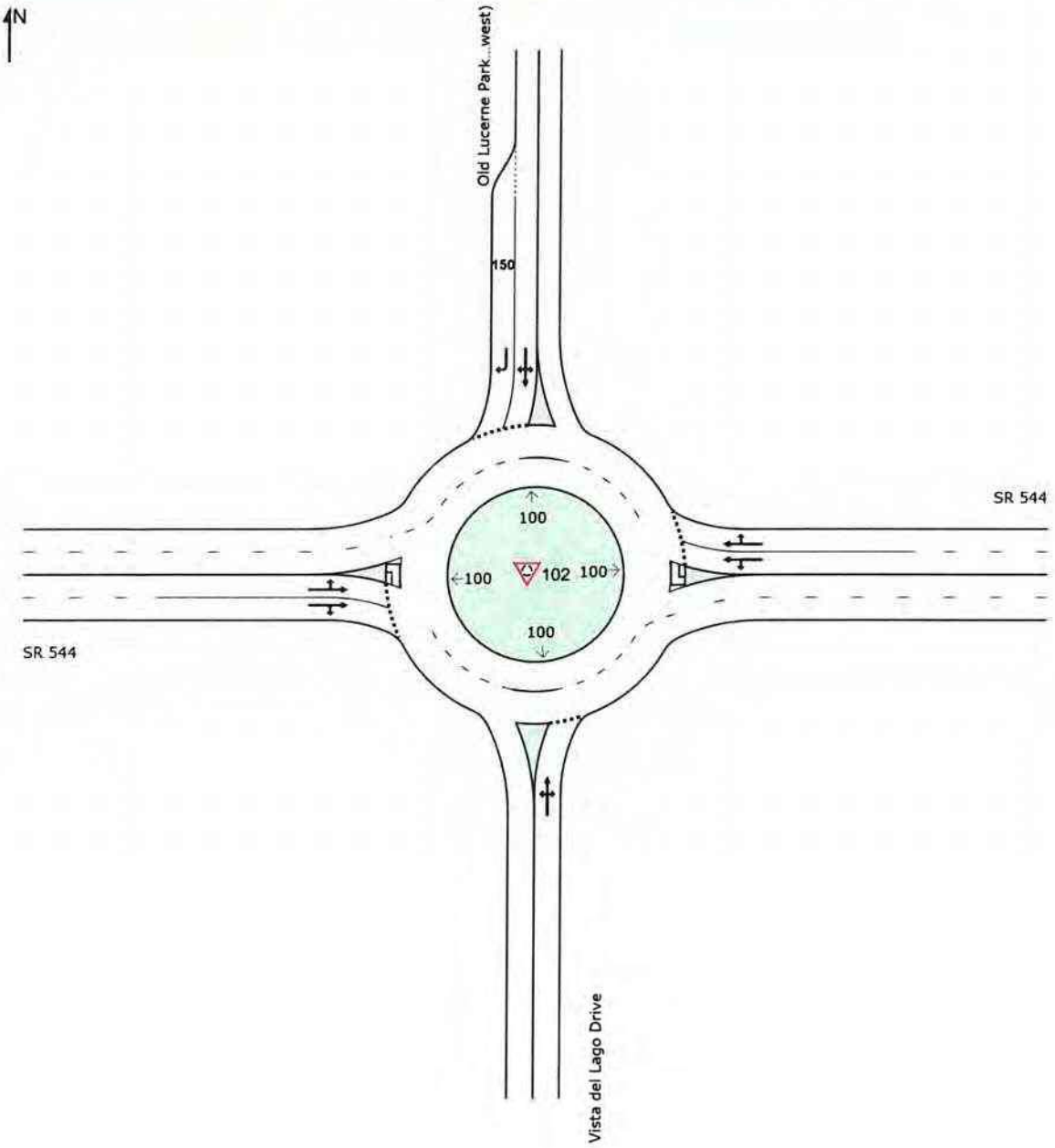
SITE LAYOUT

Site: 102 [SR 544/Realigned Old Lucerne Park Rd (west end) Intersection (Site Folder: General)]

Design Year (2045) PM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Organisation: AIM ENGINEERING AND SURVEYING | Licence: NETWORK / 1PC | Created: Friday, November 4, 2022 12:33:12 PM
Project: T:\PROJECTS\2 - DISTRICT 1\D1_SR 544\Traffic\Roundabouts\Design Year 2045\PM Pk Hr\SR 544_Realigned OLP Rd_West_2045 PM Pk Hr_Build Alt 2.sip9

MOVEMENT SUMMARY

Site: 102 [SR 544/Realigned Old Lucerne Park Rd (west end) Intersection (Site Folder: General)]

Design Year (2045) PM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Vista del Lago Drive														
3	L2	22	0.0	23	0.0	0.153	15.0	LOS C	0.5	11.8	0.82	0.82	0.82	25.6
8	T1	1	0.0	1	0.0	0.153	15.0	LOS C	0.5	11.8	0.82	0.82	0.82	25.5
18	R2	21	0.0	22	0.0	0.153	15.0	LOS C	0.5	11.8	0.82	0.82	0.82	24.5
Approach		44	0.0	45	0.0	0.153	15.0	LOS C	0.5	11.8	0.82	0.82	0.82	25.1
East: SR 544														
1	L2	36	0.0	37	0.0	0.735	17.1	LOS C	11.1	282.6	0.83	1.12	1.61	23.2
6	T1	1298	3.0	1338	3.0	0.735	17.2	LOS C	11.1	282.6	0.83	1.12	1.61	29.6
16	R2	22	3.0	23	3.0	0.735	17.2	LOS C	11.0	282.4	0.83	1.12	1.61	28.9
Approach		1356	2.9	1398	2.9	0.735	17.2	LOS C	11.1	282.6	0.83	1.12	1.61	29.5
North: Old Lucerne Park Rd (west)														
7	L2	25	3.0	26	3.0	0.216	14.2	LOS B	0.7	17.9	0.78	0.78	0.78	30.1
4	T1	1	0.0	1	0.0	0.216	13.9	LOS B	0.7	17.9	0.78	0.78	0.78	24.0
14	R2	132	3.0	136	3.0	0.216	13.0	LOS B	0.7	17.9	0.76	0.76	0.76	30.1
Approach		158	3.0	163	3.0	0.216	13.2	LOS B	0.7	17.9	0.76	0.76	0.76	30.0
West: SR 544														
5	L2	363	3.0	374	3.0	0.691	12.2	LOS B	7.0	178.8	0.42	0.20	0.42	30.9
2	T1	1344	3.0	1386	3.0	0.691	12.2	LOS B	7.0	179.2	0.42	0.20	0.42	31.4
12	R2	36	0.0	37	0.0	0.691	12.1	LOS B	7.0	179.2	0.42	0.20	0.42	25.9
Approach		1743	2.9	1797	2.9	0.691	12.2	LOS B	7.0	179.2	0.42	0.20	0.42	31.2
All Vehicles		3301	2.9	3403	2.9	0.735	14.3	LOS B	11.1	282.6	0.61	0.61	0.93	30.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
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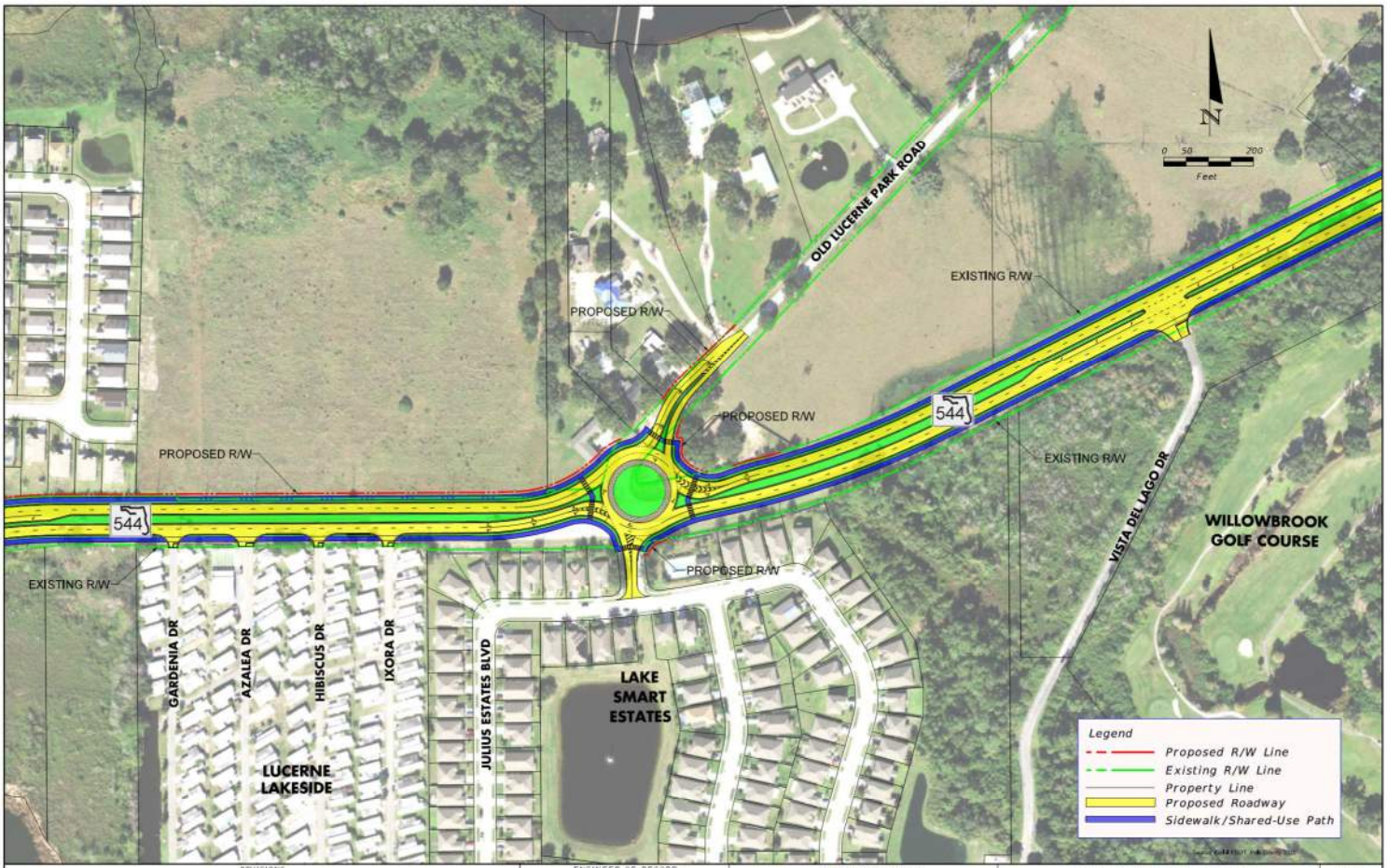
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix E

Preliminary Roundabout Geometric Concepts



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
OLD LUCERNE PARK ROAD WEST
ROUNDABOUT ALTERNATIVE

SHEET NO. 1

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
OLD LUCERNE PARK ROAD WEST
ROUNDABOUT ALTERNATIVE

SHEET NO. 1

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Appendix F

Villas at Lake Smart Trip Generation Estimates

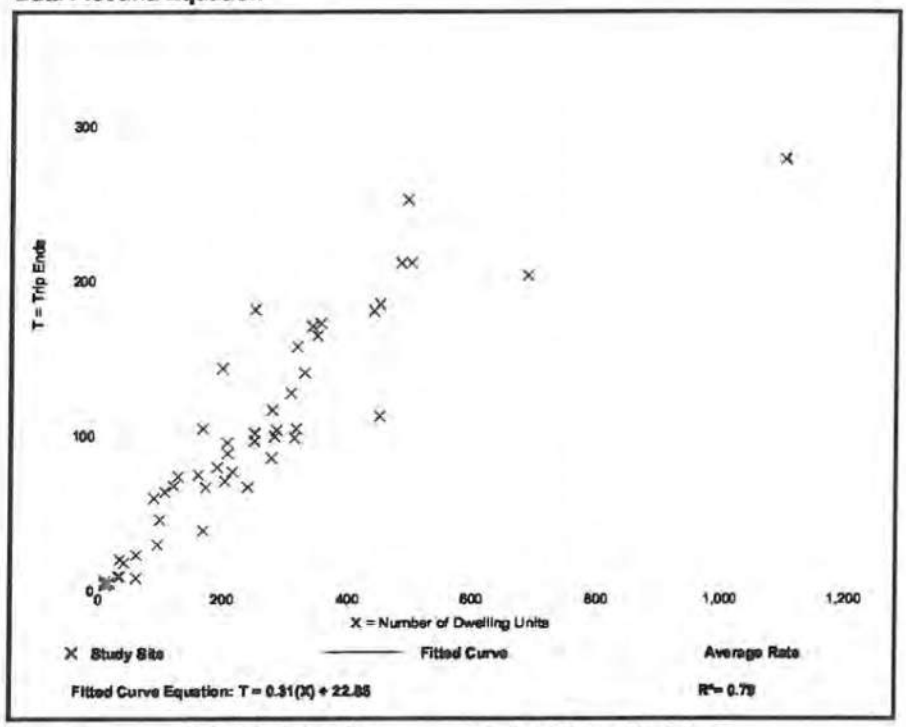
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

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: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Trip Gen Manual, 11th Edition © Institute of Transportation Engineers

$T = 0.31(220) + 22.85 \cong 91$ trips

$T(\text{inbound}) = 0.24(91) = 22$

$T(\text{outbound}) = 0.76(91) = 69$

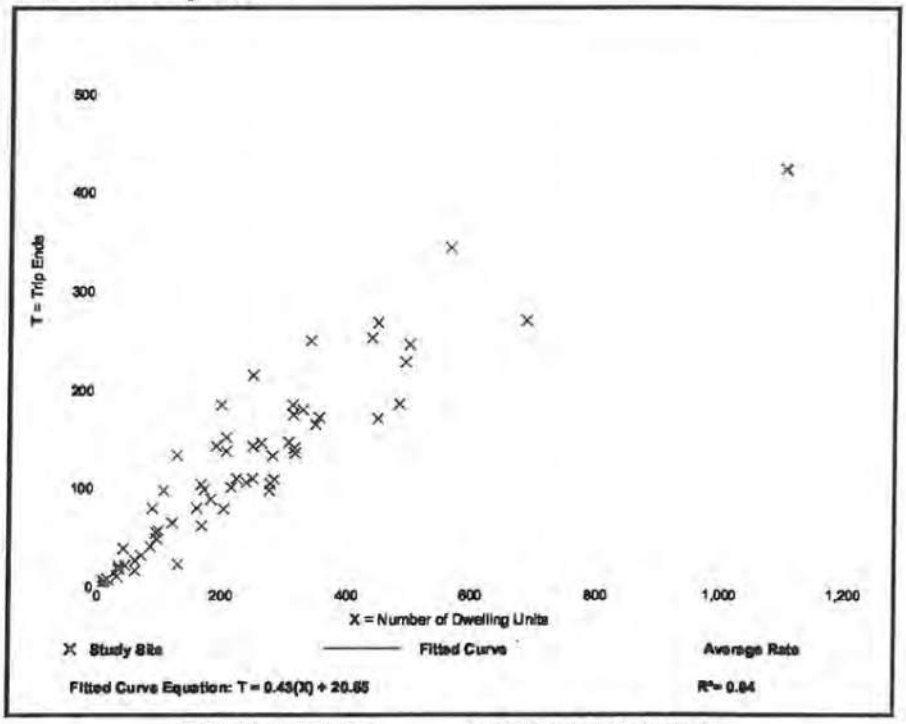
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

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: 59
Avg. Num. of Dwelling Units: 241
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Trip Gen Manual, 11th Edition • Institute of Transportation Engineers

$T = 0.43(220) + 20.55 = 115$ trips
$T(\text{inbound}) = 0.63(115) = 72$
$T(\text{outbound}) = 0.37(115) = 43$

CERTIFICATION

AGENCY: Florida Department of Transportation District One
801 North Broadway Avenue
Bartow, Florida 33831-1249

I hereby certify that I am a registered professional engineer in the State of Florida and that I have supervised the preparation of, and approved the analysis, findings, opinions, conclusions and technical advice hereby reported for:

REPORT: SR 544/Avenue Y Intersection Control Evaluation (ICE) - Stage 1

PROJECT: SR 544 Project Development and Environment (PD&E) Study

LOCATION: SR 544 from Martin Luther King Boulevard to SR 17
Polk County, Florida

ROADWAY ID: 16140000

MILEPOST No: 4.169

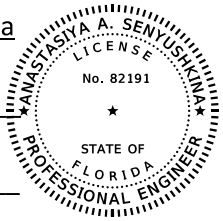
FPID No.: 440273-1-22-01

I acknowledge that the procedures and references used to develop the information contained in this memorandum are standard to the professional practice of transportation engineering as applied through professional judgement and experience.

Engineer in Responsible Charge: Anastasiya A. Senyushkina

Professional Registration No.: 82191

Date: 1/17/2023



Anastasiya A Senyushkina 2023.01.17 14:46:48-05'00'

AIM Engineering & Surveying, Inc.

MEMORANDUM

Tampa Office
201 E. Kennedy Boulevard, Suite 1800
Tampa, Florida 33602
813-627-4144
www.aimengr.com

Date:	January 17, 2023
To:	David C. Turley, P.E. – FDOT District One DEMO Project Manager Abra Horne – FDOT District One Planning and Environmental Administrator
From:	Greg Root/Anastasiya Senyushkina, P.E.
Subject:	SR 544/Avenue Y Intersection (Polk County) – Revised Stage 1+ Intersection Control Evaluation

INTRODUCTION/PROJECT BACKGROUND

This memorandum documents the Intersection Control Evaluation (ICE) conducted for the Avenue Y intersection. This analysis was conducted in support of the SR 544 Project Development & Environment (PD&E) Study from Martin Luther King Boulevard to SR 17 in Polk County. The length of this study corridor is approximately 8.1 miles. SR 544 is a two-lane undivided roadway with 12-foot travel lanes both south and north of Avenue Y. South of Avenue Y, the roadway includes four-foot paved shoulders, curb and gutter and sidewalks on both sides of the road. North of Avenue Y, the roadway includes four-foot paved shoulders but no curb and gutter or sidewalks. There are no paved shoulders, curb and gutter or sidewalks on Avenue Y.

To minimize the impacts to this lower income historic residential community, the PD&E study is recommending a three-lane typical section for the portion of SR 544 south of Avenue Y. This typical section provides one 12-foot travel lane in each direction, a 12-foot two-way center left-turn lane, curb and gutter, and eight-foot sidewalks on both sides of the road. Eight-foot raised medians are also provided for pedestrian crossing refuge at strategic locations within the Florence Villa neighborhood. The design speed and target speed for this typical section is 35 mph. North of Avenue Y, the proposed four-lane divided typical section consists of two 11-foot inside travel lanes, two 12-foot outside travel lanes, a 22-foot raised median, curb and gutter, and 10-foot shared use paths on both sides of the roadway. The design speed and target speed north of Avenue Y is 45 mph.

This memorandum documents the Stage 1 CAP-X and SPICE analyses, as well as the more detailed traffic operations analyses conducted using the SYNCHRO and SIDRA software. The opening year (2025) and design year (2045) Average Annual Daily Traffic (AADT) volumes documented in the FDOT approved Project Traffic Analysis Report (PTAR) are provided in **Appendix A**, along with the 2045 a.m. and p.m. peak hour volumes documented in this same report.

EXISTING INTERSECTION CHARACTERISTICS

This intersection is a four-legged unsignalized intersection. Avenue Y is the east and west leg of this intersection and is controlled by stop signs. There are churches in the northeast and northwest

quadrants of the intersection. There is also a lawn mower repair business in the southeast quadrant along with three residential dwelling units that are currently unoccupied/abandoned. The land in the southwest quadrant is currently vacant. There are three cross street intersections located in close proximity to the Avenue Y intersection. The Bishop James Cochran Way intersection is on the north side of Avenue Y approximately 110 feet west of SR 544 and the 5th Street NE intersection is on the south side of Avenue Y approximately 200 feet east of SR 544. The 4th Street NE intersection is located on the east side of SR 544 approximately 180 feet south of Avenue Y. An aerial image of the Avenue Y intersection is provided in **Figure 1** in **Appendix A**. The posted speed limits on the south and north legs of the intersection are 35 miles per hour (mph) and 45 mph, respectively. The posted speed limit on the east and west legs of the intersection is 20 mph.

Crash data was provided by District One for the years 2014 through 2019. The data sources were FDOT's Crash Analysis Reporting System (CARS) and Signal Four Analytics. This crash data is included in **Appendix A**. The intersection has experienced 45 crashes over this six-year period, resulting in 29 injuries and no fatalities. The most prevalent crash types are left-turn/angle crashes (26) and rear-end crashes (13). Although there were no crashes involving bicyclists or pedestrians, there is pedestrian and bicycle activity in the vicinity of the intersection. During a 12-hour time period in 2017, 62 pedestrian crossings and 32 bicycle crossings were observed on the four legs of this intersection. In addition, there were 35 pedestrians and 17 bicyclists crossing SR 544 at 4th Street NE during an eight-hour time period in 2019. The bicycle and pedestrian crossing data is also provided in **Appendix A**.

INTERSECTION CONTROL EVALUATION

The PD&E study goals are to determine the location and conceptual design of the improvement(s) that satisfy the purpose and need for the project, while also minimizing the impacts to the natural and social environment and satisfying the requirements of the National Environmental Policy Act (NEPA). Although the 2045 traffic volumes support the need for four lanes throughout the entire PD&E study corridor, the two-lane undivided portion of SR 544 between Martin Luther King Boulevard and Avenue Y bisects the historic Florence Villa residential community. The existing land use on either side of SR 544 throughout this portion of the study corridor is primarily lower income residential with dozens of homes having direct driveway access onto SR 544. There are also several churches and convenience stores located adjacent to the roadway. The existing right-of-way width through Florence Villa varies from 50 feet to 84 feet.

Based on the existing churches in the vicinity of the intersection, as well as the lower income residential dwelling units to the south and west of this intersection, the ability to provide significant capacity improvements at this intersection, while at the same time avoiding negative economic impacts to the Florence Villa community, is extremely limited. District One conducted a traffic signal warrant study for the Avenue Y intersection in 2016 and a signal was not proven to be warranted. An additional analysis of this intersection was conducted by FDOT in March 2021 to assess the growth in traffic volumes that has occurred both on SR 544 (2015 – 2019 AADT volumes) and on Avenue Y (2004, 2006, 2009, 2012 and 2016 hourly volumes). The results of this assessment indicated that vehicular volumes on the eastbound and westbound Avenue Y approaches have not seen significant changes since the first traffic study was conducted back in 2004. In addition, the surrounding land uses have also remained constant over time. Based on this, FDOT concluded that if another traffic signal warrant study was to be conducted at this time it would yield results similar to the 2016 study results and a signal would still not be warranted. The March 19, 2021 Historical Traffic Volume Data Analysis memorandum provided by FDOT is included in **Appendix B**. Although a traffic signal is not currently warranted at this location, the design year traffic projections indicate there is a strong likelihood that a signal could be warranted in the future. The 2045 AADT volumes on SR 544 north of Avenue Y and

on Avenue Y west of SR 544 are projected to be 37,000 vehicles per day (vpd) and 11,000 vpd, respectively. In addition, the 2045 peak hour volumes for the eastbound and southbound left-turn movements are projected to exceed 300 vehicles per hour. These high traffic volumes are due to the large amounts of future growth in residential and non-residential land use projected to occur north of Avenue Y.

The following alternative intersection control strategies were initially analyzed for this intersection:

- Two-way stop control
- All-way stop control
- Conventional traffic signal
- Unsignalized Restricted Crossing U-Turn (RCUT)
- Signalized RCUT
- Unsignalized Thru-Cut
- Signalized Thru-Cut
- Median U-Turn (MUT)
- One-lane x one-lane roundabout
- Two-lane (SR 544) x one-lane (Avenue Y) roundabout
- Two-lane x two-lane roundabout

The results of the 2045 CAP-X and SPICE analyses are summarized in **Table 1**. The CAP-X and SPICE analysis summary sheets for this intersection are provided in **Appendix C**. Based on the high v/c ratios estimated for the stop control intersections and the unsignalized RCUT and Thru-Cut intersections, these alternatives were eliminated from any further consideration. The signalized RCUT, signalized Thru-Cut and MUT intersections were also eliminated because they would require additional right-of-way south of 4th Street NE to provide a u-turn lane on SR 544.

Table 1: Stage 1 ICE Analysis Summary - Avenue Y Intersection

	2045 V/C Ratios		Life-Cycle Crashes		SSI Scores	
Intersection Type	AM Peak Hour	PM Peak Hour	Total	Fatal & Injury	Opening Year	Design Year
Two-Way Stop Control	**12.35**	**23.28**	156	58	69	53
All-Way Stop Control	**2.09**	**2.07**	93	36	91	83
Traffic Signal	0.88	0.82	191	67	81	67
Unsignalized RCUT	**3.34**	**3.22**	n/a	n/a	83	74
Signalized RCUT	**1.11**	**1.01**	384	97	90	85
Unsignalized Thru-Cut	**258.26**	**406.41**	n/a	n/a	83	72
Signalized Thru-Cut	**1.15**	0.97	n/a	n/a	89	81
Median U-Turn (N/S)	**1.05**	**1.11**	162	47	92	86
Roundabout (1 x 1)	**1.57**	**2.39**	70	12	93	89
Roundabout (2 N/S x 1 E/W)	**1.07**	**1.67**	206	33	87	81
Roundabout (2 x 2)	0.90	**1.57**	206	33	87	81

Red font denotes a v/c ratio > 1.00

Lowest number of crashes of all alternatives analyzed

n/a = No Safety Performance Function (SPF) available

Design year peak hour SYNCHRO and SIDRA analyses were conducted for the conventional signalized intersection and the two-lane x two-lane roundabout, and a tabular summary of the results is provided in **Table 2.** The conventional signalized intersection is projected to operate with lower overall average delays during both peak hours. In addition, none of the individual movements at the

conventional signalized intersection are projected to operate over capacity. Multiple movements are projected to operate over capacity with the two-lane x two-lane roundabout. The design year SYNCHRO and SIDRA analysis summary sheets are also provided in **Appendix D**.

Table 2: Design Year (2045) Peak Hour Operational Analysis Summary

Signalized Intersection				
Intersection Approach	AM Peak Hour		PM Peak Hour	
	Avg. Delay	LOS	Avg. Delay	LOS
Northbound	25.6	C	42.2	D
Southbound	34.7	C	38.0	D
Westbound	52.0	D	39.8	D
Eastbound	93.5	F	69.3	E
Overall	41.0	D	45.2	D
Two-Lane Roundabout				
Intersection Approach	AM Peak Hour		PM Peak Hour	
	Avg. Delay	LOS	Avg. Delay	LOS
Northbound	17.9	C	81.6	F
Southbound	66.8	F	52.1	F
Westbound	98.2	F	38.9	E
Eastbound	19.5	C	42.6	E
Overall	51.4	F	58.8	F

Geometric improvement concepts were developed for these two alternatives and are included in **Appendix E**. The original roundabout concept took into consideration the constrained nature of SR 544 south of Avenue Y. This roundabout provided only one southbound departure lane. The single northbound lane on SR 544 south of 4th Street NE was widened to provide a two-lane approach at the roundabout to facilitate the transition from a two-lane typical section (south of Avenue Y) to a four-lane typical section (north of Avenue Y) and to reduce the delays and vehicle queues on northbound SR 544. Both alternatives result in significant right-of-way impacts to the Florence Villa neighborhood including residential relocations and impacts to the Friendship Missionary Baptist Church. In addition, the two-lane roundabout concept also results in significant right-of-way impacts to the St. Paul Holiness Church. To reduce the overall impacts to the Florence Villa community, additional signalized intersection and roundabout concepts were developed. These additional concepts provide less laneage on the intersection approaches and result in smaller right-of-way footprints. The "minimized" signalized intersection concept and the one-lane roundabout concept are also provided in **Appendix E**.

Although the revised concepts would reduce the total right-of-way impacts to the northern end of the Florence Villa neighborhood, they would still result in residential impacts, as well as impacts to the Friendship Missionary Baptist Church and impacts to existing local street access. In addition, the one-lane roundabout would also result in significant right-of-way impacts to the St. Paul Holiness Church. Consequently, a one-lane mini-roundabout improvement concept was subsequently developed. This mini-roundabout concept has a 90-foot inscribed circle diameter (ICD) and is also included in **Appendix E**. The National Cooperative Highway Research Program (NCHRP) Report 672 states that "mini-roundabouts should be made as large as possible within the intersection constraints; however, a mini-roundabout ICD should generally not exceed 90 feet". A mini-roundabout is often considered as an alternative to a larger one-lane roundabout when right-of-way impact minimization is of paramount importance. As indicated in the improvement concept graphic, the right-of-way impacts associated

with a mini-roundabout are limited to four parcels. In addition, there are no right-of-way impacts to the Friendship Missionary Baptist Church and minimal impacts to the St. Paul Holiness Church.

Since this alternative provides less capacity than the previous alternatives, it cannot accommodate the projected 2045 peak hour traffic volumes. Interim year SIDRA analyses were conducted to determine the approximate year when the capacity of the mini-roundabout would be reached. Prior to conducting these analyses, adjustments were made to the a.m. and p.m. peak hour volumes on the northbound SR 544 intersection approach. The northbound approach volumes documented in the approved PTAR assume that 100 percent of the design year peak hour traffic volumes can be processed through the signalized SR 544/Martin Luther King Boulevard intersection. To minimize right-of-way impacts to the existing commercial land uses located in the vicinity of the Martin Luther King Boulevard intersection, as well as to the existing residential land uses located further north and east of this intersection, no additional lanes will be provided on the south, west and east legs of this intersection. Consequently, the total design year peak hour volumes that can be processed through the Martin Luther King Boulevard intersection are significantly lower than the peak volumes documented in the PTAR.

Additional signalized intersection analyses were conducted for the Martin Luther King Boulevard intersection using the SYNCHRO software to estimate the maximum a.m. and p.m. peak hour volumes that could be accommodated at this intersection (and the maximum a.m. and p.m. peak hour northbound departure volumes that could be expected to occur). The constrained northbound departure volumes at the Martin Luther King Boulevard intersection were incorporated into the interim year Avenue Y mini-roundabout analyses. The interim year peak hour mini-roundabout traffic operations are summarized in **Table 3**. The southbound approach is projected to reach capacity by the year 2029, while the northbound approach is projected to have an average delay greater than 50 seconds/vehicle (also resulting in Level of Service F) by the year 2031. The interim year SIDRA analysis summary sheets are also provided in **Appendix D**.

Table 3: Interim Year Peak Hour Operational Analysis Summary - Mini-Roundabout

Year 2029						
Intersection Approach	AM Peak Hour			PM Peak Hour		
	V/C Ratio	Avg. Delay	LOS	V/C Ratio	Avg. Delay	LOS
Northbound	0.60	11.8	B	0.92	36.3	E
Southbound	1.01	46.5	F	0.79	16.4	C
Westbound	0.09	0.0	A	0.06	0.0	A
Eastbound	0.34	11.6	B	0.51	13.9	B
Overall	n/a	29.8	D	n/a	21.8	C
Year 2031						
Intersection Approach	AM Peak Hour			PM Peak Hour		
	V/C Ratio	Avg. Delay	LOS	V/C Ratio	Avg. Delay	LOS
Northbound	0.62	12.8	B	0.99	51.5	F
Southbound	1.08	68.5	F	0.85	20.9	C
Westbound	0.10	0.0	A	0.06	0.0	A
Eastbound	0.39	12.4	B	0.62	18.1	C
Overall	n/a	42.1	E	n/a	29.0	D

RECOMMENDED INTERSECTION CONTROL STRATEGY

The implementation of a roundabout at this intersection will help vehicles transition from the 45 mph design speed/target speed proposed for SR 544 north of Avenue Y to the 35 mph design speed/target speed proposed for SR 544 south of Avenue Y. This speed control measure should increase the safety of the pedestrians and bicyclists that are crossing SR 544 at this location. A one-lane roundabout is projected to have the lowest number of fatal and injury crashes and the highest opening year and design year Safe System for Intersections (SSI) scores of all the alternatives evaluated. Given the large number of pedestrians and bicyclists utilizing the portion of SR 544 south of Avenue Y, improving the overall safety of this area for all users (vehicles, bicyclists and pedestrians) is extremely important. Other important considerations are maintaining the integrity of the Florence Villa community and avoiding any potential Environmental Justice (EJ) issues by minimizing the impacts to this lower income minority neighborhood. Consequently, a 90-foot ICD mini-roundabout is recommended for the Avenue Y intersection.

Appendix A

Existing Geometry, Existing/Future Year Traffic Volumes and Historic Crash Data

Figure 1: Existing SR 544/Avenue Y Intersection

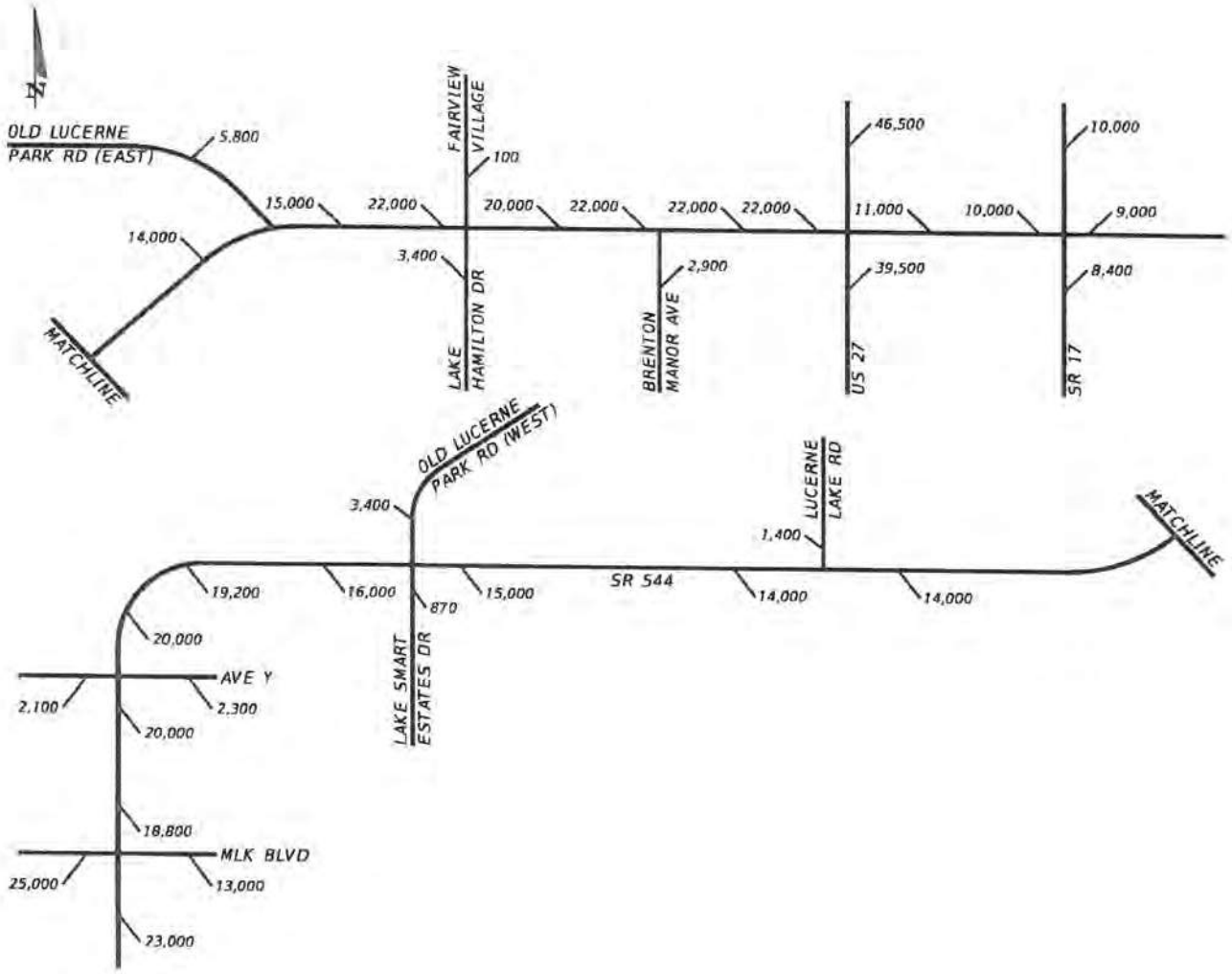


Figure 2-2: Existing (2019) AADT Volumes

Table 2-2: Twenty-Four Hour Volume Counts and Existing (2019) AADT Volumes (SR 544 Mainline)

Location	Date	Count	SF [1]	AF [2]	AADT [3]	Growth Factor	2019 AADT [4]	2019 AADT [5]	2019 AADT [6]	Average	Final 2019 AADT
South of M. L. King Boulevard [7]	4/17/2018	21,686	0.96	0.95	19,778	1.0319	20,409	20,000	23,000	21,500	**23,000** [8]
North of M. L. King Boulevard [7]	4/17/2018	17,212	0.96	0.95	15,697	1.0319	16,198	16,000	18,800	17,400	**18,800** [9]
South of Avenue Y [7]	2/16/2016	19,748	0.96	0.97	18,389	1.0988	20,206	20,000	n/a		**20,000**
North of Avenue Y [7]	2/16/2016	19,936	0.96	0.97	18,564	1.0988	20,399	20,000	n/a		**20,000**
South of Lake Conine Drive									19,200		**19,200**
West of Old Lucerne Park Road (west end) [7]	1/9/2018	16,214	1.01	0.94	15,394	1.0577	16,282	16,000	n/a		**16,000**
East of Old Lucerne Park Road (west end) [7]	1/9/2018	15,212	1.01	0.94	14,442	1.0543	15,226	15,000	n/a		**15,000**
West of Lucerne Lake Road	10/1/2019	14,506	1.03	0.94	14,045	1.0000	14,045	14,000	14,000	14,000	**14,000**
East of Lucerne Lake Road	10/1/2019	14,608	1.03	0.94	14,143	1.0000	14,143	14,000	n/a		**14,000**
West of Old Lucerne Park Road (east end) [7]	1/9/2018	18,070	1.01	0.94	17,156	1.0706	18,367	18,000	14,000	16,000	**14,000** [10]
East of Old Lucerne Park Road (east end) [7]	1/9/2018	14,682	1.01	0.94	13,939	1.0706	14,923	15,000	n/a		**15,000**
West of Lake Hamilton Drive/Fairview Village	10/1/2019	22,630	1.03	0.94	21,910	1.0000	21,910	22,000	n/a		**22,000**
East of Lake Hamilton Drive/Fairview Village	10/1/2019	20,472	1.03	0.94	19,821	1.0000	19,821	20,000	n/a		**20,000**
West of Brenton Manor Avenue	10/1/2019	23,035	1.03	0.94	22,302	1.0000	22,302	22,000	n/a		**22,000**
East of Brenton Manor Avenue	10/1/2019	23,127	1.03	0.94	22,392	1.0000	22,392	22,000	n/a		**22,000**
West of Hide-A-Way Lane (Hidden Cove Entr)									21,000		**21,000**
West of US 27	10/1/2019	22,701	1.03	0.94	21,979	1.0000	21,979	22,000	n/a		**22,000**
East of US 27	10/1/2019	10,954	1.03	0.94	10,606	1.0000	10,606	11,000	11,000	11,000	**11,000**
West of SR 17	10/1/2019	10,500	1.03	0.94	10,166	1.0000	10,166	10,000	n/a		**10,000**
East of SR 17	10/1/2019	9,534	1.03	0.94	9,231	1.0000	9,231	9,200	8,800	9,000	**9,000**

[1] SF = Weekly Seasonal Adjustment Factor
[2] AF = Axle Adjustment Factor
[3] AADT = Count x SF x AF
[4] 2019 AADT = AADT x Growth Factor
[5] 2019 AADT (rounded)
[6] 2019 AADT obtained from the FDOT Florida Traffic Online website
[7] Approach count only at this location. The two-way volume was assumed to be equal to twice the approach volume.
[8] FDOT count station value was used because the AADT volume has been greater than 21,000 vpd for the last five years.
[9] FDOT count station value was used because the AADT volume has been greater than 16,000 vpd for the last five years.
[10] FDOT count station value was used because the 2018 AADT volume at this permanent count station was equal to 13,600 vpd.

Table 2-3: Twenty-Four Hour Volume Counts and Existing (2019) AADT Volumes (SR 544 Cross Streets)

Location	Date	Count	SF [1]	AF [2]	AADT [3]	Growth Factor	2019 AADT [4]	2019 AADT [5]	2019 AADT [6]	Average	Final 2019 AADT
M. L. King Boulevard West of SR 544 [7]	4/17/2018	26,560	0.96	0.95	24,223	1.0319	24,995	25,000	25,000	25,000	**25,000**
M. L. King Boulevard East of SR 544 [7]	4/17/2018	13,582	0.96	0.95	12,387	1.0319	12,782	13,000	13,500	13,250	**13,000**
Avenue Y West of SR 544 [7]	2/16/2016	1,960	0.96	1.00	1,882	1.0988	2,068	2,100	n/a		**2,100**
Avenue Y East of SR 544 [7]	2/16/2016	2,174	0.96	1.00	2,087	1.0988	2,293	2,300	n/a		**2,300**
Old Lucerne Park Road (west end) North of SR 544[7]	1/9/2018	3,206	1.01	0.98	3,173	1.0560	3,351	3,400	n/a		**3,400**
Lake Smart Estates Drive South of SR 544[7]	1/9/2018	862	1.01	1.00	871	1.0000	871	870	n/a		**870**
Lucerne Lake Road North of SR 544	10/1/2019	1,730	1.03	0.81	1,443	1.0000	1,443	1,400	n/a		**1,400**
Old Lucerne Park Road (east end) North of SR 544[7]	1/9/2018	5,454	1.01	0.98	5,398	1.0706	5,779	5,800	n/a		**5,800**
Fairview Village North of SR 544	10/1/2019	96	1.03	1.00	99	1.0000	99	100	n/a		**100**
Lake Hamilton Drive South of SR 544	10/1/2019	3,344	1.03	1.00	3,444	1.0000	3,444	3,400	n/a		**3,400**
Brenton Manor Avenue South of SR 544	10/1/2019	2,916	1.03	0.98	2,943	1.0000	2,943	2,900	n/a		**2,900**
US 27 North of SR 544	10/1/2019	45,009	1.04	0.94	44,001	1.0000	44,001	44,000	46,500	45,250	**46,500** [8]
US 27 South of SR 544	10/1/2019	34,554	1.04	0.94	33,780	1.0000	33,780	34,000	39,500	36,750	**39,500** [9]
SR 17 North of SR 544	10/1/2019	10,764	1.03	0.95	10,533	1.0000	10,533	11,000	9,700	10,350	**10,000**
SR 17 South of SR 544	10/1/2019	8,680	1.03	0.95	8,493	1.0000	8,493	8,500	8,300	8,400	**8,400**

Note: Red font denotes assumed values used for this study.

[1] SF = Weekly Seasonal Adjustment Factor
[2] AF = Axle Adjustment Factor
[3] AADT = Count x SF x AF
[4] 2019 AADT = AADT x Growth Factor
[5] 2019 AADT (rounded)
[6] 2019 AADT obtained from the FDOT Florida Traffic Online website
[7] Approach count only at this location. The two-way volume was assumed to be equal to twice the approach volume.
[8] FDOT count station value was used because the AADT volume has been greater than 44,000 vpd for the last four years.
[9] FDOT count station value was used because the AADT volume has been greater than 34,000 vpd for four of the last five years.

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 16 - POLK

SITE: 5153 - SR 544/1ST ST/LUCERNE PK RD, NE OF AVE U NW WINTER HAVEN

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2019	18800 C	N 9500	S 9300	9.00	56.00	6.90
2018	17800 C	N 9100	S 8700	9.00	54.50	7.10
2017	17300 C	N 8800	S 8500	9.00	54.50	5.50
2016	17300 C	N 8600	S 8700	9.00	53.30	6.80
2015	16500 C	N 8200	S 8300	9.00	55.70	8.50
2014	15200 F	N 7400	S 7800	9.00	55.60	6.60
2013	15000 C	N 7300	S 7700	9.00	55.90	6.60
2012	15900 C	N 7900	S 8000	9.00	55.80	6.50
2011	16200 F	N 8200	S 8000	9.00	55.70	5.40
2010	16400 C	N 8300	S 8100	9.55	56.07	5.40
2009	16900 C	N 8400	S 8500	9.36	56.35	3.80
2008	16900 C	N 8200	S 8700	9.78	55.29	5.70
2007	18500 C	N 9000	S 9500	9.66	55.30	4.30
2006	18400 C	N 9200	S 9200	9.62	55.83	8.70
2005	16300 C	N 8100	S 8200	9.30	54.80	8.70
2004	16200 C	N 7900	S 8300	9.50	55.70	8.70

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

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 16 - POLK

SITE: 0096 - SR 544 SOUTH OF CONINE DRIVE, WH

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2019	19200 C	N 9600	S 9600	9.00	56.00	7.60
2018	18100 C	N 9000	S 9100	9.00	54.50	7.00
2017	17000 C	N 8500	S 8500	9.00	54.50	7.00
2016	16000 C	N 7900	S 8100	9.00	53.30	7.40
2015	15600 C	N 7700	S 7900	9.00	55.70	7.00
2014	14400 S	N 7100	S 7300	9.00	55.60	7.50
2013	14200 F	N 7000	S 7200	9.00	55.90	7.50
2012	14200 C	N 7000	S 7200	9.00	55.80	7.50
2011	15100 S	N 7500	S 7600	9.00	55.70	6.40
2010	15100 F	N 7500	S 7600	9.55	56.07	6.40
2009	15300 C	N 7600	S 7700	9.36	56.35	6.40
2008	14400 C	N 7100	S 7300	9.78	55.29	7.70
2007	15400 C	N 7700	S 7700	9.66	55.30	7.40
2006	15900 C	N 7900	S 8000	9.62	55.83	8.10
2005	15200 C	N 7600	S 7600	9.30	54.80	3.80
2004	14000 C	N 7100	S 6900	9.50	55.70	3.80

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

Table 2-7: Existing (2019) A.M. and P.M. Peak Hour Truck Volumes and Percentages

Intersection	Movement	AM Peak Hour (7:15 - 8:15)			PM Peak Hour (4:45 -5:45)		
		Total Volume	Truck Volume	Truck %	Total Volume	Truck Volume	Truck %
Martin Luther King Blvd	NB LT	269	7	2.6%	299	0	0.0%
	NB TH	275	11	4.0%	413	3	0.7%
	NB RT	119	1	0.8%	139	0	0.0%
	NB APPROACH	663	19	2.9%	851	3	0.4%
	SB LT	17	7	41.2%	23	0	0.0%
	SB TH	436	10	2.3%	353	3	0.8%
	SB RT	115	12	10.4%	180	15	8.3%
	SB APPROACH	568	29	5.1%	556	18	3.2%
	WB LT	134	5	3.7%	113	2	1.8%
	WB TH	462	10	2.2%	366	6	1.6%
	WB RT	14	2	14.3%	9	0	0.0%
	WB APPROACH	610	17	2.8%	488	8	1.6%
	EB LT	208	12	5.8%	243	13	5.3%
	EB TH	330	7	2.1%	409	9	2.2%
	EB RT	419	6	1.4%	309	3	1.0%
	EB APPROACH	957	25	2.6%	961	25	2.6%
Avenue Y [1]	NB LT	12	0	0.0%	13	0	0.0%
	NB TH	447	39	8.7%	735	17	2.3%
	NB RT	23	1	4.3%	41	0	0.0%
	NB APPROACH	482	40	8.3%	789	17	2.2%
	SB LT	23	0	0.0%	18	0	0.0%
	SB TH	692	36	5.2%	423	24	5.7%
	SB RT	36	2	5.6%	18	0	0.0%
	SB APPROACH	751	38	5.1%	459	24	5.2%
	WB LT	17	0	0.0%	13	0	0.0%
	WB TH	15	0	0.0%	17	0	0.0%
	WB RT	25	1	4.0%	34	1	2.9%
	WB APPROACH	57	1	1.8%	64	1	1.6%
	EB LT	19	2	10.5%	36	2	5.6%
	EB TH	10	1	10.0%	14	0	0.0%
	EB RT	8	0	0.0%	28	0	0.0%
	EB APPROACH	37	3	8.1%	78	2	2.6%
Old Lucerne Park Rd (West End)	NB LT	32	0	0.0%	N/A	N/A	N/A
	NB TH	0	0	0.0%	N/A	N/A	N/A
	NB RT	14	0	0.0%	N/A	N/A	N/A
	NB APPROACH	46	0	0.0%	N/A	N/A	N/A
	SB LT	3	0	0.0%	N/A	N/A	N/A
	SB TH	1	0	0.0%	N/A	N/A	N/A
	SB RT	149	4	2.7%	N/A	N/A	N/A
	SB APPROACH	153	4	2.6%	N/A	N/A	N/A
	WB LT	4	0	0.0%	N/A	N/A	N/A
	WB TH	576	30	5.2%	N/A	N/A	N/A
	WB RT	4	0	0.0%	N/A	N/A	N/A
	WB APPROACH	584	30	5.1%	N/A	N/A	N/A
	EB LT	51	4	7.8%	N/A	N/A	N/A
	EB TH	448	26	5.8%	N/A	N/A	N/A
	EB RT	14	0	0.0%	N/A	N/A	N/A
	EB APPROACH	513	30	5.8%	N/A	N/A	N/A

A review of the existing a.m. and p.m. peak hour truck volumes indicates that, with one exception, the a.m. peak hour volumes are higher than the p.m. peak hour volumes. The ratio of the a.m. and p.m. peak hour truck volume was calculated for each location and then the overall average ratio for the study corridor was calculated. The average overall ratio was equal to 1.50. A revised estimate of the 2025 and 2045 a.m. peak hour truck volumes was obtained by multiplying the initial estimate of the 2025 and 2045 a.m. peak hour truck volumes by 1.50. The revised 2025 and 2045 a.m. peak hour truck volumes are also provided in **Table 3-9** and Table 3-10. The final recommended 2045 and 2025 peak hour truck volumes and percentages are provided in **Table 3-11** and **Table 3-12**, respectively. Based on these assumptions, the following SR 544 mainline peak hour truck percentages (i.e., T_{PkHr}-factors) are recommended for use in the SR 544 PD&E study:

Opening Year (2025) – AM Peak Hour

- 5.6% from Martin Luther King Boulevard to US 27
- 9.6% from US 27 to SR 17

Opening Year (2025) – PM Peak Hour

- 3.7% from Martin Luther King Boulevard to US 27
- 6.4% from US 27 to SR 17

Design Year (2045) – AM Peak Hour

- 4.5% from Martin Luther King Boulevard to US 27
- 8.1 % from US 27 to SR 17

Design Year (2045) – PM Peak Hour

- 3.0% from Martin Luther King Boulevard to US 27
- 5.4 % from US 27 to SR 17

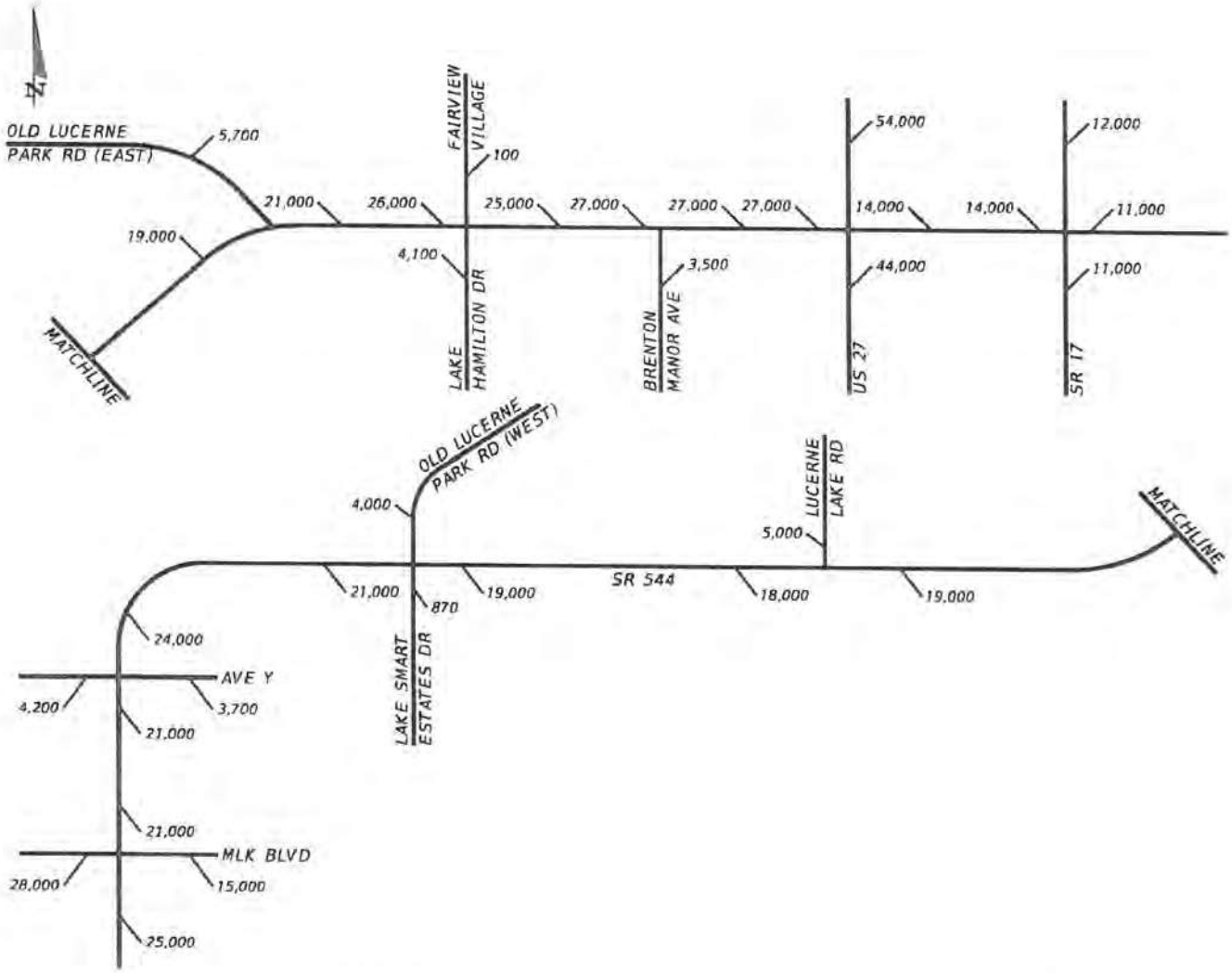


Figure 3-11: Opening Year (2025) AADT Volumes –Build Alternative No. 2

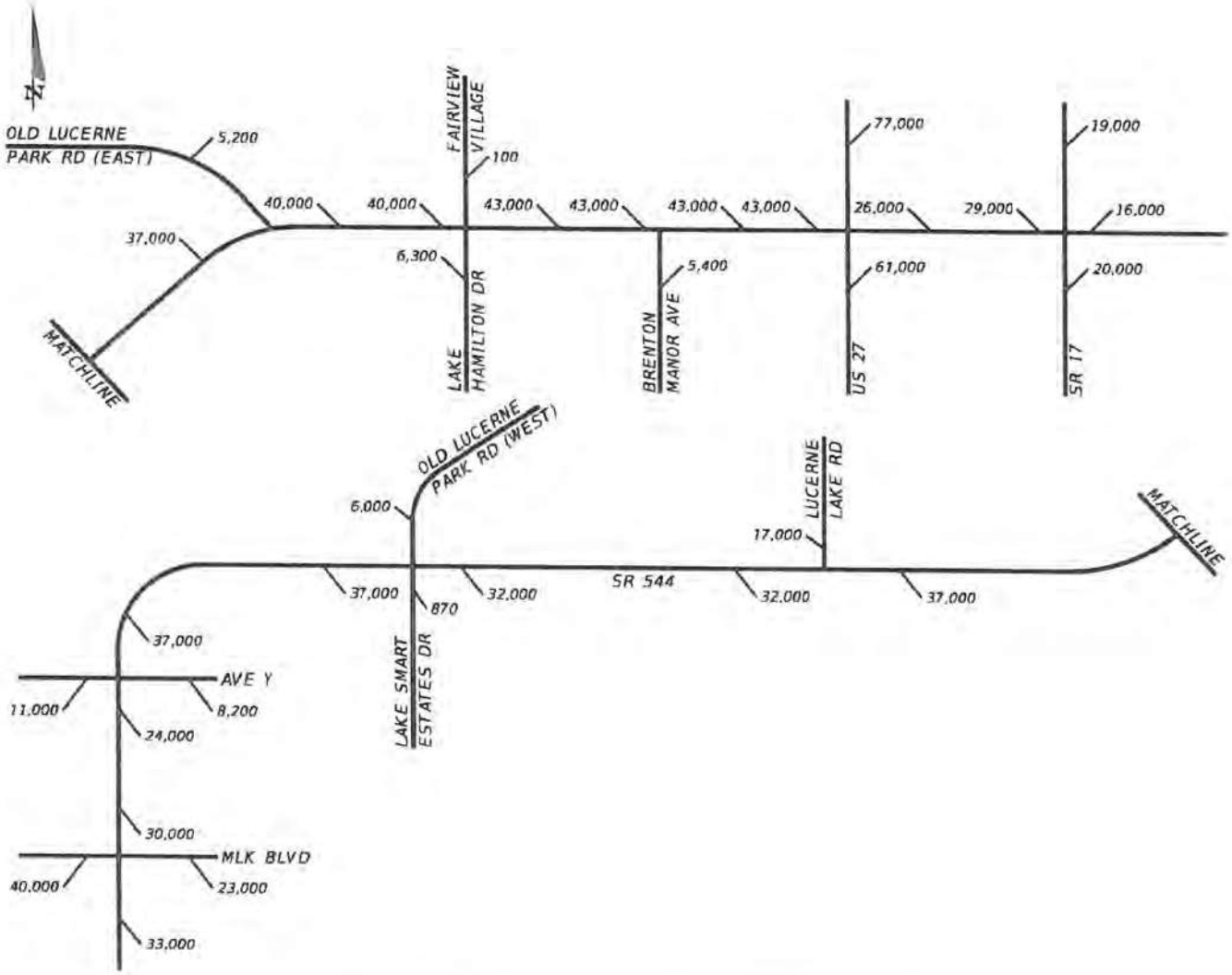


Figure 3-7: Design Year (2045) AADT Volumes – Build Alternative No. 2

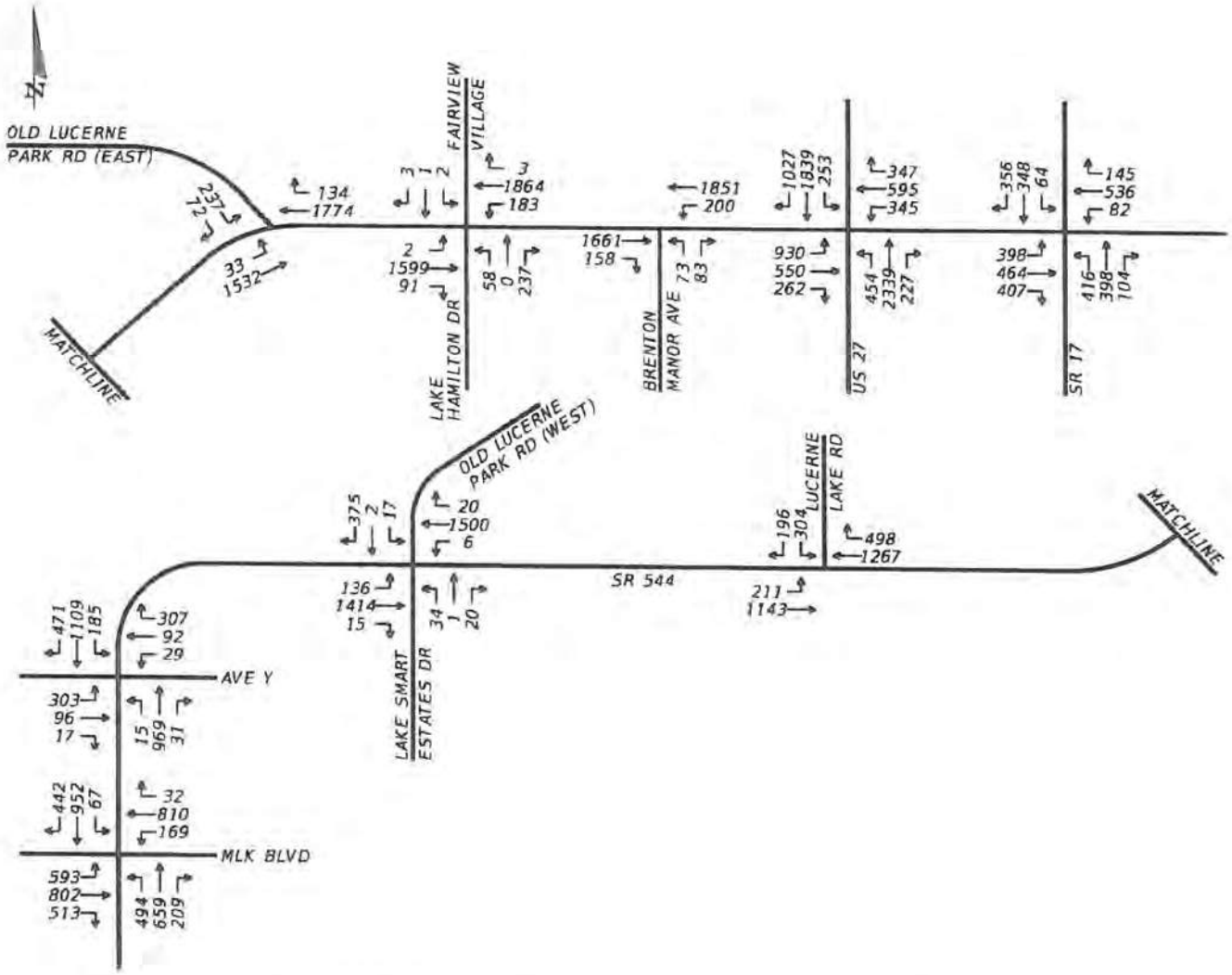


Figure 3-21: Design Year (2045) A.M. Peak Hour Intersection Volumes – Build Alternative No. 2

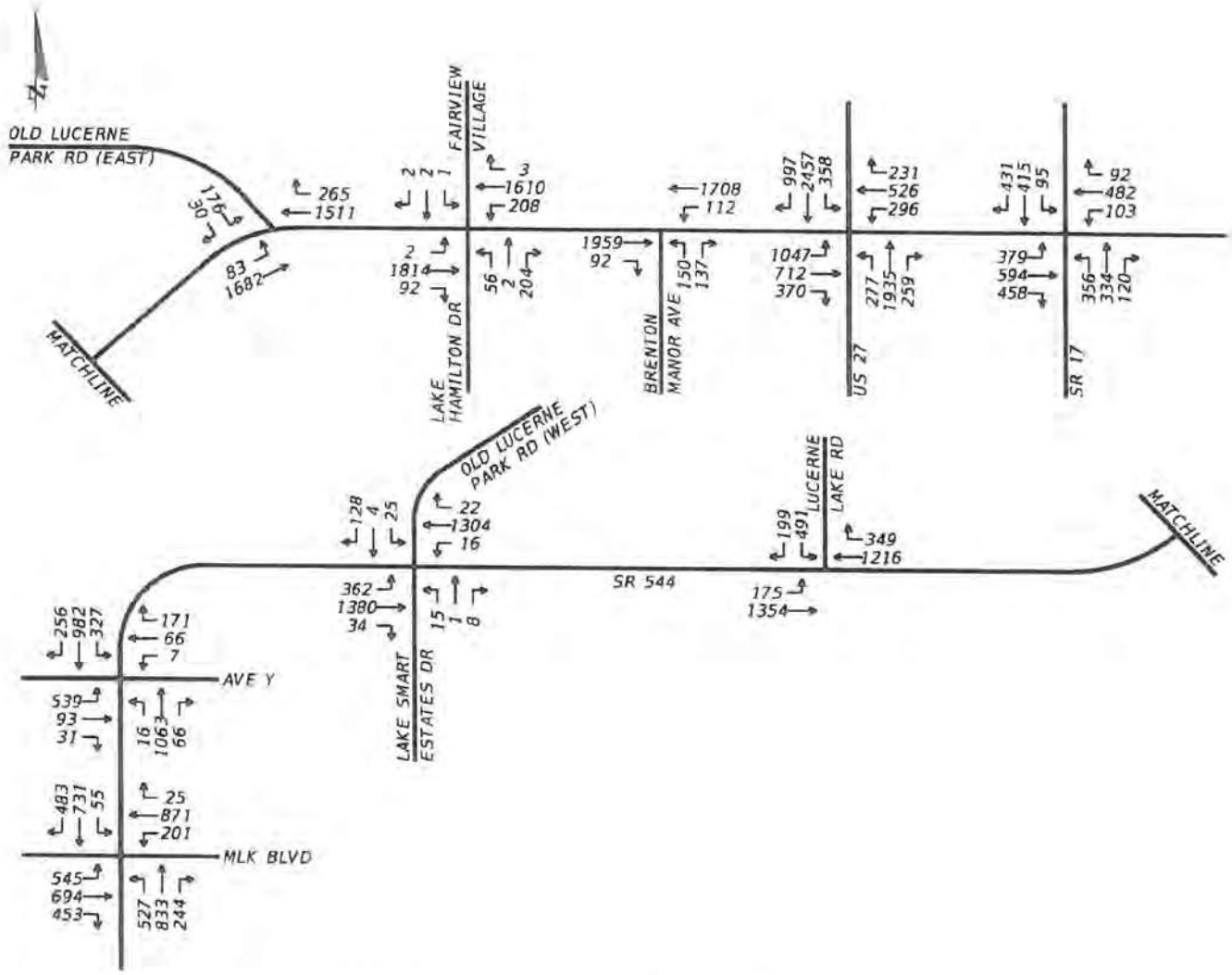


Figure 3-22: Design Year (2045) P.M. Peak Hour Intersection Volumes – Build Alternative No. 2

AVENUE Y INTERSECTION

DESIGN YEAR (2045) PEAK HOUR APPROACH TRUCK PERCENTAGES

AM PEAK HOUR								
SB LT		SB TH		SB RT		SB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
185	0.02	1109	0.05	471	0.03	1765	73.28	4.2%
NB LT		NB TH		NB RT		NB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
15	0.03	969	0.05	31	0.02	1015	49.52	4.9%
PM PEAK HOUR								
SB LT		SB TH		SB RT		SB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
327	0.02	982	0.03	256	0.03	1565	43.68	2.8%
NB LT		NB TH		NB RT		NB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
16	0.03	1063	0.03	66	0.02	1145	33.69	2.9%

HSMV_Rep	Agency_Re	Reporting_	Form_Type	Crash_Date	Crash_Time	City	County	Crash_Street	Intersecting_Street	Offset_Dist
84292649	2016-0578	Polk Co SO	Long	12/24/2016	6:29 PM	Unincorpor	Polk	S.R. 544	AVENUE Y NE	0
84292663	2016-0563	Polk Co SO	Long	12/15/2016	5:00 PM	Unincorpor	Polk	SR 544 (LUCERNE PARK RD)	AVE Y NE	0
84623715	2014-0261	Polk Co SO	Long	6/14/2014	5:24 PM	Unincorpor	Polk	LUCERNE PARK RD	AVENUE Y NE	0
84624080	2014-0261	Polk Co SO	Long	6/14/2014	5:25 PM	Winter Hav	Polk	SR 544	AVY Y NE	30
84625090	2014-0352	Polk Co SO	Short	8/14/2014	8:30 AM	Unincorpor	Polk	SR 544 (LUCERNE PARK RD)	AVE Y NE	50
84625325	2014-0451	Polk Co SO	Short	10/17/2014	11:25 AM	Unincorpor	Polk	CR 544 (LUCERNE PARK RD)	AVENUE Y NE	0
84626321	2014-0483	Polk Co SO	Long	11/7/2014	7:25 AM	Unincorpor	Polk	LUCERNE PARK ROAD	AVE Y	0
84876278	FHPC15OFI	FHP	Long	9/9/2015	7:26 AM	Winter Hav	Polk	SR-544	AVENUE Y NE	0
84997634	2015-0340	Winter Hav	Short	6/8/2015	10:05 AM	Winter Hav	Polk	SR 544	AVE Y NE	0
84998122	2015-0585	Winter Hav	Long	9/30/2015	8:43 PM	Winter Hav	Polk	AVENUE Y NE	SR 544	0
85687388	2015-0116	Polk Co SO	Long	3/14/2015	10:10 PM	Unincorpor	Polk	LUCERNE PARK ROAD	AVENUE Y NE	0
86083167	2015-0393	Polk Co SO	Long	9/5/2015	4:55 PM	Unincorpor	Polk	SR 544 (LUCERNE PARK RD)	AVENUE Y NE	0
86084748	2015-0543	Polk Co SO	Long	12/12/2015	3:24 PM	Unincorpor	Polk	LUCERNE PARK RD	AVE Y NE	0
86312457	2015-0532	Polk Co SO	Long	12/6/2015	12:55 AM	Unincorpor	Polk	STATE ROAD 544	AVE Y NE	0
86312584	2015-0558	Polk Co SO	Long	12/21/2015	3:52 PM	Unincorpor	Polk	S.R. 544 (LUCERNE PARK RD)	AVENUE Y NE	0
86312913	2016-0003	Polk Co SO	Long	1/4/2016	11:30 AM	Unincorpor	Polk	SR 544	AVE Y NE	0
86440338	2016-0209	Winter Hav	Long	4/1/2016	4:59 PM	Winter Hav	Polk	SR 544	AVENUE Y NE	0
86440489	2016-0265	Winter Hav	Long	4/22/2016	6:19 PM	Winter Hav	Polk	AVENUE Y NE	SR 544	0
86440512	2016-0287	Winter Hav	Long	5/1/2016	6:48 PM	Winter Hav	Polk	SR 544	AVENUE Y NE	300
86440627	2016-0347	Winter Hav	Long	5/26/2016	9:54 AM	Winter Hav	Polk	SR 544	AVE Y NE	0
86440733	2016-0390	Winter Hav	Long	6/14/2016	8:59 PM	Winter Hav	Polk	SR 544	AVE Y NE	0
86441582	2016-0818	Winter Hav	Long	12/19/2016	4:56 PM	Winter Hav	Polk	SR 544	AVENUE Y NE	50
86441829	2017-0096	Winter Hav	Short	2/12/2017	9:43 PM	Winter Hav	Polk	SR 544	AVENUE Y NE	0
86443050	2016-0219	Polk Co SO	Short	5/13/2016	11:20 PM	Unincorpor	Polk	SR 544	AVE Y NE	0
86443709	2016-0299	Polk Co SO	Long	7/1/2016	5:36 PM	Unincorpor	Polk	LUCERNE PARK RD	AVENUE Y NE	0
86938166	2017-0079	Polk Co SO	Long	2/12/2017	9:31 PM	Winter Hav	Polk	LUCERNE PARK ROAD	AVE Y	10
86994843	2017-0438	Polk Co SO	Long	9/26/2017	3:44 PM	Unincorpor	Polk	LUCERNE PARK RD	AVENUE Y NE	0
87549566	2017-0845	Winter Hav	Long	12/31/2017	5:15 PM	Winter Hav	Polk	LUCERNE PARK RD	AVENUE Y NE	133
87550936	2018-0628	Winter Hav	Long	9/28/2018	2:57 PM	Winter Hav	Polk	LUCERNE PARK RD	AVENUE Y NE	0
87666903	2018-0306	Polk Co SO	Long	6/29/2018	8:35 PM	Unincorpor	Polk	STATE ROAD 544	AVENUE Y NE	0
88751223	2018-0491	Polk Co SO	Long	10/18/2018	5:41 PM	Unincorpor	Polk	LUCERNE PARK RD	AVE Y NE	0
88753315	2019-3223	Polk Co SO	Short	7/10/2019	5:16 PM	Unincorpor	Polk	LUCERNE PARK RD	AVE Y NE	0
89008841	2019-0213	Polk Co SO	Long	5/5/2019	1:15 PM	Unincorpor	Polk	LUCERNE PARK ROAD	AVE Y NE	0
89009066	2019-0116	Polk Co SO	Long	3/8/2019	7:53 AM	Unincorpor	Polk	LUCERNE PARK RD (NB)	AVENUE Y NE	0
89009507	2019-0136	Polk Co SO	Long	3/20/2019	11:07 PM	Unincorpor	Polk	SR 544 (LUCERNE PARK RD)	AVENUE Y NE	0
89010358	2019-0163	Polk Co SO	Long	4/7/2019	1:15 AM	Unincorpor	Polk	LUCERNE PARK RD	AVENUE Y NE	100
89010667	2019-0289	Polk Co SO	Long	6/19/2019	7:00 AM	Unincorpor	Polk	LUCERNE PARK ROAD	AVENUE Y NE	0
89011448	2019-0254	Polk Co SO	Long	5/29/2019	5:35 PM	Unincorpor	Polk	STATE ROAD 544 (LUCERNE PAR	AVENUE Y NE	0
89012973	2019-0368	Polk Co SO	Long	8/5/2019	1:21 PM	Unincorpor	Polk	LUCERNE PARK RD	AVENUE Y NE	0
89119601	2019-0276	Winter Hav	Long	4/27/2019	1:05 PM	Winter Hav	Polk	LUCERNE PARK RD	AVENUE Y NE	16

89370302	2019-0435	Polk Co SO	Short	9/19/2019	6:59 AM	Unincorpor	Polk	LUCERNE PARK RD	AVE Y NE	0
89370306	2019-0426	Polk Co SO	Long	9/12/2019	8:27 PM	Unincorpor	Polk	LUCERNE PARK RD	AVE Y NE	10
89372140	2019-0542	Polk Co SO	Short	11/20/2019	3:22 PM	Unincorpor	Polk	LUCERNE PARK RD	AVE Y NE	0

Offset_Dire	Crash_Type	Vehicles	Non_Motorist	Fatalities	Injuries	Alcohol_Re	Distraction	Drug_Relat	Estimated_	Weather_C	Light_Cond	Street_Nur	Crash_Type_D	Crash_Type
	Angle	2	0	0	0	N	N	N	$1,500	Clear	Dark - Lighted		Right Angle	NE
	Unknown	2	0	0	1	N	N	N	$1,001	Clear	Daylight		Unknown	
	Left Turn	2	0	0	2	N	Y	N	$510	Rain	Daylight		Left Rear	W
North	Rear End	2	0	0	1	N	N	N	$4,000	Rain	Daylight		Rear End	S
South	Rear End	2	0	0	0	N	N	N	$1,000	Clear	Daylight		Rear End	S
	Angle	2	0	0	0	N	N	N	$2,000	Clear	Daylight		Right Angle	SE
South	Rear End	3	0	0	1	N	Y	N	$12,500	Cloudy	Daylight		Rear End	S
	Angle	3	0	0	0	N	N	N	$7,300	Clear	Daylight		Right Angle	NE
	Unknown	2	0	0	0	N	N	N	$3,000	Clear	Daylight		Unknown	
	Other	2	0	0	0	N	N	N	$300	Clear	Dark - Lighted		Backed Into	
	Unknown	2	0	0	0	N	N	N	$1,500	Clear	Dark - Lighted		Unknown	
	Rear End	2	0	0	1	N	N	N	$0	Rain	Daylight		Rear End	N
South	Angle	2	0	0	0	N	N	N	$1,500	Clear	Daylight		Right Angle	SW
	Angle	2	0	0	0	N	N	N	$17,000	Clear	Dark - Lighted		Right Angle	SW
	Angle	2	0	0	1	N	N	N	$7,500	Clear	Daylight		Right Angle	NW
	Angle	3	0	0	2	N	N	N	$6,500	Clear	Daylight		Right Angle	NE
	Angle	2	0	0	4	N	N	N	$5,000	Clear	Daylight		Right Angle	SW
	Angle	2	0	0	0	N	N	N	$5,000	Clear	Daylight		Right Angle	NE
North	Other	1	0	0	1	N	N	N	$20,000	Clear	Daylight		Single Vehicle	W
	Angle	2	0	0	0	N	N	N	$6,000	Clear	Daylight		Right Angle	NE
	Left Turn	2	0	0	0	N	N	N	$3,000	Clear	Dark - Lighted		Left Rear	E
South	Rear End	3	0	0	1	N	N	N	$3,500	Clear	Daylight		Rear End	S
	Rear End	2	0	0	0	N	N	N	$2,000	Clear	Dark - Lighted		Rear End	
	Rear End	2	0	0	0	N	N	N	$1,000	Clear	Dark - Lighted		Rear End	S
North	Angle	2	0	0	1	N	N	N	$4,000	Clear	Daylight		Right Angle	NW
North	Left Turn	2	0	0	1	N	N	N	$2,500	Clear	Dark - Lighted		Left Rear	E
	Angle	2	0	0	1	N	N	N	$8,000	Clear	Daylight		Right Angle	SW
North	Rear End	2	0	0	1	N	N	N	$500	Clear	Daylight		Rear End	S
	Rear End	2	0	0	0	N	N	N	$1,000	Clear	Daylight		Rear End	E
	Angle	2	0	0	0	N	N	N	$8,500	Clear	Dark - Lighted		Right Angle	SW
	Left Turn	2	0	0	1	N	N	N	$3,000	Clear	Daylight		Left Entering	N
	Right Turn	2	0	0	0	N	N	N	$1,000	Clear	Daylight		Right/Through	E
North	Rear End	2	0	0	1	N	N	N	$2,000	Rain	Daylight		Rear End	N
	Left Turn	2	0	0	1	N	Y	N	$5,000	Clear	Daylight		Left Rear	E
	Sideswipe	2	0	0	0	N	N	N	$4,000	Clear	Dark - Lighted		Same Directio	S
South	Rear End	2	0	0	0	N	N	N	$2,000	Clear	Dark - Lighted		Rear End	S
North	Angle	2	0	0	0	N	N	N	$0	Clear	Daylight		Right Angle	NE
	Other	2	0	0	2	N	N	N	$10,000	Clear	Daylight		Other	N
	Rear End	2	0	0	0	N	N	N	$4,800	Clear	Daylight		Rear End	N
South	Angle	2	0	0	0	N	N	N	$2,000	Clear	Daylight		Right Angle	NW

	Sideswipe	2	0	0	0	N	N	N	$700	Clear	Dawn	Same Directio	S
West	Angle	2	0	0	1	N	N	N	$2,000	Clear	Dawn	Right Angle	NE
	Left Turn	2	0	0	0	N	N	N	$1,000	Clear	Daylight	Left Entering	E

Crash_Seve	Within_Cit	Manner_of_C	First_Harmful_
Property D	N	Angle	Motor Vehicle
Injury	N	Angle	Motor Vehicle
Injury	N	Angle	Motor Vehicle
Injury	Y	Front to Rear	Motor Vehicle
Property D	N	Front to Rear	Motor Vehicle
Property D	N	Angle	Motor Vehicle
Injury	N	Front to Rear	Motor Vehicle
Property D	N	Angle	Motor Vehicle
Property D	Y	Angle	Motor Vehicle
Property D	Y	Front to Rear	Motor Vehicle
Property D	N	Angle	Motor Vehicle
Injury	N	Front to Rear	Motor Vehicle
Property D	N	Sideswipe, Op	Motor Vehicle
Property D	N	Angle	Motor Vehicle
Injury	N	Angle	Motor Vehicle
Injury	N	Angle	Motor Vehicle
Injury	Y	Angle	Motor Vehicle
Property D	Y	Front to Rear	Motor Vehicle
Injury	Y	Other	Ran Off Roadw
Property D	Y	Angle	Motor Vehicle
Property D	Y	Angle	Motor Vehicle
Injury	Y	Front to Rear	Motor Vehicle
Property D	N	Front to Rear	Motor Vehicle
Property D	N	Front to Rear	Motor Vehicle
Injury	N	Other	Motor Vehicle
Injury	Y	Angle	Motor Vehicle
Injury	N	Front to Front	Motor Vehicle
Injury	Y	Front to Rear	Motor Vehicle
Property D	Y	Angle	Motor Vehicle
Property D	N	Angle	Motor Vehicle
Injury	N	Angle	Motor Vehicle
Property D	N	Angle	Motor Vehicle
Injury	N	Front to Rear	Motor Vehicle
Injury	N	Angle	Motor Vehicle
Property D	N	Sideswipe, Sar	Motor Vehicle
Property D	N	Front to Rear	Motor Vehicle
Property D	N	Angle	Motor Vehicle
Injury	N	Other	Motor Vehicle
Property D	N	Front to Rear	Motor Vehicle
Property D	Y	Angle	Motor Vehicle

Property D:	N	Sideswipe, Sar	Motor Vehicle
Injury	N	Angle	Motor Vehicle
Property D:	N	Angle	Motor Vehicle

Crash Number	Location Mile Post	Roadway Id	Crash Date	Crash Year	On Road	Intersecting Road	First Harmful Event	Manner Of Collision	Light Condition	Weather Condition
849981220	4.169	16140000	9/30/2015	2015	AVE Y NE	SR 544	Motor Vehicle In Transport	Front To Rear	Dark-Lighted	Clear
864403380	4.169	16140000	4/1/2016	2016	SR 544	AVE Y NE	Motor Vehicle In Transport	Angle	Daylight	Clear

Surface Condition	Junction	Site Location	Alcohol Drugs Involvement	Number of Fatalities	Number of Injured	Total Crash Damage Amount
Dry	Non-Junction	Influenced By Intersection	No			300
Dry	Intersection	At Intersection	No		4	

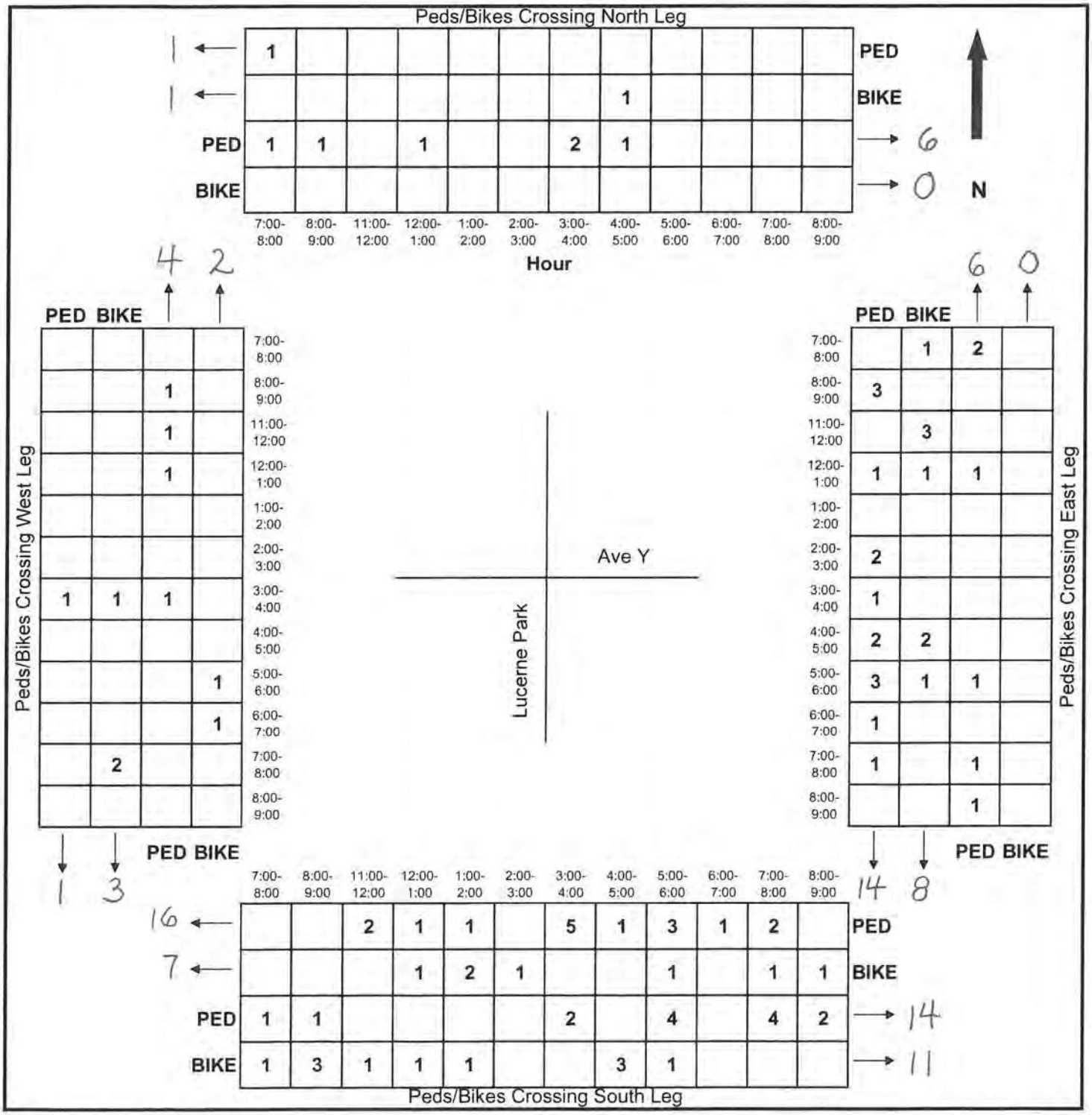
Intersection Pedestrian & Bicycle Count

Date: 12/12/2017 Day: Tuesday

Count Times: 7-9am & 11am-9pm Weather: Clear

Intersection: Lucerne Park Road (SR 544) at Ave Y NE

Comments:

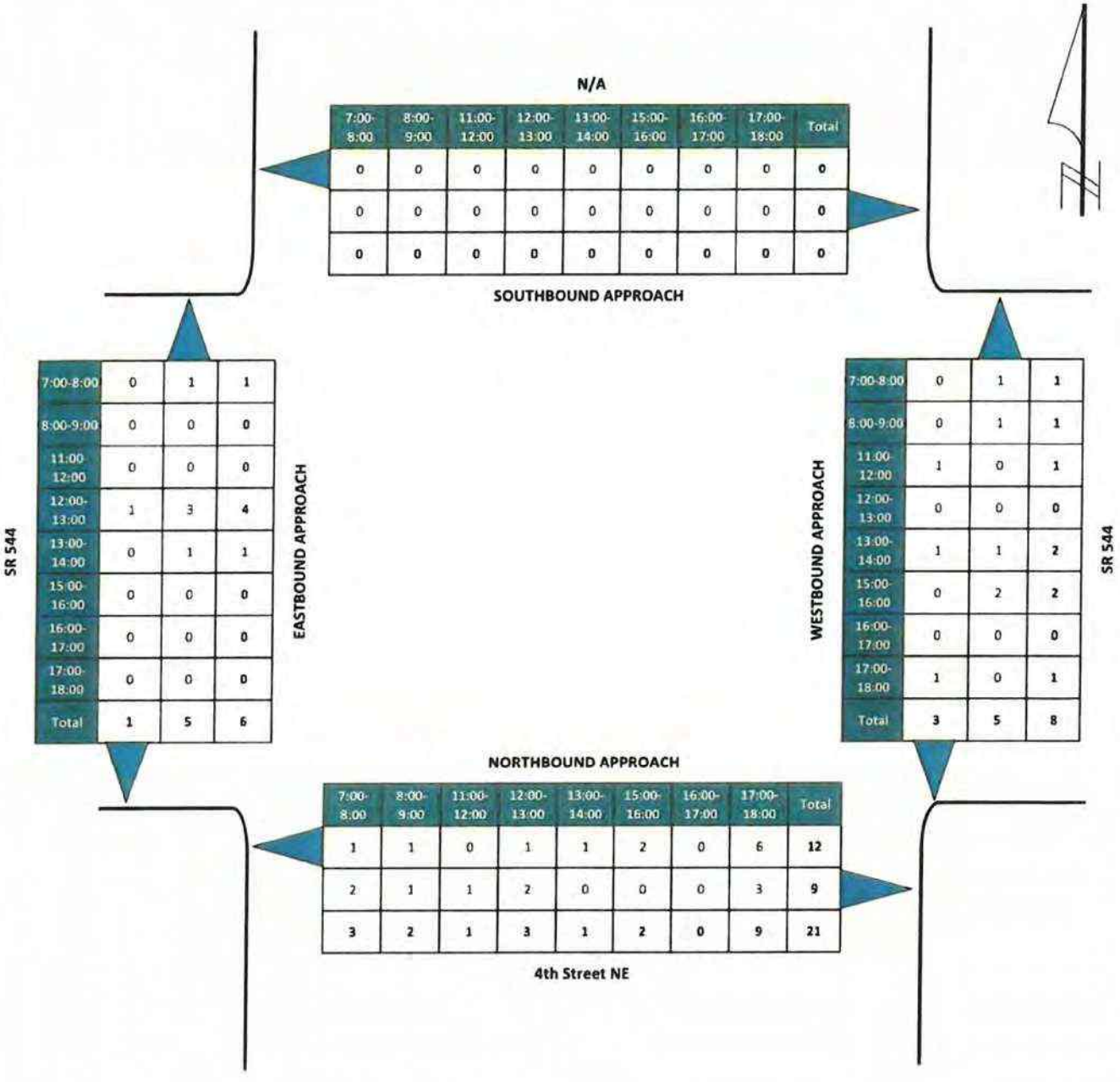


FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 16140000
STATE ROUTE SR 544
OBSERVER FDA
COUNTY Polk
MILEPOST 4.136
COUNT HOURS 7:00 - 9:00 AM, 11:00 AM - 2:00 PM, 3:00 - 6:00 PM

CITY Winter Haven
INTERSECTING ROUTE 4th Street NE
DATE OF COUNT 10/1/19
WEATHER Good
COMPLETED BY ZCP
DATE 10/31/19



7:00-8:00	8:00-9:00	11:00-12:00	12:00-13:00	13:00-14:00	15:00-16:00	16:00-17:00	17:00-18:00	Total
0	0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

7:00-8:00	0	1	**1**
8:00-9:00	0	0	**0**
11:00-12:00	0	0	**0**
12:00-13:00	1	3	**4**
13:00-14:00	0	1	**1**
15:00-16:00	0	0	**0**
16:00-17:00	0	0	**0**
17:00-18:00	0	0	**0**
Total	**1**	**5**	**6**

7:00-8:00	0	1	**1**
8:00-9:00	0	1	**1**
11:00-12:00	1	0	**1**
12:00-13:00	0	0	**0**
13:00-14:00	1	1	**2**
15:00-16:00	0	2	**2**
16:00-17:00	0	0	**0**
17:00-18:00	1	0	**1**
Total	**3**	**5**	**8**

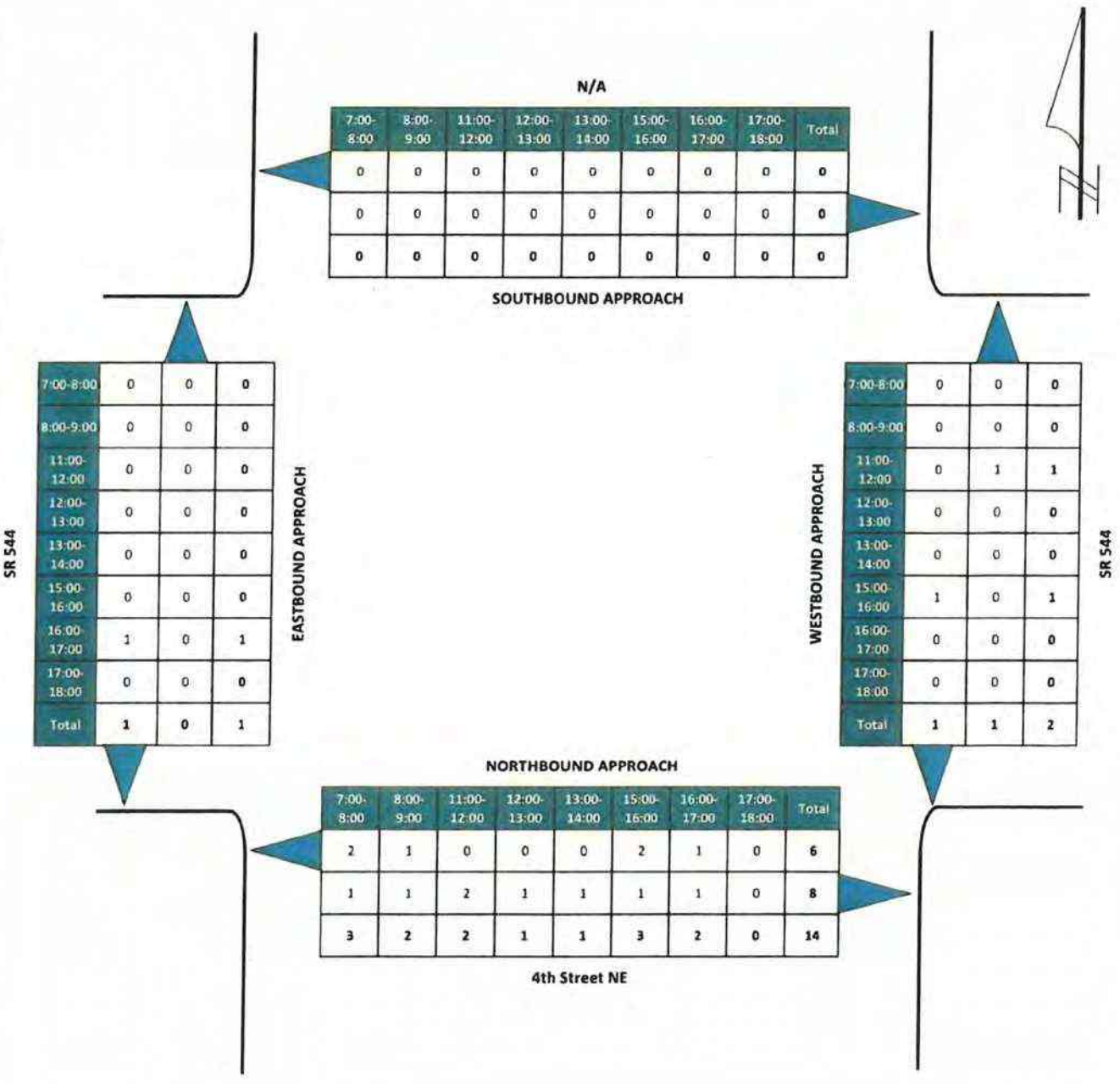
7:00-8:00	8:00-9:00	11:00-12:00	12:00-13:00	13:00-14:00	15:00-16:00	16:00-17:00	17:00-18:00	Total
1	1	0	1	1	2	0	6	**12**
2	1	1	2	0	0	0	3	**9**
3	**2**	**1**	**3**	**1**	**2**	**0**	**9**	**21**

FLORIDA DEPARTMENT OF TRANSPORTATION

BICYCLE MOVEMENT SUMMARY

SECTION 16140000
STATE ROUTE SR 544
OBSERVER FDA
COUNTY Polk
MILEPOST 4.136
COUNT HOURS 7:00 - 9:00 AM, 11:00 AM - 2:00 PM, 3:00 - 6:00 PM

CITY Winter Haven
INTERSECTING ROUTE 4th Street NE
DATE OF COUNT 10/1/19
WEATHER Good
COMPLETED BY ZCP
DATE 10/31/19



	7:00-8:00	8:00-9:00	11:00-12:00	12:00-13:00	13:00-14:00	15:00-16:00	16:00-17:00	17:00-18:00	Total
	0	0	0	0	0	0	0	0	**0**
	0	0	0	0	0	0	0	0	**0**
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

7:00-8:00	0	0	**0**
8:00-9:00	0	0	**0**
11:00-12:00	0	0	**0**
12:00-13:00	0	0	**0**
13:00-14:00	0	0	**0**
15:00-16:00	0	0	**0**
16:00-17:00	1	0	**1**
17:00-18:00	0	0	**0**
Total	**1**	**0**	**1**

7:00-8:00	0	0	**0**
8:00-9:00	0	0	**0**
11:00-12:00	0	1	**1**
12:00-13:00	0	0	**0**
13:00-14:00	0	0	**0**
15:00-16:00	1	0	**1**
16:00-17:00	0	0	**0**
17:00-18:00	0	0	**0**
Total	**1**	**1**	**2**

7:00-8:00	8:00-9:00	11:00-12:00	12:00-13:00	13:00-14:00	15:00-16:00	16:00-17:00	17:00-18:00	Total
2	1	0	0	0	2	1	0	**6**
1	1	2	1	1	1	1	0	**8**
3	**2**	**2**	**1**	**1**	**3**	**2**	**0**	**14**

SR 544 Ped-Bicycle Counts
FPID 436417-2-32-01, TWO 4

SR 544 at Avenue X NE/Cedie Street

Street Name	Southwestbound Approach Cedie Street						Southeastbound Approach Avenue X NE						Northbound Approach Driveway						Westbound Approach SR 544						Eastbound Approach SR 544					
Direction	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
Type	Ped	Ped	Ped	Bike	Bike	Bike	Ped	Ped	Ped	Bike	Bike	Bike	Ped	Ped	Ped	Bike	Bike	Bike	Ped	Ped	Ped	Bike	Bike	Bike	Ped	Ped	Ped	Bike	Bike	Bike
7:00 - 8:00	2	0	**2**	0	0	**0**	2	3	**5**	0	0	**0**	1	0	**1**	0	1	**1**	1	1	**2**	0	0	**0**	0	0	**0**	0	0	**0**
8:00 - 9:00	1	1	**2**	0	0	**0**	0	0	**0**	0	2	**2**	2	1	**3**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
11:00 - 12:00	2	0	**2**	0	0	**0**	0	0	**0**	2	1	**3**	0	1	**1**	1	0	**1**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**
12:00 - 13:00	0	1	**1**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
13:00 - 14:00	0	0	**0**	0	0	**0**	0	1	**1**	0	0	**0**	0	0	**0**	1	0	**1**	1	0	**1**	0	1	**1**	0	1	**1**	0	0	**0**
15:00 - 16:00	1	1	**2**	0	0	**0**	0	0	**0**	0	0	**0**	3	0	**3**	0	1	**1**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
16:00 - 17:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	1	**2**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17:00 - 18:00	0	0	**0**	0	0	**0**	2	4	**6**	0	0	**0**	1	3	**4**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
Total	**6**	**3**	**9**	**0**	**0**	**0**	**4**	**8**	**12**	**2**	**3**	**5**	**8**	**6**	**14**	**2**	**2**	**4**	**4**	**1**	**5**	**0**	**1**	**1**	**1**	**1**	**2**	**0**	**0**	**0**

*Although one crosswalk covers both the Avenue X NE and Cedie Street approaches, the pedestrian and bicycle movements were separated as pedestrians and bicyclists were observed leaving the crosswalk to travel on their desired approach.

SR 544 at 4th Street NE

Street Name	Northbound Approach 4th Street NE						Westbound Approach SR 544						Eastbound Approach SR 544					
Direction	EB	WB	Total	EB	WB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
Type	Ped	Ped	Ped	Bike	Bike	Bike	Ped	Ped	Ped	Bike	Bike	Bike	Ped	Ped	Ped	Bike	Bike	Bike
7:00 - 8:00	2	1	**3**	1	2	**3**	1	0	**1**	0	0	**0**	1	0	**1**	0	0	**0**
8:00 - 9:00	1	1	**2**	1	1	**2**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
11:00 - 12:00	1	0	**1**	2	0	**2**	0	1	**1**	1	0	**1**	0	0	**0**	0	0	**0**
12:00 - 13:00	2	1	**3**	1	0	**1**	0	0	**0**	0	0	**0**	3	1	**4**	0	0	**0**
13:00 - 14:00	0	1	**1**	1	0	**1**	1	1	**2**	0	0	**0**	1	0	**1**	0	0	**0**
15:00 - 16:00	0	2	**2**	1	2	**3**	2	0	**2**	0	1	**1**	0	0	**0**	0	0	**0**
16:00 - 17:00	0	0	**0**	1	1	**2**	0	0	**0**	0	0	**0**	0	0	**0**	0	1	**1**
17:00 - 18:00	3	6	**9**	0	0	**0**	0	1	**1**	0	0	**0**	0	0	**0**	0	0	**0**
Total	**9**	**12**	**21**	**8**	**6**	**14**	**5**	**3**	**8**	**1**	**1**	**2**	**5**	**1**	**6**	**0**	**1**	**1**

SR 544 at Lake Fannie Park Entrance

Street Name	Northbound Approach Lake Fannie Park Entrance						Westbound Approach SR 544						Eastbound Approach SR 544					
Direction	EB	WB	Total	EB	WB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
Type	Ped	Ped	Ped	Bike	Bike	Bike	Ped	Ped	Ped	Bike	Bike	Bike	Ped	Ped	Ped	Bike	Bike	Bike
7:00 - 8:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
8:00 - 9:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
11:00 - 12:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
12:00 - 13:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
13:00 - 14:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
15:00 - 16:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
16:00 - 17:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17:00 - 18:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix B

FDOT Historical Traffic Volume Data Analysis Memorandum

Review of Request for Traffic Signal

SR 544 (Lucerne Park Road) at Avenue Y NE
Winter Haven, Polk County, FL
Roadway ID: 16140000 MP: 4.161

The subject intersection, SR 544 (Lucerne Park Road) and Avenue Y NE is a 4-legged intersection with existing 2-way Stop Control on the Avenue Y NE approaches. The roadway characteristics are as follows:

SR 544

- East-west roadway, running north-south at the subject intersection. (Directions will be referenced as northbound and southbound),
- 2-lane urban minor arterial,
- Access class: 07,
- Context classification: subject intersection is a transition from C4 (Urban General) to the south and C3C (Suburban Commercial) to the north,
- Posted Speed Limit: 35 MPH (transitions to 45 MPH approximately 500' north of the intersection),
- Turn lanes are not present on the northbound or southbound approaches,
- 5-feet-wide shoulders are present, with curb and gutter to the south and open drainage to the north.

Avenue Y NE

- 2-lane local street serving mostly residential land uses,
- The eastbound approach is a single-lane (shared left/through/right) and is stop-controlled,
- The westbound approach is a stop-controlled shared left/through with a channelized free flow right turn lane.

Historical Data Review

The subject intersection has been studied no fewer than 5 times between 2004 and 2016. These studies include the following:

- Composite Study Traffic Counts (TEI Engineers & Planners, 2004)
- Composite Study Counts & Delay (HNTB, 2006)
- Signal Warrant Analysis (Vanus, 2009)
- Intersection Delay Study (ICON, 2012)
- Signal Warrant Analysis (ICON, 2016)

SR 544 has historical Average Annual Daily Traffic (AADT) volumes as shown in **Table 1** below.

Table 1 – Annual Average Daily Traffic (SR 544)

Year	South Leg [vpd]	Annual Compound Growth Rate 2015-2019	Annual Compound Growth Rate 2016-2019	North Leg [vpd]	Annual Compound Growth Rate 2015-2019	Annual Compound Growth Rate 2016-2019
2015	16,500	3.32%		15,600	5.33%	
2016	17,300		2.81%	16,000		6.27%
2017	17,300			17,000		
2018	17,800			18,100		
2019	18,800			19,200		

Data source: Florida Traffic Online (Computations by FDOT staff)

Side street approach volumes were taken from the turning movement counts in the previously referenced studies and sorted highest to lowest (1 through 8), without the inclusion of right turning movements. The maximum hourly volumes from either the eastbound approach or westbound approach were selected from each ranked hour to create a composite 8-hour analysis period. This composite analysis satisfies 2 of 8 required hours for Warrant 1- Condition B (Interruption of Continuous Traffic) at the 70% threshold. (Application of the 70% threshold assumes that operating speeds are 40 MPH or greater due to the speed limit transition north of the intersection.) **A side street annual (2016 to 2021) compound growth rate of 10.6% would be required to achieve the 70% volume thresholds in Warrant 1 – Condition B for the required 8 hours**.

To assess the side street volumes for year-over-year stability, the difference between the maximum and minimum in each analysis hour was determined. The differences range from 7 vehicles per hour (vph) to 11 vph with an average difference of 9.25 vph. These are shown in **Table 2** below.

Table 2 – Hourly Volume Sensitivity

Hour	Maximum [vph]	Minimum [vph]	Delta
1	61	50	11
2	54	47	7
3	50	41	9
4	45	37	8
5	43	32	11
6	40	31	9
7	36	27	9
8	32	22	10

The 24-hour approach counts, as taken from the referenced studies, for the side street approaches (all movements) were assessed for annual compound growth rates. All possible points of comparison were considered. The average annual compound growth rates are as follow:

- Eastbound: **-0.39%**
- Westbound: **-0.91%**

Crash History

CARS and Signal Four were searched for crashes at the subject intersection for the period January 1, 2016 to March 2021. The associated crash reports were reviewed to determine correctable crashes and to review for fatalities. 22 correctable crashes and 1 fatal crash were identified through the review of crash reports.

The fatal crash (2 fatalities) occurred November 29, 2020. The circumstances of this crash, as indicated in the crash report, are a DUI lane departure head-on crash 500'± south of the intersection. The DUI motorist (a fatality) was proceeding southbound and had already cleared the intersection. This crash is not included in the count of correctable crashes.

The correctable crashes have a yearly distribution as follows:

2016: 8
2017: 2
2018: 2
2019: 7
2020: 2
2021: 1 (through March 12)

The subject intersection is within the project limits of FPID: 440273-2, a project to widen SR 544 to a 4-lane section which would be anticipated to improve the operational safety of this intersection.

Adjacent Development

A review of aerial imagery from Google Earth (2004 to 2016) indicates that no significant new development has occurred on either leg of Avenue Y NE. This imagery further reveals that additional development is unlikely without a large-scale redevelopment project as the adjacent land is effectively built out.

Conclusion and Recommendation

The intersection of SR 544 (Lucerne Park Road) and Avenue Y NE in Winter Haven, Polk County, FL has been studied extensively for signalization. The data suggest that vehicular volumes on the Avenue Y NE approaches to SR 544 have not seen significant changes since the first available study was accomplished in 2004. The surrounding land uses have also remained constant over that time. All evidence suggests that a study at this time would yield results similar to the previous studies and a signal would not be warranted.

It is NOT recommended that the subject intersection be evaluated for possible signalization at this time.

R. Scott Leary, EI, RSP[1]
March 19, 2021

Appendix C

CAP-X and SPICE Analysis Summary Sheets

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Avenue Y
Date:	Design Year (2045) AM Peak Hour
Number of Intersection Legs:	4
Major Street Direction	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	303	96	17	3.00%	0.00%
Westbound	0	29	92	307	2.00%	0.00%
Southbound	0	185	1109	471	4.00%	0.00%
Northbound	0	15	969	31	5.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone		**C4-General Urban Residential**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal	**0.88**	**1**	**2.4**	**Poor**	**Poor**	**Fair**
2 X 2	**0.90**	**2**	**2.8**	**Poor**	**Fair**	**Fair**
Median U-Turn N-S	**1.05**	**3**	**3.1**	**Fair**	**Fair**	**Poor**
2NS X 1EW	**1.07**	**4**	**2.8**	**Poor**	**Fair**	**Fair**
Signalized Restricted Crossing U-Turn N-S	**1.11**	**5**	**3.1**	**Fair**	**Fair**	**Poor**
Signalized ThruCut N-S	**1.15**	**6**	**2.6**	**Poor**	**Fair**	**Poor**
1 X 1	**1.57**	**7**	**3.3**	**Fair**	**Fair**	**Fair**
All-Way Stop Control	**2.09**	**8**	**3.3**	**Fair**	**Fair**	**Fair**
Unsignalized Restricted Crossing U-Turn N-S	**3.34**	**9**	**2.2**	**Poor**	**Poor**	**Poor**
Two-Way Stop Control N-S	**12.35**	**10**	**1.9**	**Poor**	**Poor**	**Fair**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Avenue Y
Date:	Design Year (2045) AM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	303	96	17	3.00%	0.00%
Westbound	0	29	92	307	2.00%	0.00%
Southbound	0	185	1109	471	4.00%	0.00%
Northbound	0	15	969	31	5.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone		**C4-General Urban Residential**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	2	0		1	1	1		2	1	0		1	1	1
Two-Way Stop Control	N-S		1	2	0		1	1	1		1	1	0		1	1	1
All-Way Stop Control	FULL		1	2	0		1	1	1		1	1	0		1	1	1
Signalized Restricted Crossing U-Turn	N-S	1	1	2	0	1	1	1	1				1				1
Unsignalized Restricted Crossing U-Turn	N-S	1	1	2	0	1	1	1	1				1				1
Median U-Turn	N-S	1		2	0	1		1	1			1	0			1	1
Signalized ThruCut	N-S		1	2	0		1	1	1		2		1		1		1
Unsignalized ThruCut	N-S		1	2	0		1	1	1		1		1		1		1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1501	0.88	0.88	Poor	Poor	Fair
Two-Way Stop Control	N-S									--	12.35	12.35	Poor	Poor	Fair
All-Way Stop Control	FULL									3767	2.09	2.09	Fair	Fair	Fair
Signalized Restricted Crossing U-Turn	N-S	1990	1.11	1047	0.58	1179	0.65	1688	0.94			1.11	Fair	Fair	Poor
Unsignalized Restricted Crossing U-Turn	N-S	1835	0.48	1066	0.79	1395	3.34	1183	1.87			3.34	Poor	Poor	Poor

Median U-Turn	N-S	1893	1.05	1163	0.65					1749	0.97	1.05	Fair	Fair	Poor
Signalized ThruCut	N-S									1582	1.15	1.15	Poor	Fair	Poor
Unsignalized ThruCut	N-S									--	258.26	258.26	Poor	Poor	Poor

Capacity Analysis for Planning of Junctions

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1 X 1	1.57			1.29			1.46			1.27			1.57	Fair	Fair	Fair
2NS X 1EW	0.80	0.85		1.07			0.71	0.73		1.06			1.07	Poor	Fair	Fair
2 X 2	0.80	0.85		0.35	0.76		0.71	0.73		0.90	0.29		0.90	Poor	Fair	Fair

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Avenue Y
Date:	Design Year (2045) PM Peak Hour
Number of Intersection Legs:	4
Major Street Direction	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	539	93	31	3.00%	0.00%
Westbound	0	7	66	171	2.00%	0.00%
Southbound	0	327	982	256	3.00%	0.00%
Northbound	0	16	1063	66	3.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C4-General Urban Residential**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800** / **1800**
	3-phase signal	**Suggested = 1750** / **1750**
	4-phase signal	**Suggested = 1700** / **1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal	0.82	1	2.4	Poor	Poor	Fair
Signalized ThruCut N-S	0.97	2	2.6	Poor	Fair	Poor
Signalized Restricted Crossing U-Turn N-S	1.01	3	3.1	Fair	Fair	Poor
Median U-Turn N-S	1.11	4	3.1	Fair	Fair	Poor
2 X 2	1.57	5	2.8	Poor	Fair	Fair
2NS X 1EW	1.67	6	2.8	Poor	Fair	Fair
All-Way Stop Control	2.07	7	3.3	Fair	Fair	Fair
1 X 1	2.39	8	3.3	Fair	Fair	Fair
Unsignalized Restricted Crossing U-Turn N-S	3.22	9	2.2	Poor	Poor	Poor
Two-Way Stop Control N-S	23.28	10	1.9	Poor	Poor	Fair

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Avenue Y
Date:	Design Year (2045) PM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	539	93	31	3.00%	0.00%
Westbound	0	7	66	171	2.00%	0.00%
Southbound	0	327	982	256	3.00%	0.00%
Northbound	0	16	1063	66	3.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C4-General Urban Residential**	
Critical Lane Volume Threshold: 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold: 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold: 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	2	0		1	1	1		2	1	0		1	1	1
Two-Way Stop Control	N-S		1	2	0		1	1	1		1	1	0		1	1	1
All-Way Stop Control	FULL		1	2	0		1	1	1		1	1	0		1	1	1
Signalized Restricted Crossing U-Turn	N-S	1	1	2	0	1	1	1	1				1				1
Unsignalized Restricted Crossing U-Turn	N-S	1	1	2	0	1	1	1	1				1				1
Median U-Turn	N-S	1		2	0	1		1	1			1	0			1	1
Signalized ThruCut	N-S		1	2	0		1	1	1		2		1		1		1
Unsignalized ThruCut	N-S		1	2	0		1	1	1		1		1		1		1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1388	0.82	0.82	Poor	Poor	Fair
Two-Way Stop Control	N-S									--	23.28	23.28	Poor	Poor	Fair
All-Way Stop Control	FULL									3722	2.07	2.07	Fair	Fair	Fair
Signalized Restricted Crossing U-Turn	N-S	1705	0.95	1403	0.78	1180	0.66	1822	1.01			1.01	Fair	Fair	Poor
Unsignalized Restricted Crossing U-Turn	N-S	1612	0.23	1179	1.37	1732	3.22	1018	2.38			3.22	Poor	Poor	Poor

Median U-Turn	N-S	1641	0.91	1705	0.95					2001	1.11	1.11	Fair	Fair	Poor
Signalized ThruCut	N-S									1345	0.97	0.97	Poor	Fair	Poor
Unsignalized ThruCut	N-S									--	406.41	406.41	Poor	Poor	Poor

Capacity Analysis for Planning of Junctions

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1 X 1	1.31			2.01			2.39			1.00			2.39	Fair	Fair	Fair
2NS X 1EW	0.67	0.71		1.67			1.12	1.12		0.79			1.67	Poor	Fair	Fair
2 X 2	0.67	0.71		0.28	0.55		1.12	1.12		1.57	0.31		1.57	Poor	Fair	Fair

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 544 PD&E Study from MLK Blvd to SR 17	**Intersection Type**	At-Grade Intersections
Intersection:	SR 544/Avenue Y	**Opening Year**	2025
Agency:	FDOT District One	**Design Year**	2045
Project Reference:	FPID No.: 440273-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Polk County	**Number of Legs**	4-leg
State:	Florida	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	11/23/2022	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	AIM Engineering & Surveying, Inc.	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Traffic Signal	Total	6.77	11.41	190.92	6	Yes	Calibrated SPF	81	67	9
	Fatal & Injury	2.36	4.04	67.18						
Minor Road Stop	Total	5.72	9.07	155.82	5	No	Calibrated SPF w/ EB	69	53	10
	Fatal & Injury	2.07	3.45	58.10						
All Way Stop	Total	3.25	5.54	92.70	3	N/A	N/A	91	83	4
	Fatal & Injury	1.23	2.16	35.65						
1-lane Roundabout	Total	2.83	3.85	70.35	1	No	Uncalibrated SPF	93	89	1
	Fatal & Injury	0.45	0.66	11.76						
2-lane Roundabout	Total	7.53	12.16	206.24	2	No	Uncalibrated SPF	87	81	6
	Fatal & Injury	1.16	1.97	32.61						
Median U-Turn (MUT)	Total	5.75	9.70	162.28	4	N/A	CMF	92	86	2
	Fatal & Injury	1.66	2.83	47.02						
Signalized RCUT	Total	12.05	24.77	384.32	7	Yes	Uncalibrated SPF	90	85	3
	Fatal & Injury	2.81	6.55	97.20						
Unsignalized RCUT	Total	No SPF	No SPF	No SPF	--	Yes	Uncalibrated SPF	83	74	7
	Fatal & Injury	No SPF	No SPF	No SPF						
Signalized Thru-Cut	Total	No SPF	No SPF	No SPF	--	N/A	N/A	89	81	5
	Fatal & Injury	No SPF	No SPF	No SPF						
Unsignalized Thru-Cut	Total	No SPF	No SPF	No SPF	--	N/A	N/A	83	72	8
	Fatal & Injury	No SPF	No SPF	No SPF						
Other 1*	Total	No SPF	No SPF	No SPF	--	N/A	CMF	--	--	--
	Fatal & Injury	No SPF	No SPF	No SPF						
Other 2*	Total	No SPF	No SPF	No SPF	--	N/A	CMF	--	--	--
	Fatal & Injury	No SPF	No SPF	No SPF						

Appendix D

SYNCHRO and SIDRA Analysis Summary Sheets

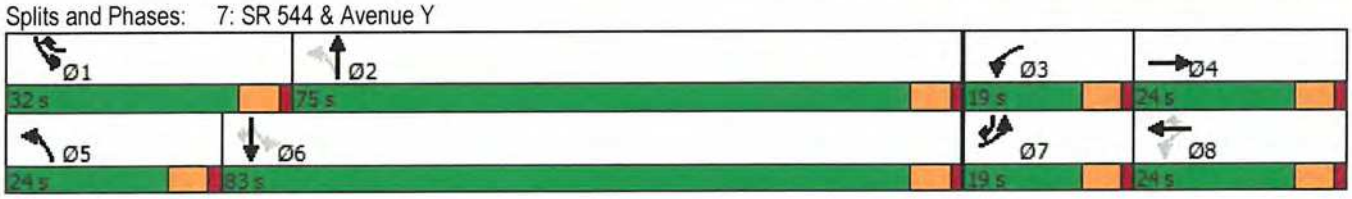
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	303	96	17	29	92	307	15	969	31	185	1109	471
Future Volume (vph)	303	96	17	29	92	307	15	969	31	185	1109	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		250	250		0	250		0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.977				0.850		0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	1797	0	1719	1863	1538	1752	3424	0	1770	1810	1568
Flt Permitted	0.950			0.681			0.055			0.168		
Satd. Flow (perm)	3335	1797	0	1232	1863	1538	101	3424	0	313	1810	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				65		3				312
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1362			1498			698			839	
Travel Time (s)		31.0			34.0			15.9			19.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	3%	5%	5%	2%	5%	3%	5%	2%	2%	5%	3%
Adj. Flow (vph)	319	101	18	31	97	323	16	1020	33	195	1167	496
Shared Lane Traffic (%)												
Lane Group Flow (vph)	319	119	0	31	97	323	16	1053	0	195	1167	496
Turn Type	Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases				8		8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	24.0		11.0	24.0	24.0	24.0	24.0		24.0	24.0	11.0
Total Split (s)	19.0	24.0		19.0	24.0	32.0	24.0	75.0		32.0	83.0	19.0
Total Split (%)	12.7%	16.0%		12.7%	16.0%	21.3%	16.0%	50.0%		21.3%	55.3%	12.7%
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max		None	Max	None
Act Effct Green (s)	13.1	23.0		19.6	12.2	34.3	75.2	69.3		91.3	86.7	105.8
Actuated g/C Ratio	0.10	0.17		0.15	0.09	0.25	0.56	0.51		0.68	0.64	0.79
v/c Ratio	0.99	0.38		0.15	0.57	0.73	0.12	0.60		0.51	1.00	0.38
Control Delay	107.8	55.1		43.8	73.4	46.4	11.9	25.9		12.9	51.9	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	107.8	55.1		43.8	73.4	46.4	11.9	25.9		12.9	51.9	2.9
LOS	F	E		D	E	D	B	C		B	D	A
Approach Delay		93.5			52.0			25.6			34.7	
Approach LOS		F			D			C			C	
Stops (vph)	258	95		25	84	221	7	682		63	835	53

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	11	3		1	3	8	0	14		2	24	4
CO Emissions (g/hr)	789	209		51	204	539	11	1012		143	1648	255
NOx Emissions (g/hr)	154	41		10	40	105	2	197		28	321	50
VOC Emissions (g/hr)	183	48		12	47	125	3	235		33	382	59
Dilemma Vehicles (#)	0	0		0	0	0	0	0		0	0	0
Queue Length 50th (ft)	144	93		21	82	210	4	325		56	846	26
Queue Length 95th (ft)	#281	171		52	151	316	13	487		98	#1546	102
Internal Link Dist (ft)		1282			1418			618			759	
Turn Bay Length (ft)	250			250		250	250			250		
Base Capacity (vph)	323	311		278	249	549	286	1762		494	1165	1298
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.99	0.38		0.11	0.39	0.59	0.06	0.60		0.39	1.00	0.38

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 134.7
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 41.0 Intersection LOS: D
Intersection Capacity Utilization 92.8% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: SR 544 & Avenue Y



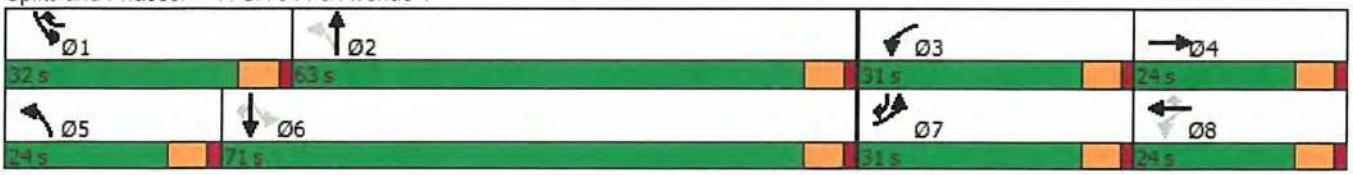
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	539	93	31	7	66	171	16	1063	66	327	982	256
Future Volume (vph)	539	93	31	7	66	171	16	1063	66	327	982	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		250	250		0	250		0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.962				0.850		0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	1775	0	1752	1863	1568	1752	3475	0	1770	1845	1568
Flt Permitted	0.950			0.675			0.065			0.082		
Satd. Flow (perm)	3400	1775	0	1245	1863	1568	120	3475	0	153	1845	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				65		5				191
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1362			1498			698			839	
Travel Time (s)		31.0			34.0			15.9			19.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	3%	3%	2%	3%	3%	3%	2%	2%	3%	3%
Adj. Flow (vph)	556	96	32	7	68	176	16	1096	68	337	1012	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	556	128	0	7	68	176	16	1164	0	337	1012	264
Turn Type	Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases				8		8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	24.0		11.0	24.0	24.0	24.0	24.0		24.0	24.0	11.0
Total Split (s)	31.0	24.0		31.0	24.0	32.0	24.0	63.0		32.0	71.0	31.0
Total Split (%)	20.7%	16.0%		20.7%	16.0%	21.3%	16.0%	42.0%		21.3%	47.3%	20.7%
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max		None	Max	None
Act Effct Green (s)	25.1	36.2		15.0	10.4	38.4	63.3	57.3		88.2	83.4	115.9
Actuated g/C Ratio	0.18	0.26		0.11	0.07	0.28	0.46	0.41		0.63	0.60	0.83
v/c Ratio	0.91	0.27		0.04	0.49	0.37	0.13	0.81		0.87	0.91	0.20
Control Delay	75.9	40.5		38.1	74.9	26.3	16.1	42.6		59.9	40.1	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	75.9	40.5		38.1	74.9	26.3	16.1	42.6		59.9	40.1	1.7
LOS	E	D		D	E	C	B	D		E	D	A
Approach Delay		69.3			39.8			42.2			38.0	
Approach LOS		E			D			D			D	
Stops (vph)	484	89		7	62	82	10	967		227	721	19

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Fuel Used(gal)	17	3		0	2	3	0	21		7	18	2
CO Emissions (g/hr)	1170	198		12	148	235	14	1487		516	1289	131
NOx Emissions (g/hr)	228	39		2	29	46	3	289		100	251	25
VOC Emissions (g/hr)	271	46		3	34	55	3	345		120	299	30
Dilemma Vehicles (#)	0	0		0	0	0	0	0		0	0	0
Queue Length 50th (ft)	265	84		5	62	79	5	506		237	739	9
Queue Length 95th (ft)	#391	159		17	114	146	16	631		#427	#1318	43
Internal Link Dist (ft)		1282			1418			618			759	
Turn Bay Length (ft)	250			250		250	250			250		
Base Capacity (vph)	615	469		397	242	494	277	1436		401	1107	1326
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.90	0.27		0.02	0.28	0.36	0.06	0.81		0.84	0.91	0.20

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 138.9
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 45.2 Intersection LOS: D
Intersection Capacity Utilization 92.9% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: SR 544 & Avenue Y

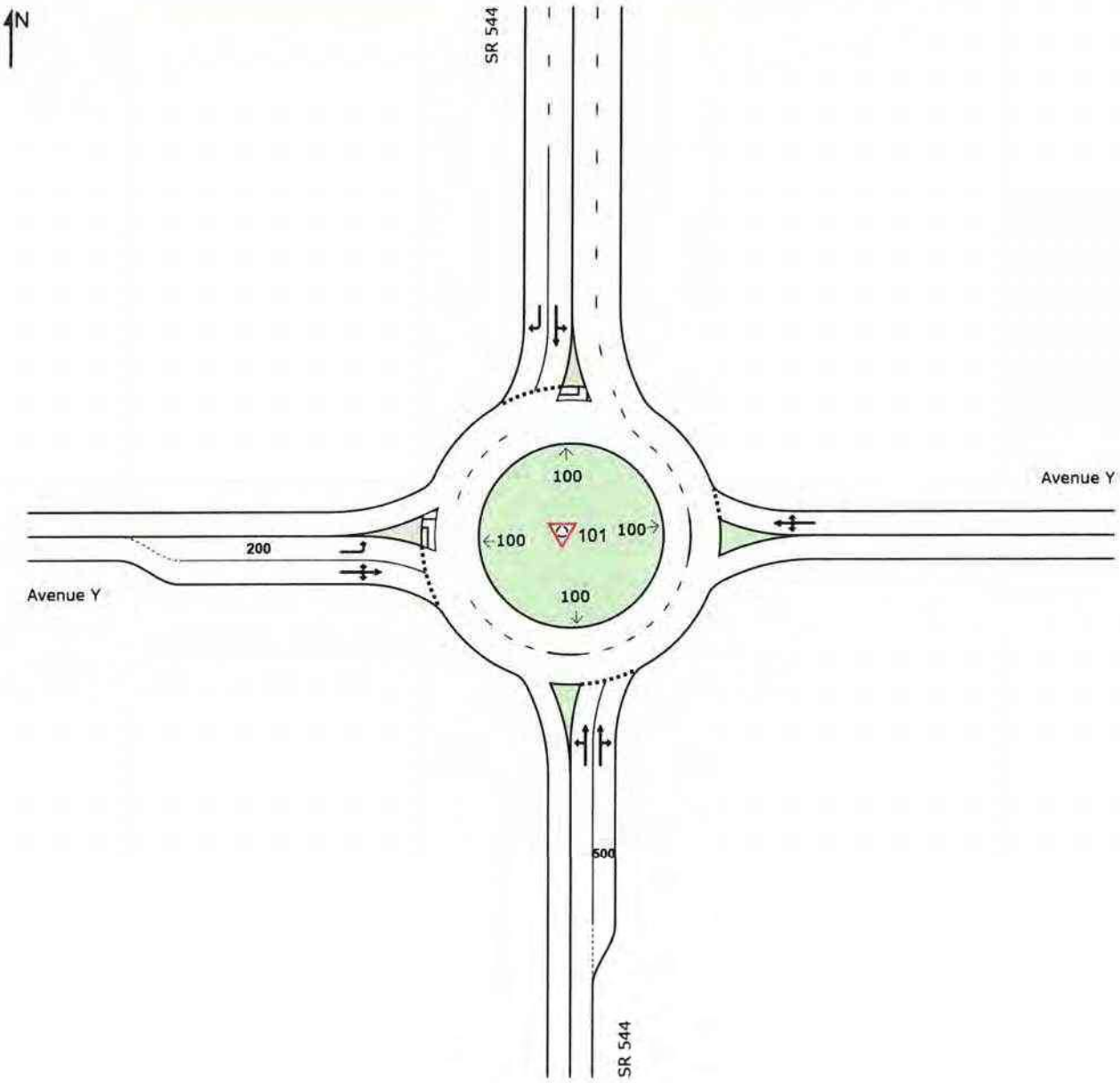


SITE LAYOUT

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Design Year (2045) AM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: T:\PROJECTS\2 - DISTRICT 1\D1_SR 544\Traffic\Roundabouts\Design Year 2045\AM Pk Hr\SR 544_Ave Y_2045 AM Pk Hr_Build Alt 2_Rev.sip9

MOVEMENT SUMMARY

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Design Year (2045) AM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: SR 544														
3	L2	15	3.0	16	3.0	0.693	18.5	LOS C	6.8	176.2	0.80	1.08	1.59	29.2
8	T1	969	5.0	1020	5.0	0.693	18.0	LOS C	7.0	181.5	0.79	1.07	1.58	29.3
18	R2	31	2.0	33	2.0	0.693	17.2	LOS C	7.0	181.5	0.79	1.07	1.57	28.8
Approach		1015	4.9	1068	4.9	0.693	17.9	LOS C	7.0	181.5	0.79	1.07	1.58	29.3
East: Avenue Y														
1	L2	29	2.0	31	2.0	1.078	98.2	LOS F	22.0	558.2	1.00	2.31	5.87	14.3
6	T1	92	2.0	97	2.0	1.078	98.2	LOS F	22.0	558.2	1.00	2.31	5.87	14.3
16	R2	307	2.0	323	2.0	1.078	98.2	LOS F	22.0	558.2	1.00	2.31	5.87	14.1
Approach		428	2.0	451	2.0	1.078	98.2	LOS F	22.0	558.2	1.00	2.31	5.87	14.2
North: SR 544														
7	L2	185	2.0	195	2.0	1.137	88.5	LOS F	128.4	3327.3	1.00	2.35	3.68	15.4
4	T1	1109	5.0	1167	5.0	1.137	88.6	LOS F	128.4	3327.3	1.00	2.35	3.68	15.3
14	R2	471	3.0	496	3.0	0.408	7.0	LOS A	2.3	59.1	0.36	0.22	0.36	33.0
Approach		1765	4.2	1858	4.2	1.137	66.8	LOS F	128.4	3327.3	0.83	1.78	2.80	17.8
West: Avenue Y														
5	L2	303	3.0	319	3.0	0.514	19.5	LOS C	2.4	62.4	0.81	0.95	1.29	27.4
2	T1	96	3.0	101	3.0	0.514	19.5	LOS C	2.4	62.4	0.81	0.95	1.29	28.0
12	R2	17	3.0	18	3.0	0.514	19.5	LOS C	2.4	62.4	0.81	0.95	1.29	27.3
Approach		416	3.0	438	3.0	0.514	19.5	LOS C	2.4	62.4	0.81	0.95	1.29	27.5
All Vehicles		3624	4.0	3815	4.0	1.137	51.4	LOS F	128.4	3327.3	0.84	1.55	2.65	20.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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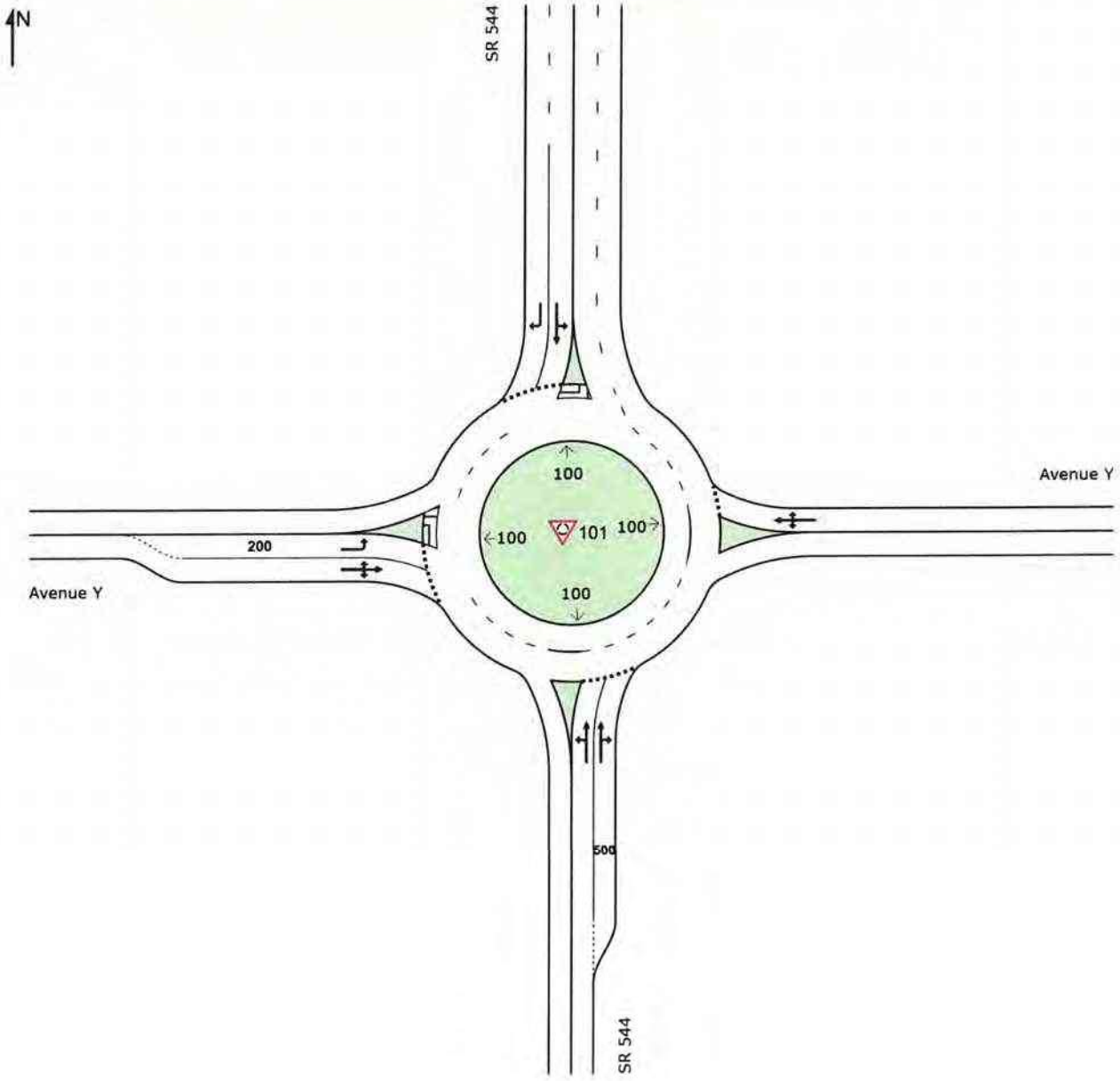
SITE LAYOUT

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Design Year (2045) PM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Design Year (2045) PM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: SR 544														
3	L2	16	3.0	16	3.0	1.059	83.8	LOS F	25.9	661.9	1.00	2.35	5.57	15.9
8	T1	1063	3.0	1096	3.0	1.059	81.7	LOS F	28.3	724.1	1.00	2.40	5.70	16.1
18	R2	66	2.0	68	2.0	1.059	79.7	LOS F	28.3	724.1	1.00	2.45	5.82	16.1
Approach		1145	2.9	1180	2.9	1.059	81.6	LOS F	28.3	724.1	1.00	2.40	5.71	16.1
East: Avenue Y														
1	L2	7	2.0	7	2.0	0.739	38.9	LOS E	4.1	104.8	0.92	1.19	1.97	23.0
6	T1	66	2.0	68	2.0	0.739	38.9	LOS E	4.1	104.8	0.92	1.19	1.97	23.0
16	R2	171	2.0	176	2.0	0.739	38.9	LOS E	4.1	104.8	0.92	1.19	1.97	22.5
Approach		244	2.0	252	2.0	0.739	38.9	LOS E	4.1	104.8	0.92	1.19	1.97	22.7
North: SR 544														
7	L2	327	2.0	337	2.0	1.063	61.3	LOS F	109.5	2797.1	1.00	1.31	2.18	18.8
4	T1	982	3.0	1012	3.0	1.063	61.3	LOS F	109.5	2797.1	1.00	1.31	2.18	18.7
14	R2	256	3.0	264	3.0	0.208	4.6	LOS A	0.9	24.3	0.23	0.11	0.23	34.2
Approach		1565	2.8	1613	2.8	1.063	52.1	LOS F	109.5	2797.1	0.87	1.12	1.86	20.2
West: Avenue Y														
5	L2	539	3.0	556	3.0	0.825	42.6	LOS E	6.6	168.3	0.92	1.33	2.41	21.6
2	T1	93	3.0	96	3.0	0.825	42.6	LOS E	6.6	168.3	0.92	1.33	2.41	21.7
12	R2	31	3.0	32	3.0	0.825	42.6	LOS E	6.6	168.3	0.92	1.33	2.41	21.3
Approach		663	3.0	684	3.0	0.825	42.6	LOS E	6.6	168.3	0.92	1.33	2.41	21.6
All Vehicles		3617	2.8	3729	2.8	1.063	58.8	LOS F	109.5	2797.1	0.93	1.57	3.19	19.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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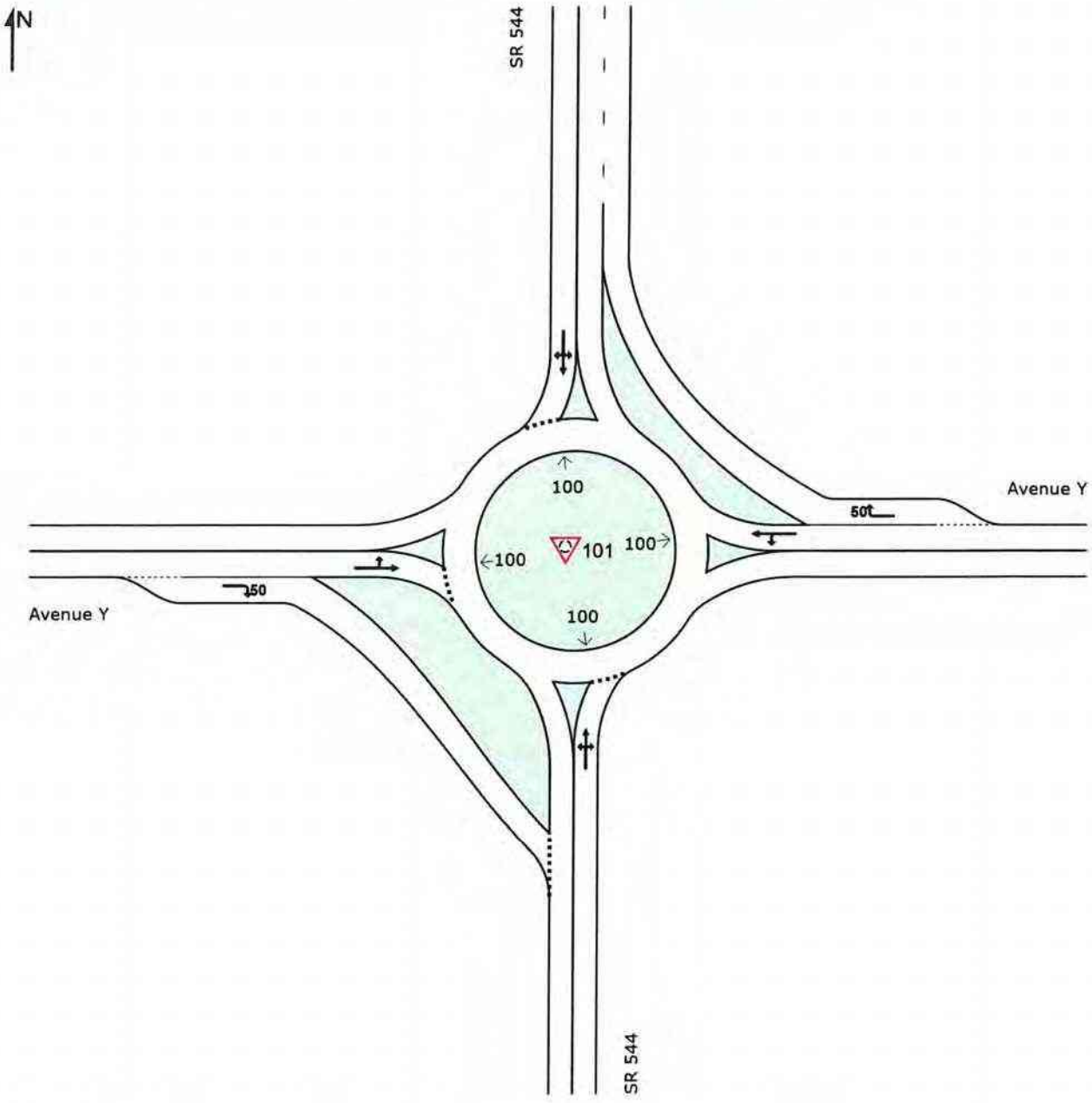
SITE LAYOUT

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Interim Year (2029) AM Peak Hour - Mini-Roundabout
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Constrained NB Volumes

MOVEMENT SUMMARY

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Interim Year (2029) AM Peak Hour - Mini-Roundabout
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: SR 544														
3	L2	14	3.0	15	3.0	0.595	11.7	LOS B	5.8	149.8	0.66	0.65	0.88	31.9
8	T1	519	5.0	546	5.0	0.595	11.8	LOS B	5.8	149.8	0.66	0.65	0.88	31.8
18	R2	27	2.0	28	2.0	0.595	11.7	LOS B	5.8	149.8	0.66	0.65	0.88	31.0
Approach		560	4.8	589	4.8	0.595	11.8	LOS B	5.8	149.8	0.66	0.65	0.88	31.8
East: Avenue Y														
1	L2	22	2.0	23	2.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
6	T1	45	2.0	47	2.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
16	R2	134	2.0	141	2.0	0.086	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
Approach		201	2.0	212	2.0	0.086	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
North: SR 544														
7	L2	86	2.0	91	2.0	1.008	46.4	LOS F	80.5	2083.8	1.00	0.97	1.63	21.3
4	T1	843	5.0	887	5.0	1.008	46.5	LOS F	80.5	2083.8	1.00	0.97	1.63	21.3
14	R2	229	3.0	241	3.0	1.008	46.4	LOS F	80.5	2083.8	1.00	0.97	1.63	20.9
Approach		1158	4.4	1219	4.4	1.008	46.5	LOS E	80.5	2083.8	1.00	0.97	1.63	21.2
West: Avenue Y														
5	L2	129	3.0	136	3.0	0.340	11.9	LOS B	1.4	36.0	0.70	0.75	0.86	30.1
2	T1	43	3.0	45	3.0	0.340	11.9	LOS B	1.4	36.0	0.70	0.75	0.86	30.1
12	R2	11	3.0	12	3.0	0.020	6.5	LOS A	0.1	1.7	0.60	0.53	0.60	33.3
Approach		183	3.0	193	3.0	0.340	11.6	LOS B	1.4	36.0	0.70	0.74	0.84	30.3
All Vehicles		2102	4.1	2213	4.1	1.008	29.8	LOS D	80.5	2083.8	0.79	0.77	1.20	25.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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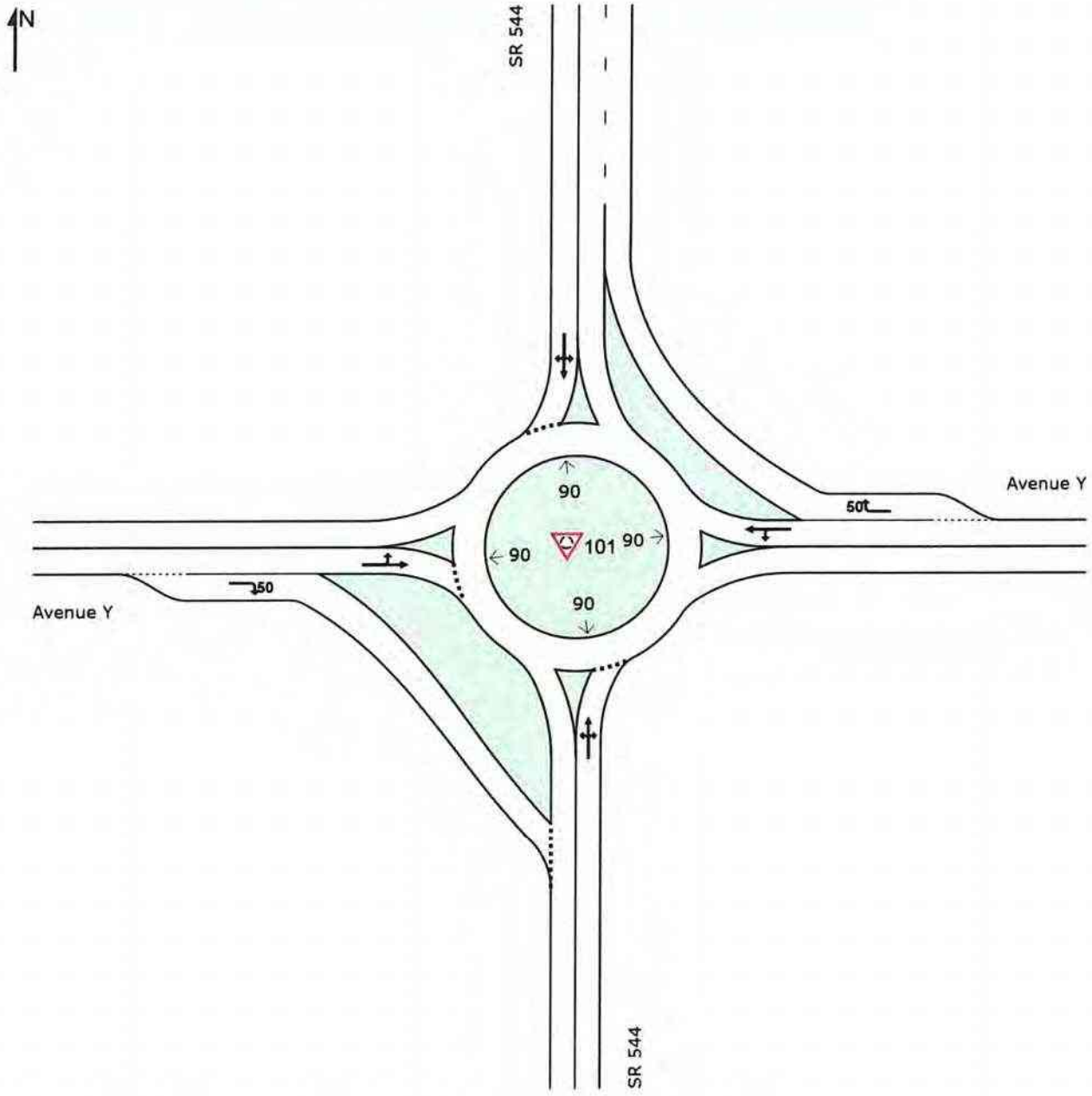
SITE LAYOUT

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Interim Year (2029) PM Peak Hour - Mini-Roundabout
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Constrained NB Volumes

MOVEMENT SUMMARY

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Interim Year (2029) PM Peak Hour - Mini-Roundabout
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: SR 544														
3	L2	14	3.0	14	3.0	0.917	36.3	LOS E	24.4	623.4	1.00	1.78	3.03	23.5
8	T1	687	3.0	708	3.0	0.917	36.3	LOS E	24.4	623.4	1.00	1.78	3.03	23.5
18	R2	43	2.0	44	2.0	0.917	36.3	LOS E	24.4	623.4	1.00	1.78	3.03	23.1
Approach		744	2.9	767	2.9	0.917	36.3	LOS E	24.4	623.4	1.00	1.78	3.03	23.5
East: Avenue Y														
1	L2	11	2.0	11	2.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
6	T1	36	2.0	37	2.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
16	R2	87	2.0	90	2.0	0.055	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.0
Approach		134	2.0	138	2.0	0.055	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.0
North: SR 544														
7	L2	137	2.0	141	2.0	0.786	16.3	LOS C	11.2	285.8	0.60	0.29	0.60	29.4
4	T1	711	3.0	733	3.0	0.786	16.4	LOS C	11.2	285.8	0.60	0.29	0.60	29.4
14	R2	110	3.0	113	3.0	0.786	16.4	LOS C	11.2	285.8	0.60	0.29	0.60	28.8
Approach		958	2.9	988	2.9	0.786	16.4	LOS C	11.2	285.8	0.60	0.29	0.60	29.4
West: Avenue Y														
5	L2	255	3.0	263	3.0	0.514	14.7	LOS B	2.9	74.8	0.75	0.88	1.18	28.7
2	T1	45	3.0	46	3.0	0.514	14.7	LOS B	2.9	74.8	0.75	0.88	1.18	28.7
12	R2	30	3.0	31	3.0	0.045	5.7	LOS A	0.2	4.0	0.56	0.51	0.56	33.5
Approach		330	3.0	340	3.0	0.514	13.9	LOS B	2.9	74.8	0.73	0.85	1.12	29.1
All Vehicles		2166	2.9	2233	2.9	0.917	21.8	LOS C	24.4	623.4	0.72	0.87	1.48	27.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
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Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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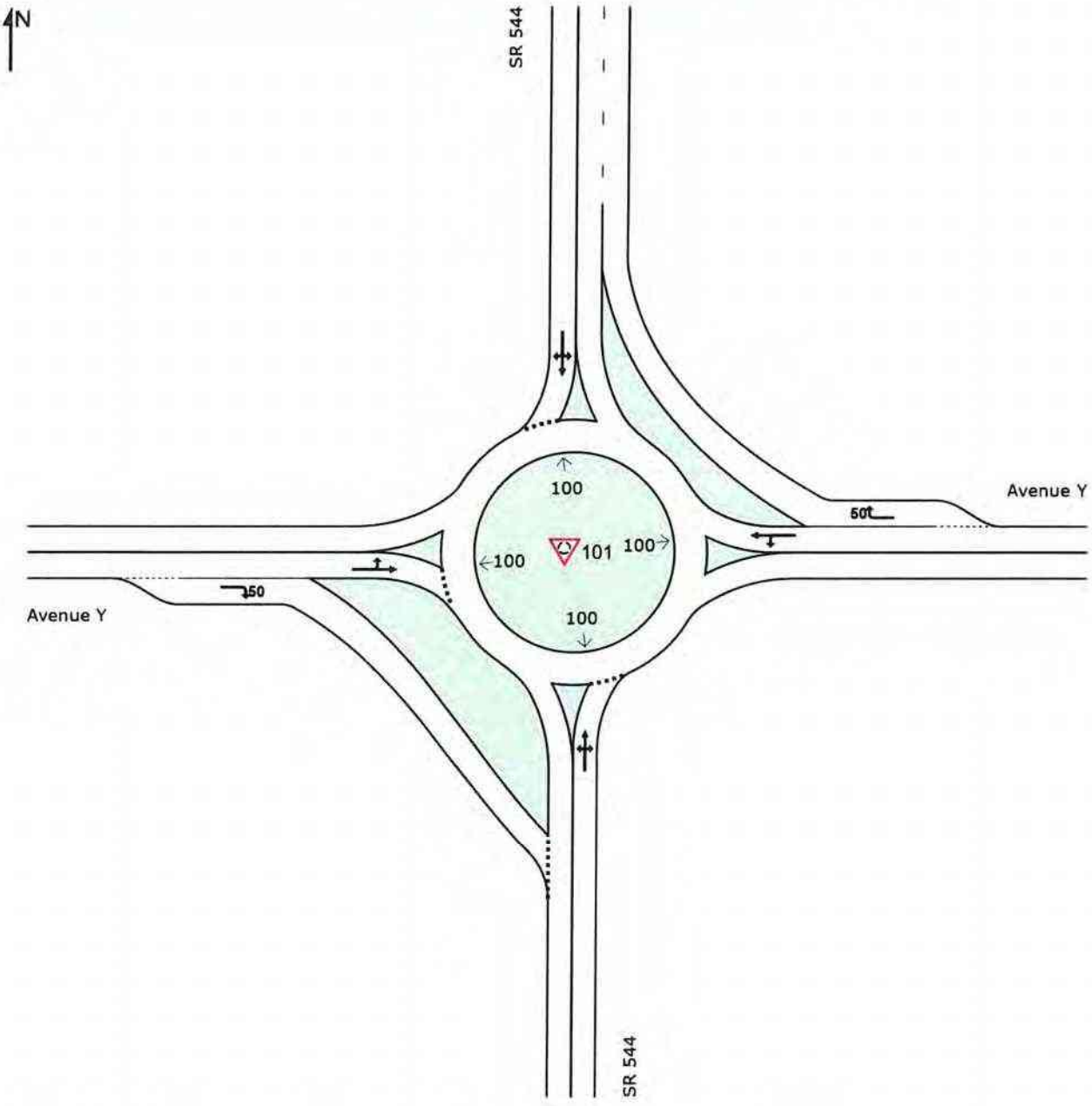
SITE LAYOUT

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Interim Year (2031) AM Peak Hour - Mini-Roundabout
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings



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Constrained NB Volumes

MOVEMENT SUMMARY

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Interim Year (2031) AM Peak Hour - Mini-Roundabout
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: SR 544														
3	L2	14	3.0	15	3.0	0.618	12.7	LOS B	6.6	172.6	0.71	0.76	1.04	31.4
8	T1	519	5.0	546	5.0	0.618	12.8	LOS B	6.6	172.6	0.71	0.76	1.04	31.4
18	R2	27	2.0	28	2.0	0.618	12.7	LOS B	6.6	172.6	0.71	0.76	1.04	30.6
Approach		560	4.8	589	4.8	0.618	12.8	LOS B	6.6	172.6	0.71	0.76	1.04	31.4
East: Avenue Y														
1	L2	23	2.0	24	2.0	0.041	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.2
6	T1	51	2.0	54	2.0	0.041	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
16	R2	156	2.0	164	2.0	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
Approach		230	2.0	242	2.0	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
North: SR 544														
7	L2	98	2.0	103	2.0	1.081	68.4	LOS F	115.3	2981.9	1.00	1.50	2.42	17.7
4	T1	876	5.0	922	5.0	1.081	68.5	LOS F	115.3	2981.9	1.00	1.50	2.42	17.7
14	R2	259	3.0	273	3.0	1.081	68.4	LOS F	115.3	2981.9	1.00	1.50	2.42	17.4
Approach		1233	4.3	1298	4.3	1.081	68.5	LOS F	115.3	2981.9	1.00	1.50	2.42	17.6
West: Avenue Y														
5	L2	151	3.0	159	3.0	0.391	12.8	LOS B	1.7	44.6	0.71	0.79	0.96	29.8
2	T1	50	3.0	53	3.0	0.391	12.8	LOS B	1.7	44.6	0.71	0.79	0.96	29.8
12	R2	12	3.0	13	3.0	0.021	6.3	LOS A	0.1	1.8	0.59	0.52	0.59	33.4
Approach		213	3.0	224	3.0	0.391	12.4	LOS B	1.7	44.6	0.71	0.77	0.94	30.0
All Vehicles		2236	4.1	2354	4.1	1.081	42.1	LOS E	115.3	2981.9	0.80	1.09	1.68	22.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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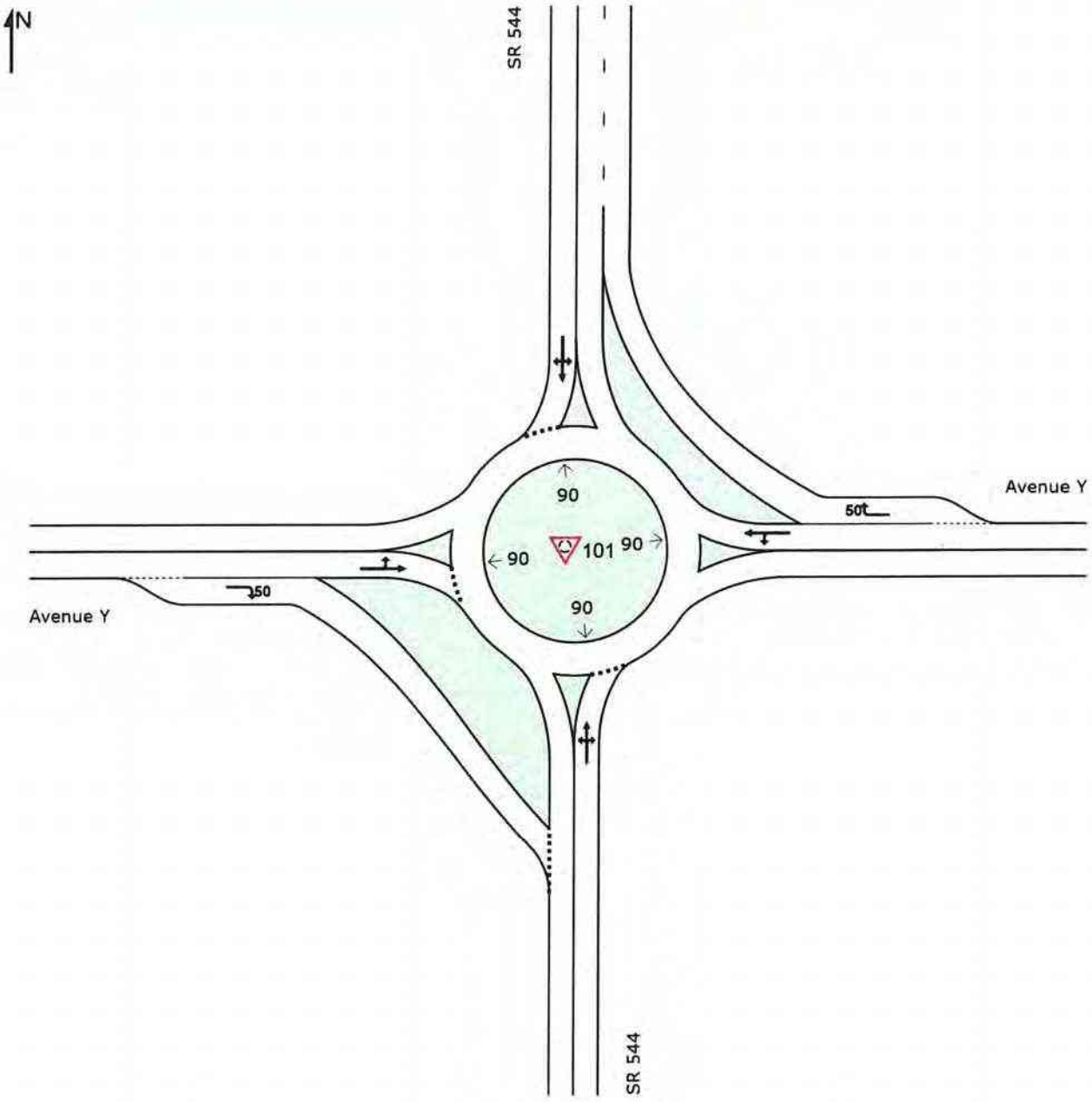
SITE LAYOUT

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Interim Year (2031) PM Peak Hour - Mini-Roundabout
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Constrained NB volumes

MOVEMENT SUMMARY

Site: 101 [SR 544/Avenue Y Intersection (Site Folder: General)]

Interim Year (2031) PM Peak Hour - Mini-Roundabout
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: SR 544														
3	L2	14	3.0	14	3.0	0.985	51.5	LOS F	30.7	785.4	1.00	2.09	3.97	20.3
8	T1	687	3.0	708	3.0	0.985	51.5	LOS F	30.7	785.4	1.00	2.09	3.97	20.3
18	R2	43	2.0	44	2.0	0.985	51.5	LOS F	30.7	785.4	1.00	2.09	3.97	20.0
Approach		744	2.9	767	2.9	0.985	51.5	LOS F	30.7	785.4	1.00	2.09	3.97	20.3
East: Avenue Y														
1	L2	11	2.0	11	2.0	0.027	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.2
6	T1	40	2.0	41	2.0	0.027	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.2
16	R2	98	2.0	101	2.0	0.062	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.0
Approach		149	2.0	154	2.0	0.062	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
North: SR 544														
7	L2	161	2.0	166	2.0	0.852	20.8	LOS C	15.1	386.8	0.78	0.39	0.78	27.8
4	T1	745	3.0	768	3.0	0.852	20.9	LOS C	15.1	386.8	0.78	0.39	0.78	27.8
14	R2	128	3.0	132	3.0	0.852	20.9	LOS C	15.1	386.8	0.78	0.39	0.78	27.2
Approach		1034	2.8	1066	2.8	0.852	20.9	LOS C	15.1	386.8	0.78	0.39	0.78	27.7
West: Avenue Y														
5	L2	291	3.0	300	3.0	0.619	19.2	LOS C	4.1	104.0	0.80	1.00	1.45	27.2
2	T1	51	3.0	53	3.0	0.619	19.2	LOS C	4.1	104.0	0.80	1.00	1.45	27.2
12	R2	30	3.0	31	3.0	0.047	5.9	LOS A	0.2	4.2	0.57	0.52	0.57	33.4
Approach		372	3.0	384	3.0	0.619	18.1	LOS C	4.1	104.0	0.78	0.96	1.38	27.6
All Vehicles		2299	2.8	2370	2.8	0.985	29.0	LOS D	30.7	785.4	0.80	1.01	1.86	25.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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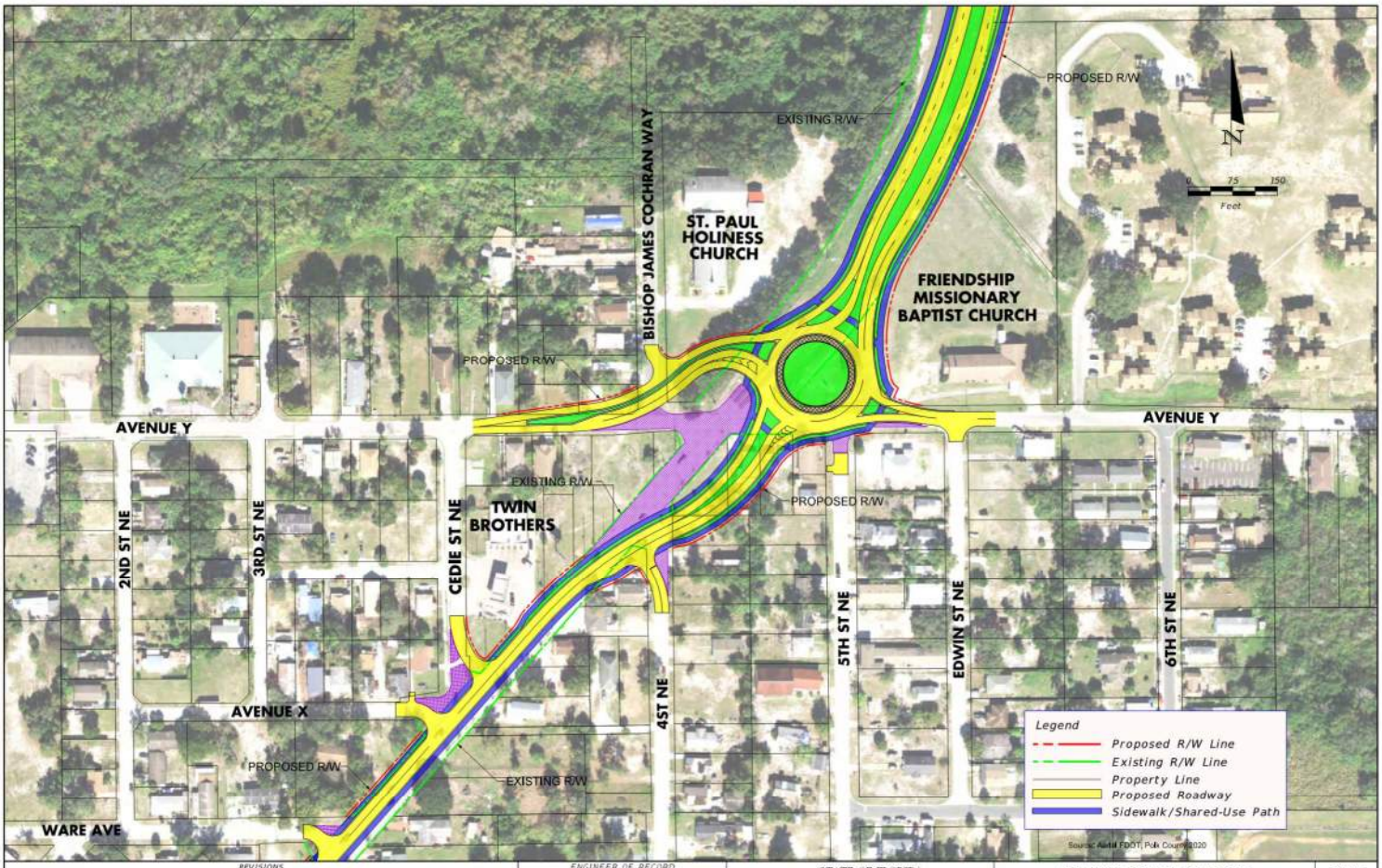
Appendix E

Preliminary Geometric Concepts



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
AVENUE Y
TWO LANE ROUNDABOUT

SHEET NO. 1

gpanaccione

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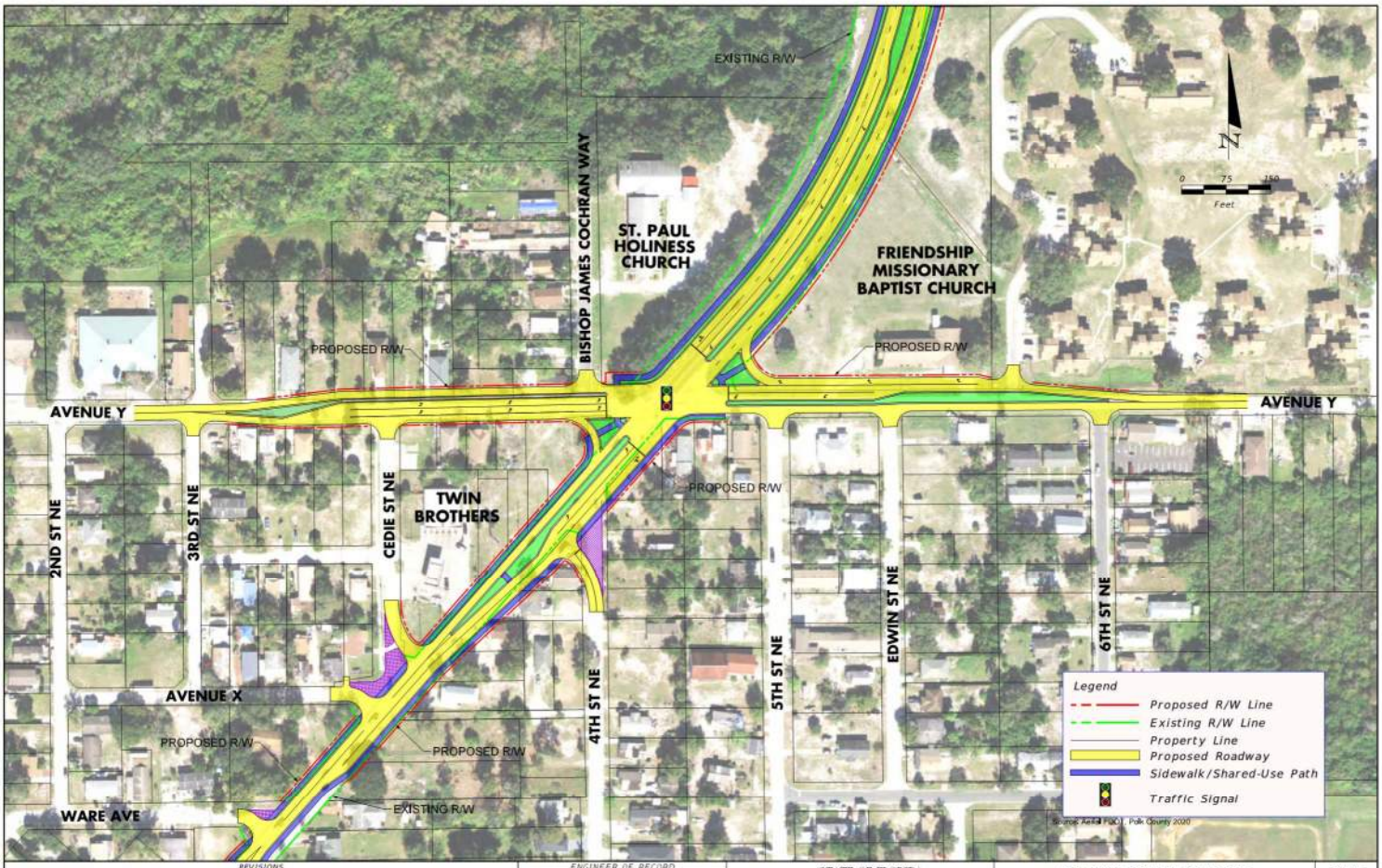

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DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
AVENUE Y
MAXIMIZED SIGNAL

SHEET NO. 1

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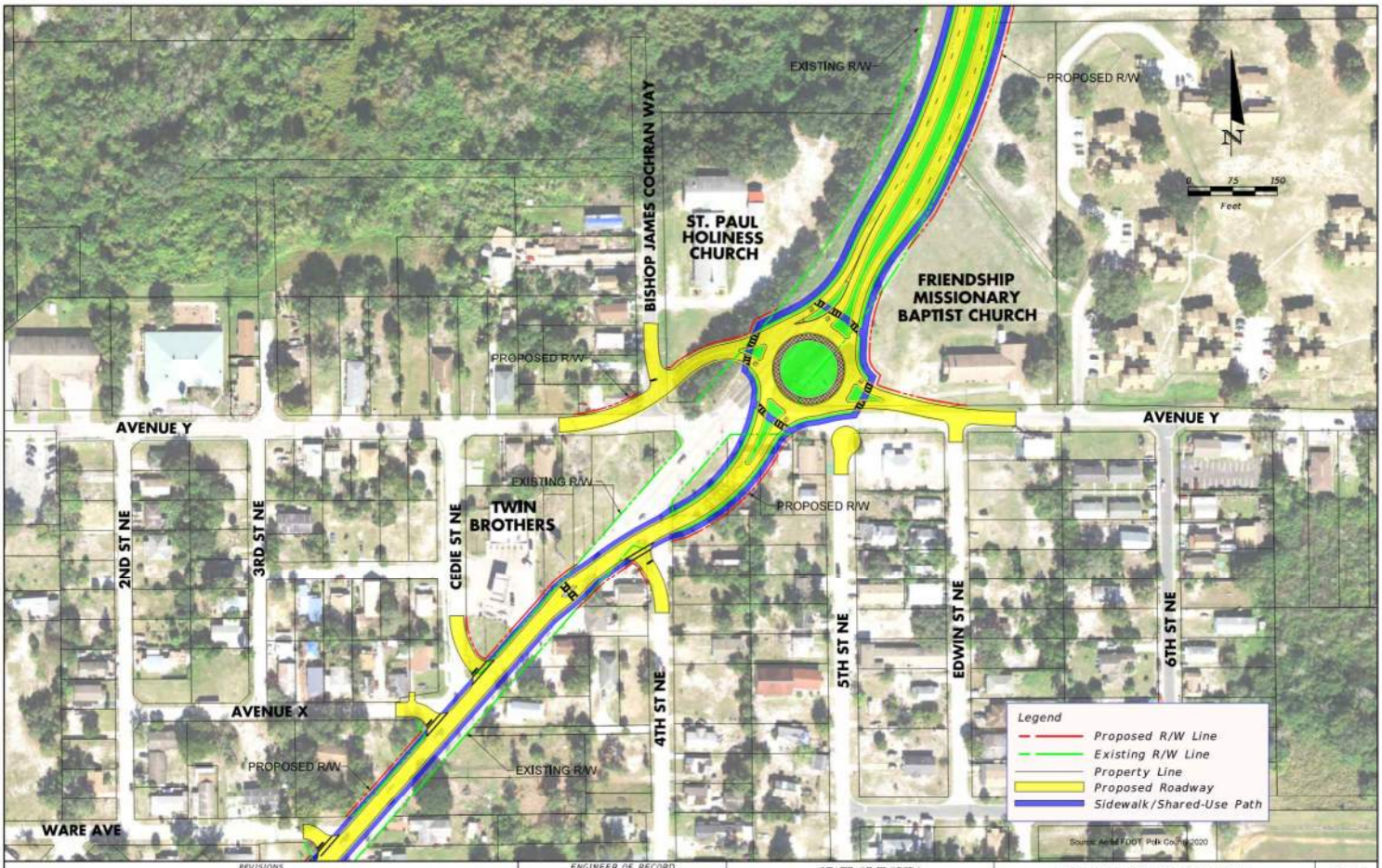

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DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
AVENUE Y
SINGLE LANE ROUNDABOUT

SHEET NO. 1

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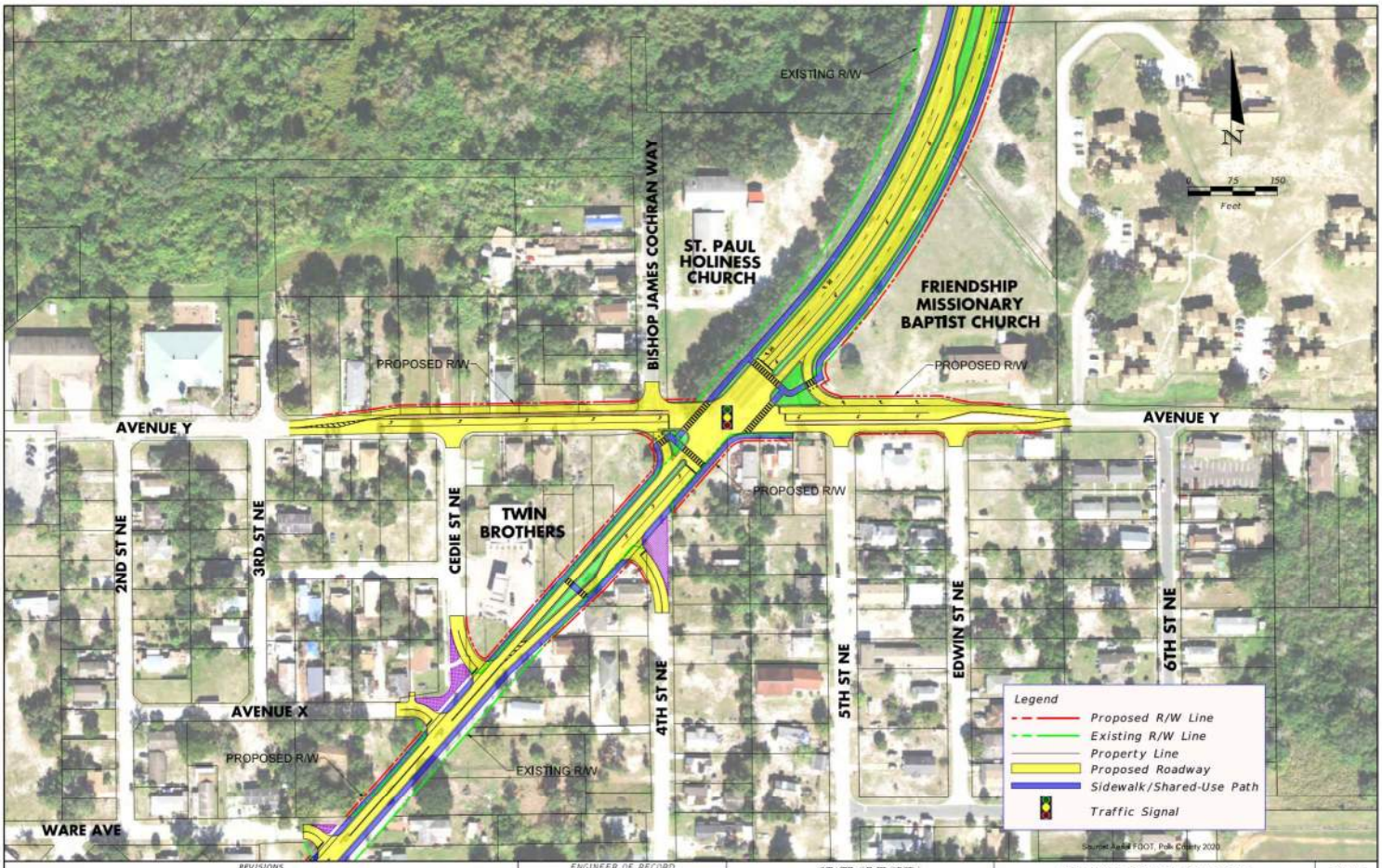

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DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
AVENUE Y
MINIMIZED SIGNAL

SHEET NO. 1

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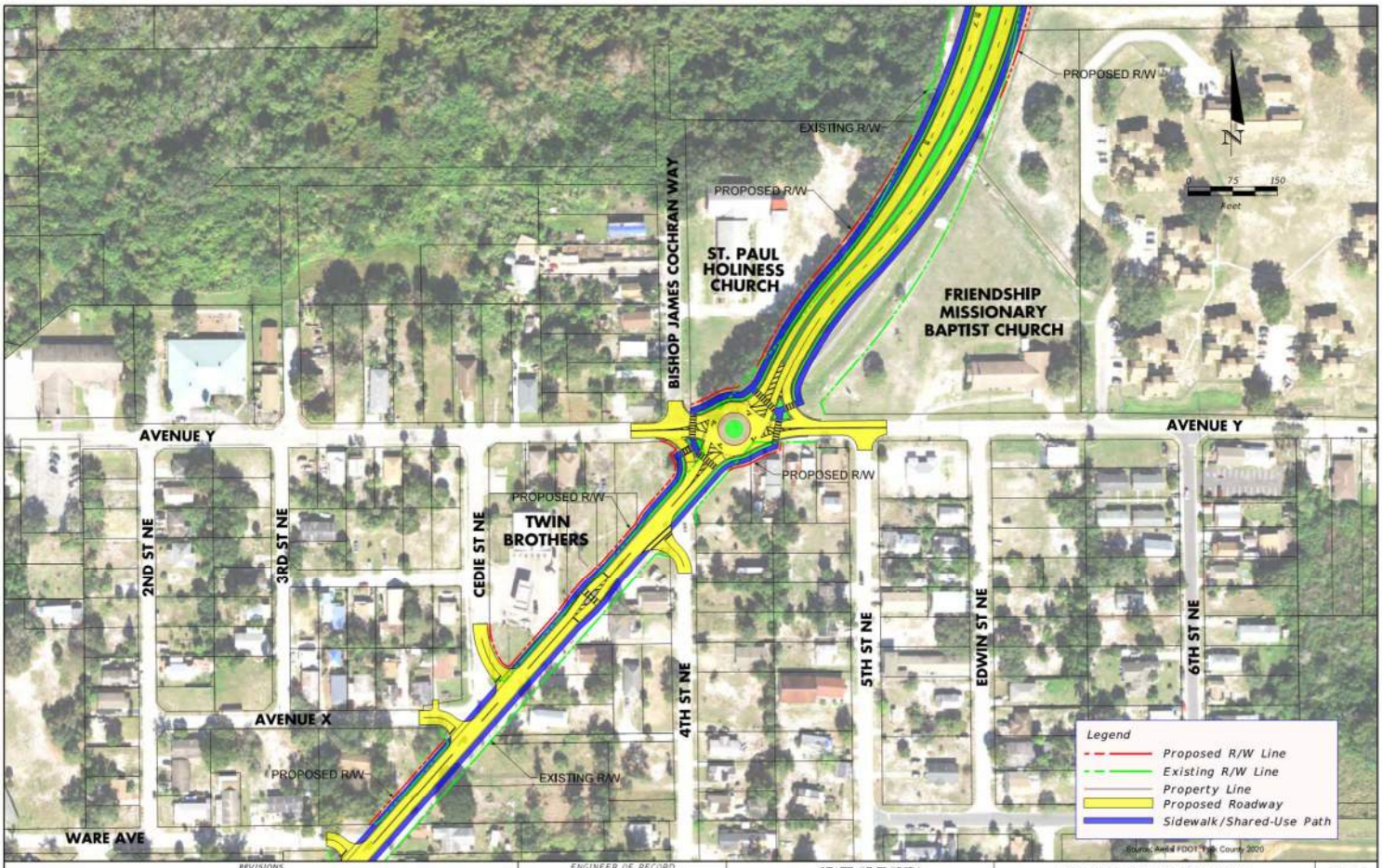


REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
AVENUE Y
MINI-ROUNDABOUT

SHEET NO. 1

CERTIFICATION

AGENCY: Florida Department of Transportation District One
801 North Broadway Avenue
Bartow, Florida 33831-1249

I hereby certify that I am a registered professional engineer in the State of Florida and that I have supervised the preparation of, and approved the analysis, findings, opinions, conclusions and technical advice hereby reported for:

REPORT: SR 544/Lake Hamilton Drive Intersection Control Evaluation (ICE) - Stage 1

PROJECT: SR 544 Project Development and Environment (PD&E) Study

LOCATION: SR 544 from Martin Luther King Boulevard to SR 17
Polk County, Florida

ROADWAY ID: 16140000

MILEPOST No: 9.156

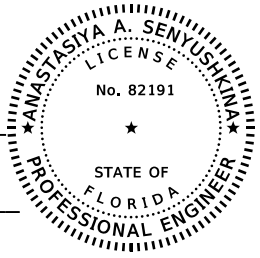
FPID No.: 440273-1-22-01

I acknowledge that the procedures and references used to develop the information contained in this memorandum are standard to the professional practice of transportation engineering as applied through professional judgement and experience.

Engineer in Responsible Charge: Anastasiya A. Senyushkina

Professional Registration No.: 82191

Date: 12/13/2022



Anastasiya A Senyushkina 2022.12.13 16:29:05-05'00'

AIM Engineering & Surveying, Inc.

MEMORANDUM

Tampa Office
201 E. Kennedy Boulevard, Suite 1800
Tampa, Florida 33602
813-627-4144
www.aimengr.com

Date:	December 13, 2022
To:	David C. Turley, P.E. – FDOT District One DEMO Project Manager Abra Horne – FDOT District One Planning and Environmental Administrator
From:	Greg Root/Anastasiya Senyushkina, P.E.
Subject:	SR 544/Lake Hamilton Drive Intersection (Polk County) — Stage 1+ Intersection Control Evaluation

INTRODUCTION/PROJECT BACKGROUND

This memorandum documents the Intersection Control Evaluation (ICE) conducted for the Lake Hamilton Drive intersection. This analysis was conducted in support of the SR 544 Project Development & Environment (PD&E) Study from Martin Luther King Boulevard to SR 17 in Polk County. The length of this study corridor is approximately 8.1 miles. This memorandum documents the Stage 1 CAP-X and SPICE analyses, as well as the more detailed traffic operations analyses conducted using the SYNCHRO software. The opening year (2025) and design year (2045) Average Annual Daily Traffic (AADT) volumes documented in the FDOT approved Project Traffic Analysis Report (PTAR) are provided in **Appendix A**, along with the 2045 a.m. and p.m. peak hour volumes documented in this same report.

EXISTING INTERSECTION CHARACTERISTICS

This intersection is a four-legged two-way stop control intersection and Lake Hamilton Drive is the southern leg. Lake Hamilton Drive extends from Country Club Drive to SR 544, a distance of approximately 2.8 miles and provides access to single family homes. There is a commercial strip center (i.e., Park Place) located in the southwest quadrant of the intersection and a trucking company (i.e., Moeller Trucking) located in the southeast quadrant. Park Place has driveways on both SR 544 and Lake Hamilton Drive. The only access to/from Moeller Trucking is via Lake Hamilton Drive. This roadway also provides access to several other light industrial businesses. The northern leg of this intersection is East Street and provides the only access to Fairview Village, a small mobile home community. Two-way circulation currently exists within Fairview Village. The Lake Hamilton Drive intersection is located approximately 110 feet west of Sunrise Drive/Sunset Drive, which provides the only access to/from Lakeside Ranch, a slightly larger mobile home community located on the north side of SR 544. One-way (counterclockwise) circulation currently exists within Lakeside Ranch. There are no connections between Fairview Village and Lakeside Ranch. Lake Hamilton Drive, East Street and Sunrise Drive/Sunset Drive all intersect SR 544 at 90-degree angles; however, there is a horizontal curve on SR 544 approximately 400 feet to the west of Lake Hamilton Drive. An aerial image depicting the Lake Hamilton Drive intersection is provided in **Figure 1**, while **Figure 2** provides an aerial of the surrounding area. Both of these aerials are included in **Appendix A**.

The posted speed limit on SR 544 in the vicinity of the intersection is 50 miles per hour (mph). The posted speed limit on Lake Hamilton Drive is 45 mph. The posted speed limit within the mobile home communities is 15 mph. SR 544 is a two-lane undivided roadway with 12-foot travel lanes and 5-foot paved shoulders on the west side of Lake Hamilton Drive. There are no paved shoulders on the east side of Lake Hamilton Drive. There are no sidewalks in the immediate vicinity of the intersection.

Crash data was provided by District One for the years 2014 through 2019. The data sources were the FDOT's Crash Analysis Reporting System (CARS) and Signal Four Analytics. The crash data is included in **Appendix A**. This intersection has experienced 16 crashes over this period, resulting in six injuries and no fatalities. Five of these crashes were left-turn/angle crashes. There were no bicycle or pedestrian crashes.

INTERSECTION CONTROL EVALUATION

The PD&E study goals are to determine the location and conceptual design of the improvement(s) that satisfy the purpose and need for the project, while also minimizing the impacts to the natural and social environment and satisfying the requirements of the National Environmental Policy Act (NEPA). The proposed SR 544 typical section in this area is a four-lane divided roadway that consists of two 11-foot inside travel lanes, two 12-foot outside travel lanes, a 22-foot raised median and 10-foot shared use paths on both sides of the road. The design speed and target speed is 45 mph.

An evaluation was conducted using the October 2019 traffic count data provided by District One to determine whether these volumes satisfy Traffic Signal Warrant No. 1 of the Manual on Uniform Traffic Control Devices. The results indicated the eight highest hourly volumes did satisfy Condition B (Interruption of Continuous Traffic) of Warrant No. 1. This evaluation is provided in **Appendix B**.

The following alternative intersection control strategies were initially analyzed for this intersection:

- Two-way stop control
- All-way stop control
- Conventional traffic signal
- Unsignalized Restricted Crossing U-Turn (RCUT) intersection
- Signalized RCUT intersection
- Median U-Turn (MUT) intersection
- Unsignalized Thru-Cut
- Signalized Thru-Cut
- Two-lane (SR 544) x one-lane (East Street) roundabout
- Two-lane x two-lane roundabout

The results of the CAP-X and SPICE analyses are summarized in **Table 1**. The CAP-X and SPICE analysis summary sheets for this intersection are provided in **Appendix C**. Based on the high v/c ratios estimated for the two-way stop control, all-way stop control, unsignalized RCUT, and unsignalized thru-cut intersections, these alternatives were eliminated from any further consideration. The roundabout alternatives were also eliminated from further consideration due to right-of-way impacts. The implementation of this type of improvement would result in right-of-way impacts to either the Park Place and Moeller Trucking parking lots (on the south side of SR 544) or Fairview Village (on the north side of SR 544).

Table 1: Stage 1 ICE Analysis Summary - Lake Hamilton Drive Intersection						
	2045 V/C Ratios		Life-Cycle Crashes		SSI Scores	
Intersection Type	AM Peak Hour	PM Peak Hour	Total	Fatal & Injury	Opening Year	Design Year
Two-Way Stop Control	**263.37**	**337.95**	107	46	47	27
All-Way Stop Control	**2.83**	**2.74**	80	33	86	78
Traffic Signal	0.79	0.84	212	76	66	47
Unsignalized RCUT	**4.04**	**4.85**	n/a	n/a	61	43
Signalized RCUT	0.67	0.70	381	77	77	64
Median U-Turn	0.73	0.70	180	53	85	75
Unsignalized Thru-Cut	**212.55**	**305.71**	n/a	n/a	68	50
Signalized Thru-Cut	0.86	0.92	n/a	n/a	80	65
Roundabout (2EW x 1NS)	0.95	0.99	218	42	86	79
Roundabout (2 x 2)	0.89	0.93	218	42	86	79
Red font denotes a v/c ratio > 1.00						
Lowest number of crashes of all alternatives analyzed						
n/a = No Safety Performance Function (SPF) available						

Design year peak hour SYNCHRO analyses were conducted for the four signalized alternatives. These results are summarized in **Table 2**. All four alternatives are projected to operate at Level of Service C overall during the a.m. peak hour. In the p.m. peak hour, three of the four alternatives are also projected to operate at Level of Service C overall during the p.m. peak hour. The conventional traffic signal (i.e., signalized full median opening) is projected to operate at Level of Service D overall. The design year SYNCHRO analysis summary sheets are provided in **Appendix D**.

Table 2: Design Year (2045) Peak Hour Operational Analysis Summary - Lake Hamilton Drive Intersection

AM Peak Hour

Intersection Approach	Signalized FMO			Signalized RCUT			Signalized Thru-Cut			Signalized MUT		
	Max V/C [1]	Avg. Delay	LOS	Max V/C [1]	Avg. Delay	LOS	Max V/C [1]	Avg. Delay	LOS	Max V/C [1]	Avg. Delay	LOS
Northbound	0.65	21.3	C	0.67	33.0	C	0.59	23.5	C	0.85	54.9	D
Southbound	0.06	41.8	D	0.01	0.0	A	0.03	0.2	A	0.02	19.5	B
Westbound	0.85	22.0	C	0.96	30.1	C	0.85	23.4	C	0.98	32.3	C
Eastbound	0.98	42.7	D	0.89	23.0	C	0.96	38.2	D	0.88	20.3	C
Overall	0.87	30.7	C	0.75	27.3	C	0.81	29.6	C	0.87	28.6	C

PM Peak Hour

Intersection Approach	Signalized FMO			Signalized RCUT			Signalized Thru-Cut			Signalized MUT		
	Max V/C [1]	Avg. Delay	LOS	Max V/C [1]	Avg. Delay	LOS	Max V/C [1]	Avg. Delay	LOS	Max V/C [1]	Avg. Delay	LOS
Northbound	0.66	25.5	C	0.58	29.2	C	0.53	28.1	C	0.83	53.8	D
Southbound	0.05	44.6	D	0.01	0.0	A	0.03	0.2	A	0.01	22.0	C
Westbound	0.99	22.8	C	0.79	18.7	B	0.88	19.1	B	0.82	15.1	B
Eastbound	1.01	48.8	D	0.97	32.3	C	0.97	40.5	D	0.94	24.1	C
Overall	0.92	35.4	D	0.79	25.8	C	0.89	29.9	C	0.86	22.0	C

[1] *Highest volume-to-capacity ratio for the individual movements on this approach*

The signalized RCUT, Thru-Cut and MUT intersections all require u-turn movements to be made on SR 544. These u-turn movements would be made at the Old Lucerne Park Road intersection (west of Lake Hamilton Drive) and the Hide-A-Way Lane intersection (east of Lake Hamilton Drive). Most of these alternatives would result in u-turn volumes less than or equal to 60 vehicles during both peak hours; however, the u-turn volumes at the Old Lucerne Park Road intersection are projected to be equal to 185 vehicles (in the a.m. peak hour) and 209 vehicles (in the p.m. peak hour) with the signalized MUT intersection. Although the design year eastbound-to-westbound u-turn volumes for the RCUT

alternative are approximately 60 vehicles during each peak hour, some of these vehicles are trucks. These trucks would be required to make u-turns at the Hide-A-Way Lane intersection. Hide-A-Way Lane provides the only access to the Hidden Cove retirement community. The mix of older drivers and trucks at this intersection was viewed as a potential safety issue that should be avoided (if another alternative was available). Also, it appears that additional right-of-way would need to be acquired from the WEL Companies property located in the northwest quadrant of this intersection, to accommodate the truck u-turn movements.

RECOMMENDED INTERSECTION CONTROL STRATEGY

The signalized Thru-Cut intersection is recommended for the SR 544/Lake Hamilton Drive intersection for the PD&E phase only. This intersection control strategy eliminates the north/south through movements across the intersection, eliminates the need for trucks to make u-turn movements east and west of the intersection, avoids the situation where truck u-turn movements would be co-located with outbound left-turn movements made from the Hidden Cove 55+ residential community, and minimizes the total u-turn volumes. This control strategy also eliminates the need to acquire right-of-way in the northwest quadrant of the Hide-A-Way Lane intersection and has the second highest SSI scores of the four signalized alternatives. It should be noted that a Benefit/Cost (B/C) analysis and a Net Present Value (NPV) analysis will be conducted during the Stage 2 final design ICE analysis. This analysis will be conducted for a conventional signalized intersection, a signalized Thru-Cut intersection and a signalized RCUT intersection.

A geometric improvement concept was developed for the recommended PD&E control strategy, and this is provided in **Appendix E**. The recommended PD&E improvement concept also includes a reconfiguration of the inbound and outbound access for the Fairview Village and Lakeside Ranch mobile home communities. The two separate entrance/exit roadways providing access to these residential communities are combined to provide one single entrance/exit. This single access point eliminates the two existing access points that are separated by a distance of approximately 110 feet. This will eliminate the need for eastbound SR 544 vehicles and northbound Lake Hamilton Drive vehicles that are destined for Lakeside Ranch to travel approximately 0.25 miles to the east of Lake Hamilton Drive and make a u-turn. This will also eliminate the need for southbound vehicles exiting Lakeside Ranch to cross two lanes on westbound SR 544 in approximately 50 feet to turn left onto Lake Hamilton Drive or make a u-turn to head east on SR 544.

Appendix A

Existing Geometry, Existing/Future Year Traffic Volumes and Historic Crash Data

Figure 1: Existing SR 544 / Lake Hamilton Drive Intersection

Figure 2: Surrounding Land Uses

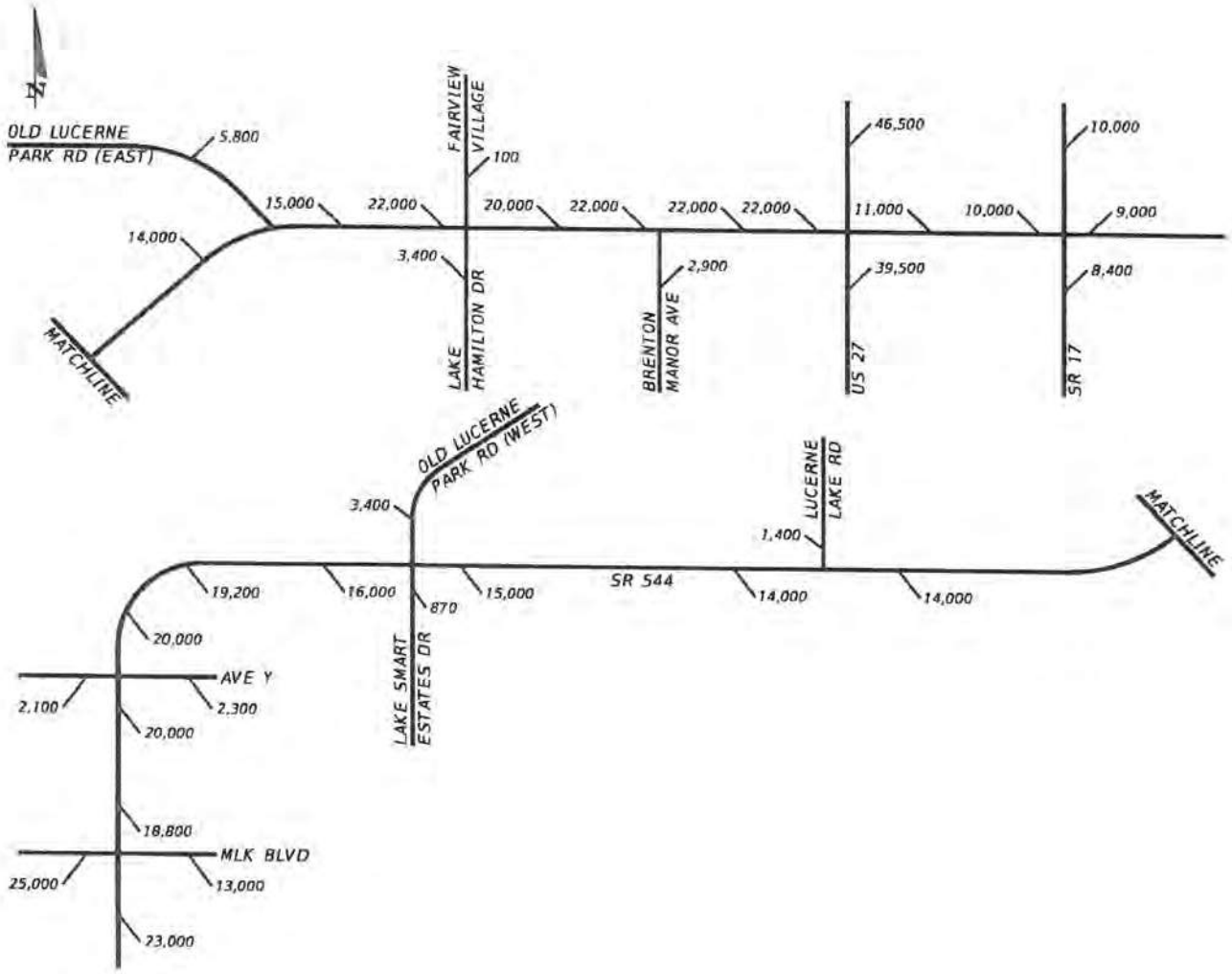


Figure 2-2: Existing (2019) AADT Volumes

Table 2-2: Twenty-Four Hour Volume Counts and Existing (2019) AADT Volumes (SR 544 Mainline)

Location	Date	Count	SF [1]	AF [2]	AADT [3]	Growth Factor	2019 AADT [4]	2019 AADT [5]	2019 AADT [6]	Average	Final 2019 AADT
South of M. L. King Boulevard [7]	4/17/2018	21,686	0.96	0.95	19,778	1.0319	20,409	20,000	23,000	21,500	**23,000** [8]
North of M. L. King Boulevard [7]	4/17/2018	17,212	0.96	0.95	15,697	1.0319	16,198	16,000	18,800	17,400	**18,800** [9]
South of Avenue Y [7]	2/16/2016	19,748	0.96	0.97	18,389	1.0988	20,206	20,000	n/a		**20,000**
North of Avenue Y [7]	2/16/2016	19,936	0.96	0.97	18,564	1.0988	20,399	20,000	n/a		**20,000**
South of Lake Conine Drive									19,200		**19,200**
West of Old Lucerne Park Road (west end) [7]	1/9/2018	16,214	1.01	0.94	15,394	1.0577	16,282	16,000	n/a		**16,000**
East of Old Lucerne Park Road (west end) [7]	1/9/2018	15,212	1.01	0.94	14,442	1.0543	15,226	15,000	n/a		**15,000**
West of Lucerne Lake Road	10/1/2019	14,506	1.03	0.94	14,045	1.0000	14,045	14,000	14,000	14,000	**14,000**
East of Lucerne Lake Road	10/1/2019	14,608	1.03	0.94	14,143	1.0000	14,143	14,000	n/a		**14,000**
West of Old Lucerne Park Road (east end) [7]	1/9/2018	18,070	1.01	0.94	17,156	1.0706	18,367	18,000	14,000	16,000	**14,000** [10]
East of Old Lucerne Park Road (east end) [7]	1/9/2018	14,682	1.01	0.94	13,939	1.0706	14,923	15,000	n/a		**15,000**
West of Lake Hamilton Drive/Fairview Village	10/1/2019	22,630	1.03	0.94	21,910	1.0000	21,910	22,000	n/a		**22,000**
East of Lake Hamilton Drive/Fairview Village	10/1/2019	20,472	1.03	0.94	19,821	1.0000	19,821	20,000	n/a		**20,000**
West of Brenton Manor Avenue	10/1/2019	23,035	1.03	0.94	22,302	1.0000	22,302	22,000	n/a		**22,000**
East of Brenton Manor Avenue	10/1/2019	23,127	1.03	0.94	22,392	1.0000	22,392	22,000	n/a		**22,000**
West of Hide-A-Way Lane (Hidden Cove Entr)									21,000		**21,000**
West of US 27	10/1/2019	22,701	1.03	0.94	21,979	1.0000	21,979	22,000	n/a		**22,000**
East of US 27	10/1/2019	10,954	1.03	0.94	10,606	1.0000	10,606	11,000	11,000	11,000	**11,000**
West of SR 17	10/1/2019	10,500	1.03	0.94	10,166	1.0000	10,166	10,000	n/a		**10,000**
East of SR 17	10/1/2019	9,534	1.03	0.94	9,231	1.0000	9,231	9,200	8,800	9,000	**9,000**

[1] SF = Weekly Seasonal Adjustment Factor
[2] AF = Axle Adjustment Factor
[3] AADT = Count x SF x AF
[4] 2019 AADT = AADT x Growth Factor
[5] 2019 AADT (rounded)
[6] 2019 AADT obtained from the FDOT Florida Traffic Online website
[7] Approach count only at this location. The two-way volume was assumed to be equal to twice the approach volume.
[8] FDOT count station value was used because the AADT volume has been greater than 21,000 vpd for the last five years.
[9] FDOT count station value was used because the AADT volume has been greater than 16,000 vpd for the last five years.
[10] FDOT count station value was used because the 2018 AADT volume at this permanent count station was equal to 13,600 vpd.

Table 2-3: Twenty-Four Hour Volume Counts and Existing (2019) AADT Volumes (SR 544 Cross Streets)

Location	Date	Count	SF [1]	AF [2]	AADT [3]	Growth Factor	2019 AADT [4]	2019 AADT [5]	2019 AADT [6]	Average	Final 2019 AADT
M. L. King Boulevard West of SR 544 [7]	4/17/2018	26,560	0.96	0.95	24,223	1.0319	24,995	25,000	25,000	25,000	**25,000**
M. L. King Boulevard East of SR 544 [7]	4/17/2018	13,582	0.96	0.95	12,387	1.0319	12,782	13,000	13,500	13,250	**13,000**
Avenue Y West of SR 544 [7]	2/16/2016	1,960	0.96	1.00	1,882	1.0988	2,068	2,100	n/a		**2,100**
Avenue Y East of SR 544 [7]	2/16/2016	2,174	0.96	1.00	2,087	1.0988	2,293	2,300	n/a		**2,300**
Old Lucerne Park Road (west end) North of SR 544[7]	1/9/2018	3,206	1.01	0.98	3,173	1.0560	3,351	3,400	n/a		**3,400**
Lake Smart Estates Drive South of SR 544[7]	1/9/2018	862	1.01	1.00	871	1.0000	871	870	n/a		**870**
Lucerne Lake Road North of SR 544	10/1/2019	1,730	1.03	0.81	1,443	1.0000	1,443	1,400	n/a		**1,400**
Old Lucerne Park Road (east end) North of SR 544[7]	1/9/2018	5,454	1.01	0.98	5,398	1.0706	5,779	5,800	n/a		**5,800**
Fairview Village North of SR 544	10/1/2019	96	1.03	1.00	99	1.0000	99	100	n/a		**100**
Lake Hamilton Drive South of SR 544	10/1/2019	3,344	1.03	1.00	3,444	1.0000	3,444	3,400	n/a		**3,400**
Brenton Manor Avenue South of SR 544	10/1/2019	2,916	1.03	0.98	2,943	1.0000	2,943	2,900	n/a		**2,900**
US 27 North of SR 544	10/1/2019	45,009	1.04	0.94	44,001	1.0000	44,001	44,000	46,500	45,250	**46,500** [8]
US 27 South of SR 544	10/1/2019	34,554	1.04	0.94	33,780	1.0000	33,780	34,000	39,500	36,750	**39,500** [9]
SR 17 North of SR 544	10/1/2019	10,764	1.03	0.95	10,533	1.0000	10,533	11,000	9,700	10,350	**10,000**
SR 17 South of SR 544	10/1/2019	8,680	1.03	0.95	8,493	1.0000	8,493	8,500	8,300	8,400	**8,400**

Note: Red font denotes assumed values used for this study.

[1] SF = Weekly Seasonal Adjustment Factor
[2] AF = Axle Adjustment Factor
[3] AADT = Count x SF x AF
[4] 2019 AADT = AADT x Growth Factor
[5] 2019 AADT (rounded)
[6] 2019 AADT obtained from the FDOT Florida Traffic Online website
[7] Approach count only at this location. The two-way volume was assumed to be equal to twice the approach volume.
[8] FDOT count station value was used because the AADT volume has been greater than 44,000 vpd for the last four years.
[9] FDOT count station value was used because the AADT volume has been greater than 34,000 vpd for four of the last five years.

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2021 HISTORICAL AADT REPORT

COUNTY: 16 - POLK

SITE: 3106 - SR 544 W OF HIDDEN COVE, 0.5 MI W OF SR 25/US 27

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2021	25000 C	E 12500	W 12500	9.00	55.30	10.00
2020	19900 C	E 10000	W 9900	9.00	53.40	8.40
2019	21000 C	E 10500	W 10500	9.00	56.00	7.60
2018	21000 C	E 10500	W 10500	9.00	54.50	9.40
2017	19500 C	E 9800	W 9700	9.00	54.50	8.80
2016	16900 C	E 8400	W 8500	9.00	53.30	10.70
2015	16100 C	E 7900	W 8200	9.00	55.70	9.30
2014	15000 S	E 7500	W 7500	9.00	55.60	9.50
2013	14800 F	E 7400	W 7400	9.00	55.90	9.50
2012	14800 C	E 7400	W 7400	9.00	55.80	9.50
2011	15900 S	E 7900	W 8000	9.00	55.70	9.10
2010	16100 F	E 8000	W 8100	9.55	56.07	9.20
2009	16300 C	E 8100	W 8200	9.36	56.35	9.20
2008	14800 C	E 7300	W 7500	9.78	55.29	10.40
2007	16300 C	E 8200	W 8100	9.66	55.30	10.30
2006	16500 C	E 8300	W 8200	9.62	55.83	9.70

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

Table 3-17: SR 544 Cross Streets Existing and Future Year Peak Hour Truck Percentages

Intersection	Movement	AM Peak Hour (7:15 - 8:15)			PM Peak Hour (4:45 -5:45)			Avg. Truck %	2025/2045 Truck %
		Total Volume	Truck Volume	Truck %	Total Volume	Truck Volume	Truck %		
Martin Luther King Blvd	NB LT	269	7	2.6%	299	0	0.0%		
	NB TH	275	11	4.0%	413	3	0.7%		
	NB RT	119	1	0.8%	139	0	0.0%		
	NB APPROACH	663	19	2.9%	851	3	0.4%	1.6%	2.0%
	WB LT	134	5	3.7%	113	2	1.8%		
	WB TH	462	10	2.2%	366	6	1.6%		
	WB RT	14	2	14.3%	9	0	0.0%		
	WB APPROACH	610	17	2.8%	488	8	1.6%	2.2%	2.0%
	EB LT	208	12	5.8%	243	13	5.3%		
	EB TH	330	7	2.1%	409	9	2.2%		
	EB RT	419	6	1.4%	309	3	1.0%		
	EB APPROACH	957	25	2.6%	961	25	2.6%	2.6%	3.0%
Avenue Y[1]	WB LT	17	0	0.0%	13	0	0.0%		
	WB TH	15	0	0.0%	17	0	0.0%		
	WB RT	25	1	4.0%	34	1	2.9%		
	WB APPROACH	57	1	1.8%	64	1	1.6%	1.7%	2.0%
	EB LT	19	2	10.5%	36	2	5.6%		
	EB TH	10	1	10.0%	14	0	0.0%		
	EB RT	8	0	0.0%	28	0	0.0%		
	EB APPROACH	37	3	8.1%	78	2	2.6%	2.6%[2]	3.0%
Old Lucerne Park Rd (West End)	NB TH	0	0	0.0%	N/A	N/A	N/A		
	NB RT	14	0	0.0%	N/A	N/A	N/A		
	NB APPROACH	14	0	0.0%	N/A	N/A	N/A	0.0%[3]	0.0%
	SB LT	3	0	0.0%	N/A	N/A	N/A		
	SB TH	1	0	0.0%	N/A	N/A	N/A		
	SB RT	149	4	2.7%	N/A	N/A	N/A		
	SB APPROACH	153	4	2.6%	N/A	N/A	N/A	2.6%[3]	3.0%
Lucerne Lake Rd	SB LT	16	11	68.8%	17	8	47.1%		
	SB RT	25	9	36.0%	24	8	33.3%		
	SB APPROACH	41	20	48.8%	41	16	39.0%	43.9%	44.0%
Old Lucerne Park Rd (Eest End)[4]	SB LT	174	13	7.5%	126	8	6.3%		
	SB RT	4	0	0.0%	4	0	0.0%		
	SB APPROACH	178	13	7.3%	130	8	6.2%	6.7%	7.0%
Lake Hamilton Dr	NB LT	14	1	7.1%	19	1	5.3%		
	NB TH	0	0	0.0%	1	0	0.0%		
	NB RT	134	6	4.5%	105	2	1.9%		
	NB APPROACH	148	7	4.7%	125	3	2.4%	3.6%	4.0%
	SB LT	0	0	0.0%	1	0	0.0%		
	SB TH	0	0	0.0%	0	0	0.0%		
	SB RT	2	0	0.0%	1	0	0.0%		
	SB APPROACH	2	0	0.0%	2	0	0.0%	0.0%	0.0%
Brenton Manor Ave	NB LT	58	5	8.6%	65	2	3.1%		
	NB RT	75	5	6.7%	42	0	0.0%		
	NB APPROACH	133	10	7.5%	107	2	1.9%	4.7%	5.0%
US 27	NB LT	238	5	2.1%	165	8	4.8%		
	NB TH	1,075	80	7.4%	1,060	78	7.4%		
	NB RT	76	6	7.9%	110	1	0.9%		
	NB APPROACH	1,389	91	6.6%	1,335	87	6.5%	6.5%	[5]
	SB LT	79	13	16.5%	138	10	7.2%		
	SB TH	762	88	11.5%	1,157	62	5.4%		
	SB RT	500	31	6.2%	541	25	4.6%		
	SB APPROACH	1,341	132	9.8%	1,836	97	5.3%	7.6%	[5]
SR 17	NB LT	79	9	11.4%	61	6	9.8%		
	NB TH	244	6	2.5%	180	5	2.8%		
	NB RT	57	2	3.5%	76	3	3.9%		
	NB APPROACH	380	17	4.5%	317	14	4.4%	4.4%	[5]
	SB LT	55	5	9.1%	77	0	0.0%		
	SB TH	217	10	4.6%	251	6	2.4%		
	SB RT	92	14	15.2%	141	6	4.3%		
	SB APPROACH	364	29	8.0%	469	12	2.6%	5.3%	[5]

[1] *Turning movement count data was not available for the 7:15 to 8:15 a.m. time period. The 8:00 to 9:00 a.m. time period was used for this location.*

[2] *Average peak hour truck percentage not calculated due to disparity in peak hour approach volumes. P.M. peak hour percentage recommended for use.*

[3] *A.M. peak hour percentages only.*

[4] *Turning movement count data was not available for the 4:45 to 5:45 p.m. time period. The 4:00 to 5:00 p.m. time period was used for this location.*

[5] *Alternate methodologies were used to derve the recommended a.m. and p.m. peak hour truck percentages for US 27 and SR 17.*

A review of the existing a.m. and p.m. peak hour truck volumes indicates that, with one exception, the a.m. peak hour volumes are higher than the p.m. peak hour volumes. The ratio of the a.m. and p.m. peak hour truck volume was calculated for each location and then the overall average ratio for the study corridor was calculated. The average overall ratio was equal to 1.50. A revised estimate of the 2025 and 2045 a.m. peak hour truck volumes was obtained by multiplying the initial estimate of the 2025 and 2045 a.m. peak hour truck volumes by 1.50. The revised 2025 and 2045 a.m. peak hour truck volumes are also provided in **Table 3-9** and Table 3-10. The final recommended 2045 and 2025 peak hour truck volumes and percentages are provided in **Table 3-11** and **Table 3-12**, respectively. Based on these assumptions, the following SR 544 mainline peak hour truck percentages (i.e., T_{PkHr}-factors) are recommended for use in the SR 544 PD&E study:

Opening Year (2025) – AM Peak Hour

- 5.6% from Martin Luther King Boulevard to US 27
- 9.6% from US 27 to SR 17

Opening Year (2025) – PM Peak Hour

- 3.7% from Martin Luther King Boulevard to US 27
- 6.4% from US 27 to SR 17

Design Year (2045) – AM Peak Hour

- 4.5% from Martin Luther King Boulevard to US 27
- 8.1 % from US 27 to SR 17

Design Year (2045) – PM Peak Hour

- 3.0% from Martin Luther King Boulevard to US 27
- 5.4 % from US 27 to SR 17

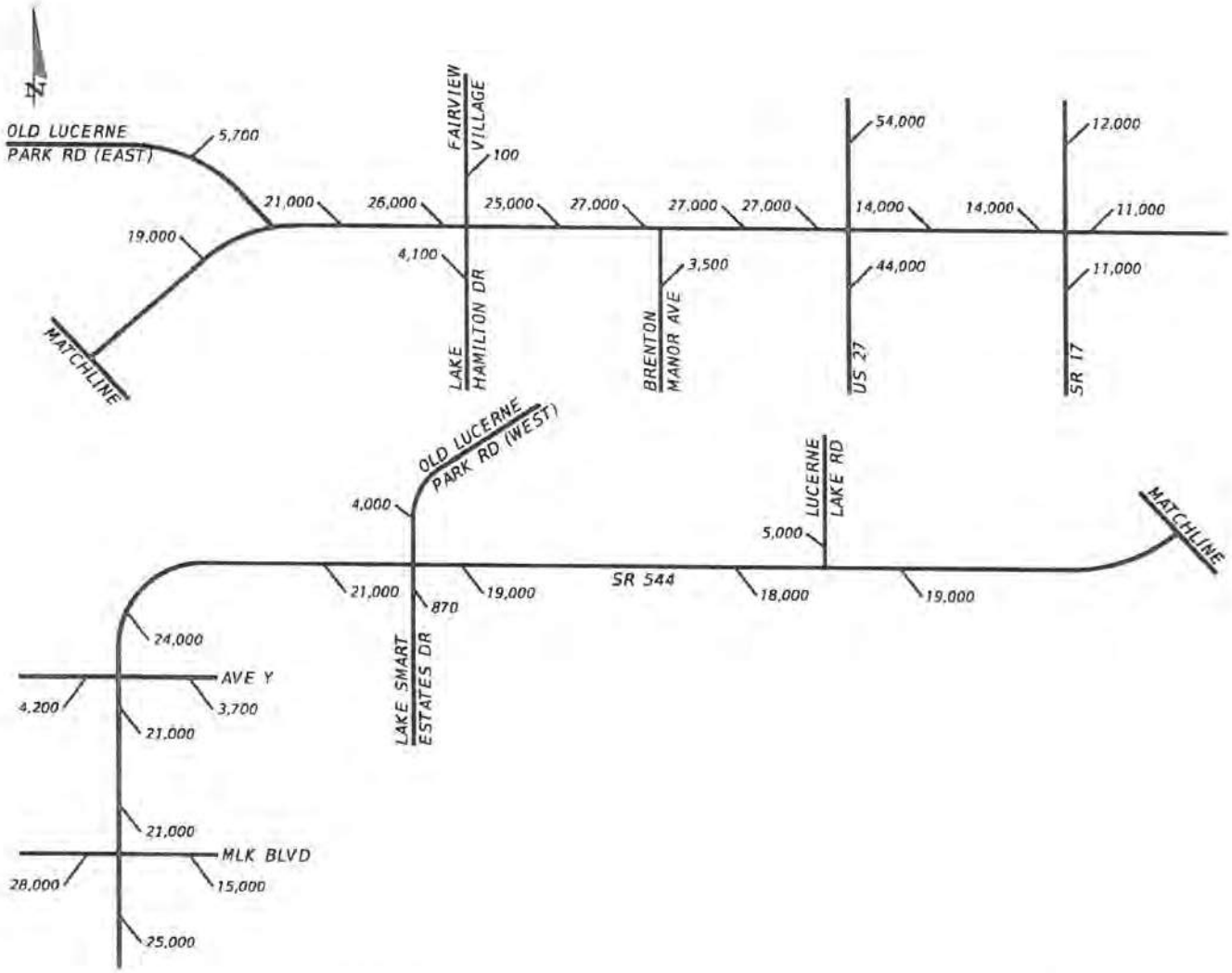


Figure 3-11: Opening Year (2025) AADT Volumes –Build Alternative No. 2

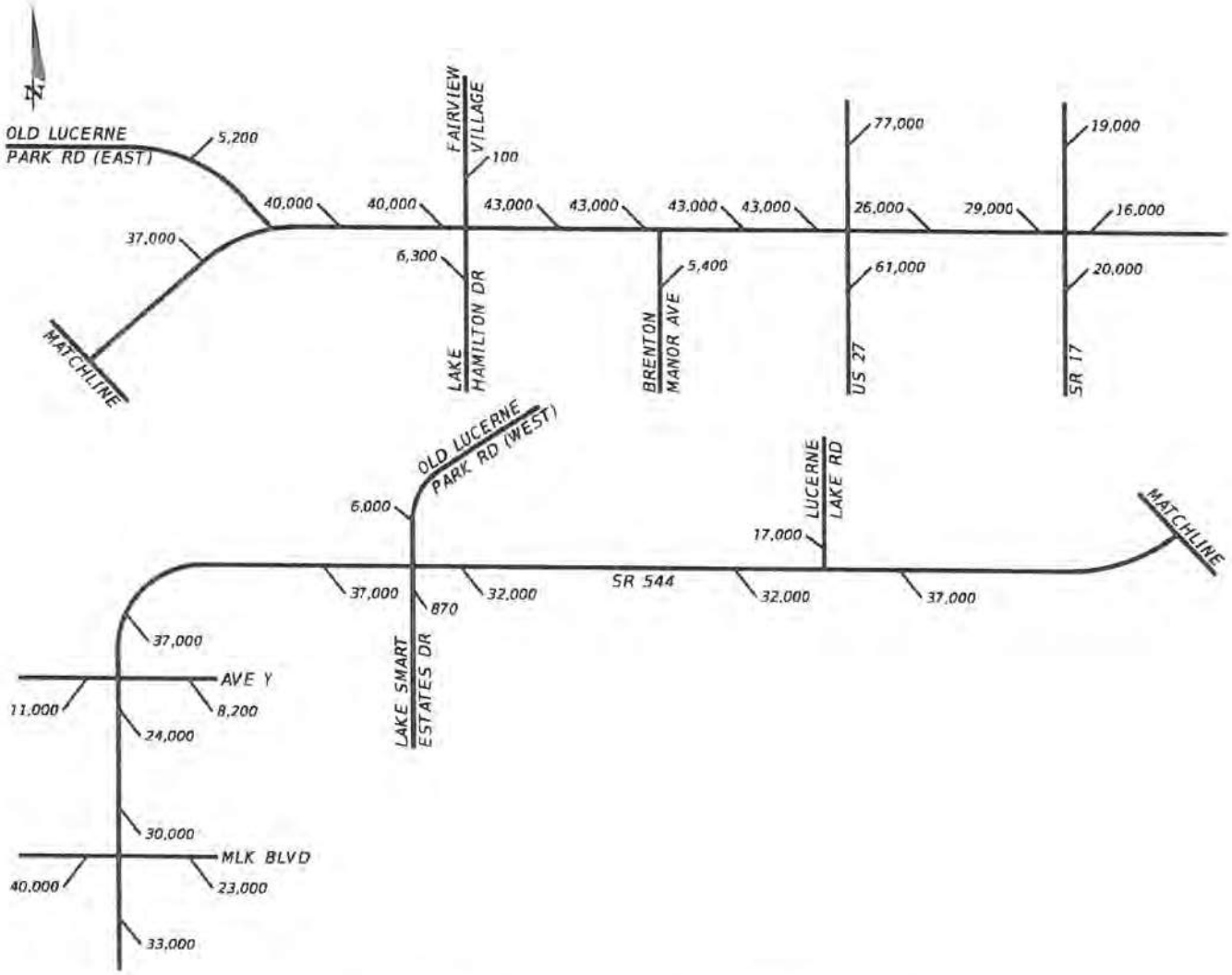


Figure 3-7: Design Year (2045) AADT Volumes – Build Alternative No. 2

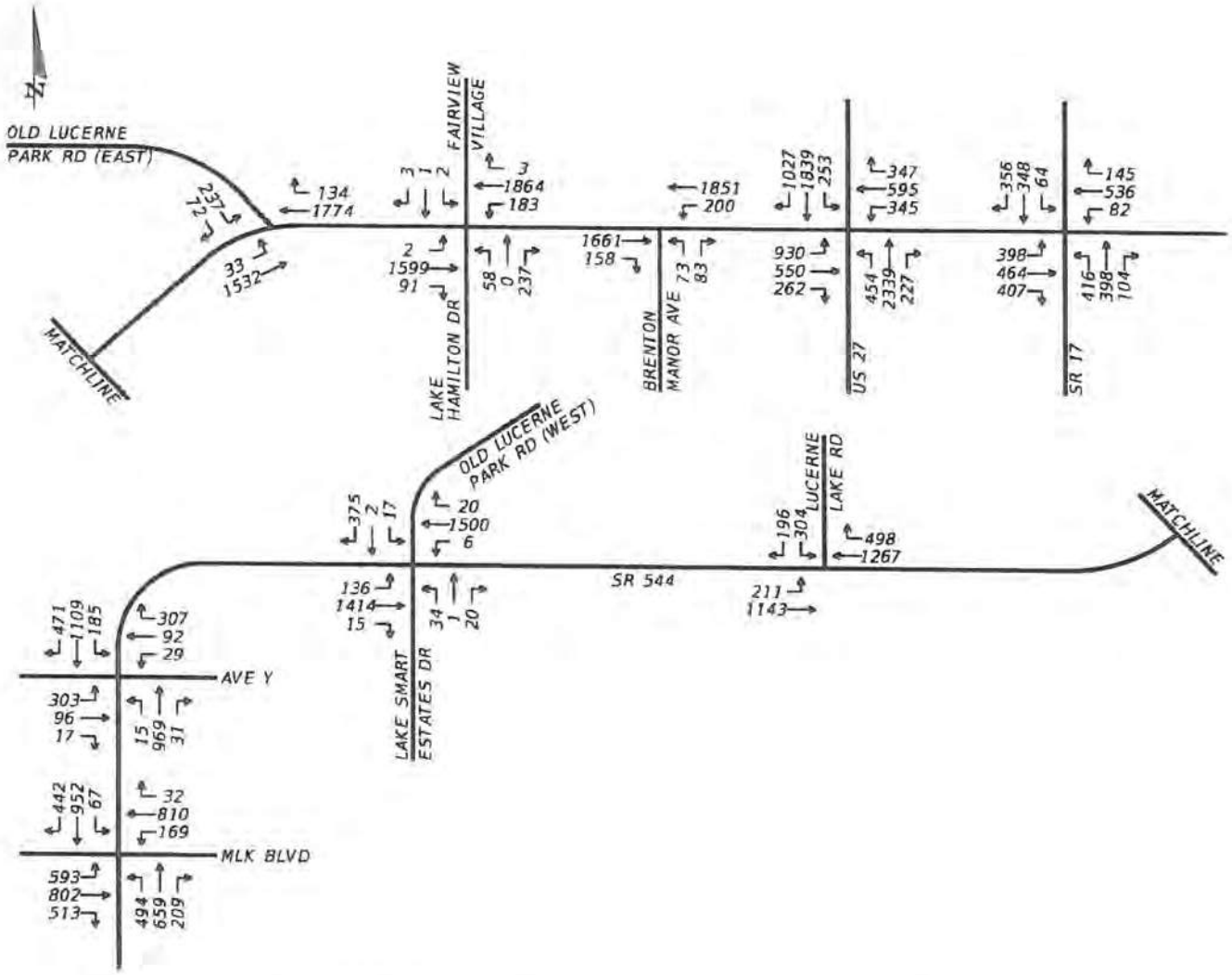


Figure 3-21: Design Year (2045) A.M. Peak Hour Intersection Volumes – Build Alternative No. 2

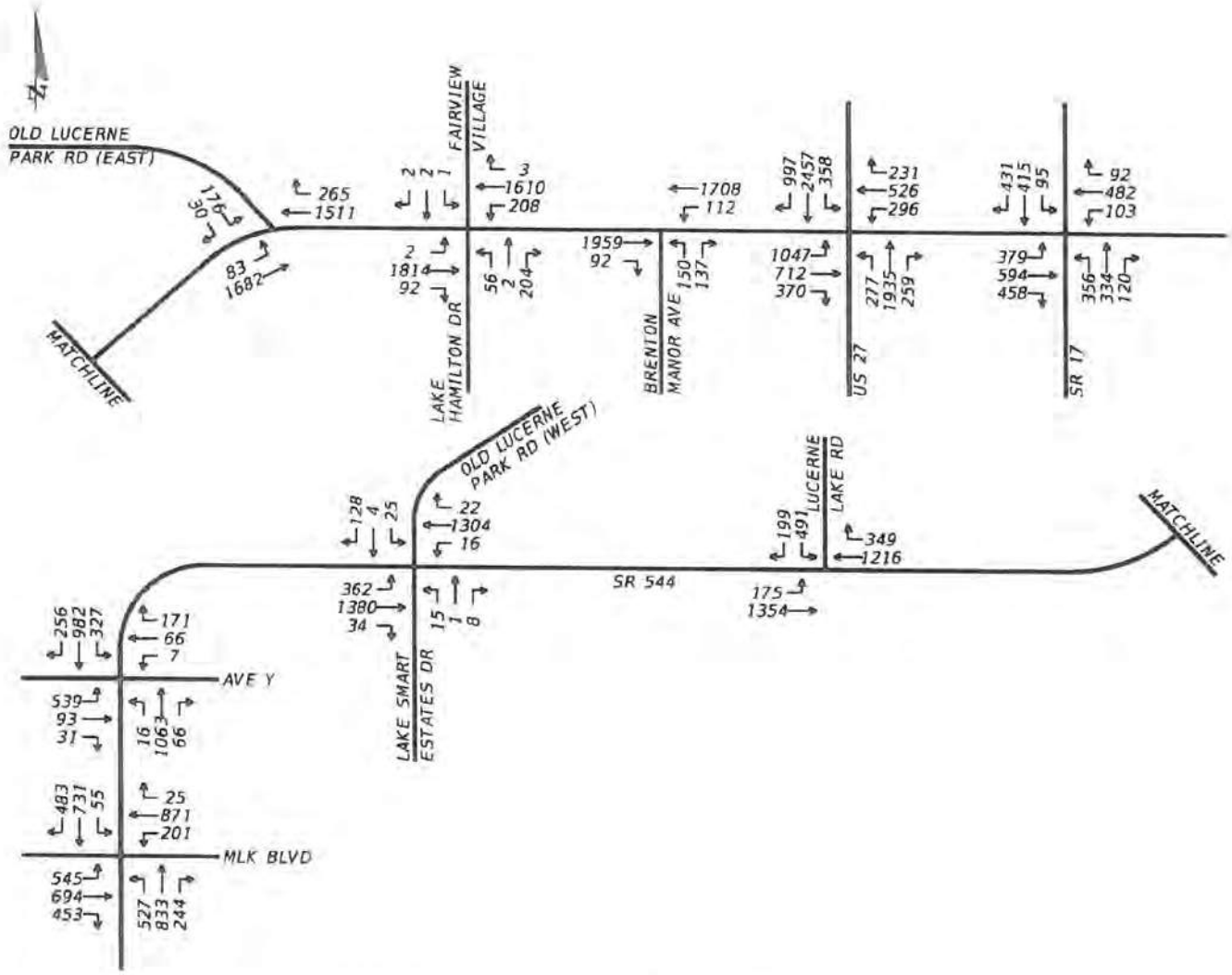


Figure 3-22: Design Year (2045) P.M. Peak Hour Intersection Volumes – Build Alternative No. 2

LAKE HAMILTON DRIVE INTERSECTION

DESIGN YEAR (2045) PEAK HOUR APPROACH TRUCK PERCENTAGES

AM PEAK HOUR								
EB LT		EB TH		EB RT		EB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
2	0.00	1599	0.05	91	0.04	1692	83.59	4.9%
WB LT		WB TH		WB RT		WB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
183	0.04	1864	0.05	3	0.00	2050	100.52	4.9%
NB LT		NB TH		NB RT		NB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
58	0.04	0	0.00	237	0.04	295	11.8	4.0%
PM PEAK HOUR								
EB LT		EB TH		EB RT		EB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
2	0.00	1814	0.03	92	0.04	1908	58.1	3.0%
WB LT		WB TH		WB RT		WB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
208	0.04	1610	0.03	3	0.00	1821	56.62	3.1%
NB LT		NB TH		NB RT		NB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
56	0.04	2	0.00	204	0.04	262	10.4	4.0%

HSMV_Rep	Agency_Re	Reporting_	Form_Type	Crash_Date	Crash_Tim	City	County	Crash_Street	Intersecting_Street	Offset_Dis	Offset_Dir	Crash_Typ	Vehicles	Non_Motorist	Fatalities	Injuries	Alcohol_Re	Distraction	Drug_Relat	Estimated_
84998054	2015-0555	Winter Ha	Long	9/18/2015	2:45 PM	Winter Ha	Polk	SR544	LAKE HAMILTON DR W	0		Left Turn	3	0	0	0	N	N	N	$6,500
85386994	FHPC16OF	FHP	Long	12/22/2016	5:48 PM	Auburndal	Polk	STATE ROAD 544 (LUCERNE PAR	W LAKE HAMILTON DRIVE	25	East	Rear End	2	0	0	0	N	Y	N	$4,000
86443202	2016-0215	Polk Co SO	Long	5/11/2016	5:19 PM	Unincorpo	Polk	LAKE HAMLITON DR	LUCERNE PARK RD	0	North	Left Turn	2	0	0	0	N	N	N	$3,000
86444167	2016-0413	Polk Co SO	Long	9/6/2016	10:12 PM	Winter Ha	Polk	LUCERN PARK RD	LAKE HAMILTON RD	0	East	Other	2	0	0	0	N	N	N	$2,000
86445048	2016-0418	Polk Co SO	Long	9/10/2016	3:35 PM	Unincorpo	Polk	LAKE HAMILTON DRIVE WEST	LUCERNE PARK RD	0	North	Other	1	0	0	0	N	N	N	$20,000
86938244	2017-0187	Polk Co SO	Long	4/22/2017	11:45 AM	Unincorpo	Polk	LUCERNE PARK RD	LAKE HAMILTON DR W	0		Other	2	0	0	1	N	N	N	$7,000
86938443	2017-0317	Polk Co SO	Long	7/12/2017	2:10 PM	Unincorpo	Polk	LAKE HAMILTON DR W	SR 544 (LUCERNE PARK RD)	10	South	Rear End	2	0	0	1	N	N	N	$1,100
87333319	2017-0530	Polk Co SO	Long	11/21/2017	12:07 PM	Unincorpo	Polk	SR544 (LUCERNE PARK RD)	LAKE HAMILTON DR W	10	North	Left Turn	2	0	0	0	N	N	N	$9,000
87549903	2018-0166	Winter Ha	Long	3/13/2018	8:48 AM	Unincorpo	Polk	LUCERNE PARK RD	W LAKE HAMILTON DR	0		Other	2	0	0	0	N	N	N	$6,000
87870507	2018-0335	Polk Co SO	Short	7/12/2018	11:20 AM	Unincorpo	Polk	LAKE HAMILTON DR WEST	SR 544 (LUCERNE PARK RD)	0		Other	2	0	0	0	N	N	N	$1,000
88751911	2018-0537	Polk Co SO	Long	11/17/2018	9:35 AM	Unincorpo	Polk	LUCERNE PARK RD	W. LAKE HAMILTON DR.	100	East	Rear End	3	0	0	2	N	N	N	$17,000
88752107	2018-0540	Polk Co SO	Long	11/19/2018	3:30 PM	Unincorpo	Polk	LUCERNE PARK RD	W LAKE HAMILTON DR	20		Unknown	2	0	0	0	N	N	N	$1,000
88752523	2018-0597	Polk Co SO	Long	12/21/2018	12:39 PM	Unincorpo	Polk	LAKE HAMILTON DR W	SR544 (LUCERNE PARK RD)	15	South	Rear End	2	0	0	2	N	N	N	$650
89009685	2019-0233	Polk Co SO	Long	5/17/2019	11:15 AM	Unincorpo	Polk	LUCERNE PARK RD	W. LAKE HAMILTON DR	0		Right Turn	2	0	0	0	N	N	N	$6,000
89010153	2019-0170	Polk Co SO	Long	4/11/2019	4:54 PM	Unincorpo	Polk	LAKE HAMILTON DRIVE	LUCERNE PARK RD	0	North	Head On	3	0	0	0	N	N	N	$600
89372733	2019-0571	Polk Co SO	Short	12/11/2019	1:50 PM	Unincorpo	Polk	SR-544	LAKE HAMILTON DR	0		Right Turn	2	0	0	0	N	N	N	$600

Weather_(	Light_Cond	Street_Nu	Crash_Type_D	Crash_Typ	Crash_Sev	Within_Cit	Manner_of_C	First_Harmful	First_HE_Locati	First_HE_Relat	First_HE_V	Type_of_Inter	Road_Sys_	Type_of_S	Road_Surf	Contrib_Ci	Contrib_Ci	Contrib_Ci	Contrib_Ci	Contrib_Ci	Contrib_Ci	School_Bu	Work_Zon
Clear	Daylight		Left Leaving	N	Property D	Y	Front to Rear	Motor Vehicle	On Roadway	Intersection-R	Y	T-Intersection	State	Unpaved	Dry	None	None					N	N
Clear	Dusk		Rear End	W	Property D	N	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	Not at Intersec	State	Paved	Dry	None	None					N	N
Clear	Daylight		Left Entering	S	Property D	N	Angle	Motor Vehicle	On Roadway	Intersection	N	T-Intersection	Local	Paved	Dry	None	None					N	N
Clear	Dark - Lighted		Parked Vehicle	E	Property D	N	Sideswipe, Op	Motor Vehicle	Off Roadway	Non-Junction	N	Not at Intersec	State	Unpaved	Dry	None	None					N	N
Clear	Daylight		Single Vehicle	N	Property D	N	Unknown	Motor Vehicle	On Roadway	Non-Junction	N	Not at Intersec	Local	Paved	Dry	None	None					N	N
Clear	Daylight		Other	N	Injury	N	Angle	Motor Vehicle	On Roadway	Intersection-R	N	Four-Way Inte	County	Paved	Dry	None	None					N	N
Clear	Daylight		Rear End	N	Injury	N	Front to Rear	Motor Vehicle	On Roadway	Intersection-R	N	T-Intersection	Local	Unpaved	Dry	None	None					N	N
Rain	Daylight		Left Entering	N	Property D	N	Angle	Motor Vehicle	On Roadway	Intersection	N	Y-Intersection	State	Unpaved	Wet	None	None					N	N
Clear	Daylight		Other		Property D	Y	Angle	Motor Vehicle	On Roadway	Intersection	N	T-Intersection	Local	Unpaved	Dry	None	None					N	N
Clear	Daylight		Backed Into	N	Property D	N	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	Local	Paved	Dry	None	None					N	N
Clear	Daylight		Rear End	W	Injury	N	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	Not at Intersec	Local	Unpaved	Dry	None	None					N	N
Clear	Daylight		Unknown	S	Property D	N	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	T-Intersection	Local	Paved	Dry	None	None					N	N
Rain	Daylight		Rear End	N	Injury	N	Front to Rear	Motor Vehicle	On Roadway	Non-Junction	N	Not at Intersec	Local	Unpaved	Wet	None	None					N	N
Clear	Daylight		Right/Through	N	Property D	N	Angle	Motor Vehicle	On Roadway	Intersection	N	T-Intersection	Local	Unpaved	Dry	None	None					N	N
Clear	Daylight		Head On	NS	Property D	N	Front to Front	Motor Vehicle	On Roadway	Non-Junction	N	Four-Way Inte	County	Paved	Dry	None	None					N	N
Cloudy	Daylight		Right/Through	N	Property D	N	Angle	Motor Vehicle	On Roadway	Intersection	N	T-Intersection	Local	Unpaved	Dry	None	None					N	N

Type_of_V	Loc_in_Wc	Workers_i	Law_Enfor	Mopeds	Motorcycl	Passenger	Bicyclists	Pedestrian	Fatalities_I	Injuries_U
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	2	0	0	0	0
				0	0	0	0	0	0	0
				0	0	1	0	0	0	0
				0	0	1	0	0	0	0
				0	0	1	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	1	0	0	0	0
				0	0	0	0	0	0	0
				0	0	1	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0
				0	0	0	0	0	0	0

Appendix B

Traffic Signal Warrant No. 1 Evaluation

Roadway Count Summary

Vanasse Hangen Brustlin, Inc.

Start Date : October 1, 2019 Start Time 00:00
Stop Date : October 2, 2019 Stop Time 24:00
County : Polk
Location : SR 544, West of Lake Hamilton Drive

1-Oct-19 **Eastbound Volume for Lane 1**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	28	19	21	31	31	67	127	195	185	147	143	173
30	14	16	17	17	24	74	186	231	163	140	158	173
45	16	14	23	29	42	102	164	245	170	160	171	163
00	20	18	17	32	40	118	188	222	183	121	128	154
Hr Total	**78**	**67**	**78**	**109**	**137**	**361**	**665**	**893**	**701**	**568**	**600**	**663**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	189	174	176	172	171	222	160	111	94	69	48	42
30	151	170	174	206	168	249	149	124	104	78	44	28
45	177	192	176	164	196	211	142	106	73	70	48	32
00	152	179	176	201	186	186	131	130	64	61	37	31
Hr Total	**669**	**715**	**702**	**743**	**721**	**868**	**582**	**471**	**335**	**278**	**177**	**133**

24 Hour Total : 11,314
AM Peak Hour begins : 7:00 AM Peak Volume : 893 AM Peak Hour Factor : 0.91
PM Peak Hour begins : 16:45 PM Peak Volume : 868 PM PeaK Hour Factor : 0.87

1-Oct-19 **Westbound Volume for Lane 2**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	31	21	11	21	19	28	89	183	224	137	147	169
30	36	22	19	31	27	50	115	187	186	146	148	146
45	30	19	23	40	39	57	110	200	197	163	149	174
00	19	12	15	37	45	77	146	173	136	139	125	179
Hr Total	**116**	**74**	**68**	**129**	**130**	**212**	**460**	**743**	**743**	**585**	**569**	**668**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	139	157	213	195	211	226	186	128	125	89	65	42
30	179	158	172	185	184	217	186	132	110	82	48	39
45	152	172	200	190	201	255	145	115	107	97	57	35
00	159	160	191	185	229	198	127	123	89	67	54	43
Hr Total	**629**	**647**	**776**	**755**	**825**	**896**	**644**	**498**	**431**	**335**	**224**	**159**

24 Hour Total : 11,316
AM Peak Hour begins : 7:15 AM Peak Volume : 784 AM Peak Hour Factor : 0.88
PM Peak Hour begins : 16:45 PM Peak Volume : 927 PM PeaK Hour Factor : 0.91

1-Oct-19 **Total Volume for All Lanes**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	59	40	32	52	50	95	216	378	409	284	290	342
30	50	38	36	48	51	124	301	418	349	286	306	319
45	46	33	46	69	81	159	274	445	367	323	320	337
00	39	30	32	69	85	195	334	395	319	260	253	333
Hr Total	**194**	**141**	**146**	**238**	**267**	**573**	**1,125**	**1,636**	**1,444**	**1,153**	**1,169**	**1,331**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	328	331	389	367	382	448	346	239	219	158	113	84
30	330	328	346	391	352	466	335	256	214	160	92	67
45	329	364	376	354	397	466	287	221	180	167	105	67
00	311	339	367	386	415	384	258	253	153	128	91	74
Hr Total	**1,298**	**1,362**	**1,478**	**1,498**	**1,546**	**1,764**	**1,226**	**969**	**766**	**613**	**401**	**292**

24 Hour Total : 22,630
AM Peak Hour begins : 7:15 AM Peak Volume : 1,667 AM Peak Hour Factor : 0.94
PM Peak Hour begins : 16:45 PM Peak Volume : 1,795 PM PeaK Hour Factor : 0.96

Roadway Count Summary

Vanasse Hangen Brustlin, Inc.

Start Date : October 1, 2019
Stop Date : October 2, 2019
County : Polk
Location : SR 544, East of Sunset Drive

Start Time 00:00
Stop Time 24:00

1-Oct-19 **Eastbound Volume for Lane 1**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	29	18	18	23	24	60	112	167	164	135	135	165
30	14	14	18	15	21	63	169	203	149	129	146	160
45	15	14	21	22	30	94	125	209	157	149	161	148
00	21	18	16	28	40	101	160	199	163	112	120	139
Hr Total	**79**	**64**	**73**	**88**	**115**	**318**	**566**	**778**	**633**	**525**	**562**	**612**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	173	157	160	151	150	199	151	100	89	66	44	42
30	138	157	164	185	149	233	137	104	95	77	41	24
45	159	166	166	146	178	195	133	94	69	65	47	30
00	135	160	163	181	166	168	121	123	57	59	38	31
Hr Total	**605**	**640**	**653**	**663**	**643**	**795**	**542**	**421**	**310**	**267**	**170**	**127**

24 Hour Total : 10,249
AM Peak Hour begins : 7:00
PM Peak Hour begins : 17:00

AM Peak Volume : 778
PM Peak Volume : 795

AM Peak Hour Factor : 0.93
PM PeaK Hour Factor : 0.85

1-Oct-19 **Westbound Volume for Lane 2**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	27	20	9	19	19	29	83	158	196	131	131	153
30	34	20	17	27	26	48	109	173	171	146	133	147
45	28	17	23	39	37	54	102	171	172	153	139	153
00	18	11	14	35	42	66	128	153	134	126	120	171
Hr Total	**107**	**68**	**63**	**120**	**124**	**197**	**422**	**655**	**673**	**556**	**523**	**624**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	135	144	191	167	185	200	163	117	111	83	49	39
30	155	140	158	158	172	188	159	116	96	79	45	35
45	132	170	177	177	186	228	128	105	100	83	51	32
00	140	143	170	170	204	173	110	106	74	59	52	36
Hr Total	**562**	**597**	**696**	**672**	**747**	**789**	**560**	**444**	**381**	**304**	**197**	**142**

24 Hour Total : 10,223
AM Peak Hour begins : 7:15
PM Peak Hour begins : 16:45

AM Peak Volume : 693
PM Peak Volume : 820

AM Peak Hour Factor : 0.88
PM PeaK Hour Factor : 0.90

1-Oct-19 **Total Volume for All Lanes**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	56	38	27	42	43	89	195	325	360	266	266	318
30	48	34	35	42	47	111	278	376	320	275	279	307
45	43	31	44	61	67	148	227	380	329	302	300	301
00	39	29	30	63	82	167	288	352	297	238	240	310
Hr Total	**186**	**132**	**136**	**208**	**239**	**515**	**988**	**1,433**	**1,306**	**1,081**	**1,085**	**1,236**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	308	301	351	318	335	399	314	217	200	149	93	81
30	293	297	322	343	321	421	296	220	191	156	86	59
45	291	336	343	323	364	423	261	199	169	148	98	62
00	275	303	333	351	370	341	231	229	131	118	90	67
Hr Total	**1,167**	**1,237**	**1,349**	**1,335**	**1,390**	**1,584**	**1,102**	**865**	**691**	**571**	**367**	**269**

24 Hour Total : 20,472
AM Peak Hour begins : 7:15
PM Peak Hour begins : 16:45

AM Peak Volume : 1,468
PM Peak Volume : 1,613

AM Peak Hour Factor : 0.97
PM PeaK Hour Factor : 0.95

Roadway Count Summary

Vanasse Hangen Brustlin, Inc.

Start Date : October 1, 2019 Start Time 00:00
Stop Date : October 2, 2019 Stop Time 24:00
County : Polk
Location : Fairview Village, North of SR 544

1-Oct-19 **Northbound Volume for Lane 1**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	0	0	0	0	0	0	0	0	0	0	3	3
30	0	0	0	0	0	0	0	0	0	1	0	2
45	0	0	0	0	0	0	0	1	0	0	3	1
00	0	0	0	0	0	0	1	0	0	1	0	1
Hr Total	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**2**	**6**	**7**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	2	1	3	3	1	2	0	1	0	0	0	0
30	2	0	0	2	0	0	0	0	0	0	0	0
45	1	2	1	1	1	2	0	0	0	0	0	0
00	0	1	0	0	1	0	0	2	0	0	0	0
Hr Total	**5**	**4**	**4**	**6**	**3**	**4**	**0**	**3**	**0**	**0**	**0**	**0**

24 Hour Total : 46
AM Peak Hour begins : 10:30 AM Peak Volume : 8 AM Peak Hour Factor : 0.67
PM Peak Hour begins : 13:15 PM Peak Volume : 6 PM PeaK Hour Factor : 0.50

1-Oct-19 **Southbound Volume for Lane 2**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	0	0	0	0	0	0	1	0	1	1	1	0
30	0	0	0	0	0	0	0	0	1	2	1	3
45	0	0	0	0	0	0	0	1	3	2	0	2
00	0	0	0	0	0	0	0	0	0	1	2	0
Hr Total	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**5**	**6**	**4**	**5**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	1	1	2	3	1	0	1	0	0	0	0	0
30	3	1	1	2	2	0	0	0	0	0	0	0
45	0	0	0	1	0	0	0	1	0	0	0	0
00	2	0	1	2	1	1	0	1	0	0	0	0
Hr Total	**6**	**2**	**4**	**8**	**4**	**1**	**1**	**2**	**0**	**0**	**0**	**0**

24 Hour Total : 50
AM Peak Hour begins : 10:45 AM Peak Volume : 7 AM Peak Hour Factor : 0.58
PM Peak Hour begins : 15:00 PM Peak Volume : 8 PM PeaK Hour Factor : 0.67

1-Oct-19 **Total Volume for All Lanes**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	0	0	0	0	0	0	1	0	1	1	4	3
30	0	0	0	0	0	0	0	0	1	3	1	5
45	0	0	0	0	0	0	0	2	3	2	3	3
00	0	0	0	0	0	0	1	0	0	2	2	1
Hr Total	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**5**	**8**	**10**	**12**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	3	2	5	6	2	2	1	1	0	0	0	0
30	5	1	1	4	2	0	0	0	0	0	0	0
45	1	2	1	2	1	2	0	1	0	0	0	0
00	2	1	1	2	2	1	0	3	0	0	0	0
Hr Total	**11**	**6**	**8**	**14**	**7**	**5**	**1**	**5**	**0**	**0**	**0**	**0**

24 Hour Total : 96
AM Peak Hour begins : 10:30 AM Peak Volume : 13 AM Peak Hour Factor : 0.65
PM Peak Hour begins : 15:00 PM Peak Volume : 14 PM PeaK Hour Factor : 0.58

Roadway Count Summary

Vanasse Hangen Brustlin, Inc.

Start Date : October 1, 2019 Start Time 00:00
Stop Date : October 2, 2019 Stop Time 24:00
County : Polk
Location : Lake Hamilton Drive, South of SR 544

1-Oct-19 **Northbound Volume for Lane 1**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	2	2	3	9	7	11	21	39	27	23	18	21
30	1	2	0	3	5	12	24	40	32	20	20	24
45	1	0	3	9	13	11	43	46	29	24	19	22
00	2	1	2	6	3	22	32	35	32	12	17	24
Hr Total	**6**	**5**	**8**	**27**	**28**	**56**	**120**	**160**	**120**	**79**	**74**	**91**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	32	21	26	29	29	37	23	20	11	6	4	1
30	18	18	24	34	38	30	16	24	11	8	4	5
45	20	33	27	26	31	27	14	13	10	7	2	3
00	23	23	23	35	31	26	14	11	11	4	2	0
Hr Total	**93**	**95**	**100**	**124**	**129**	**120**	**67**	**68**	**43**	**25**	**12**	**9**

24 Hour Total : 1,659
AM Peak Hour begins : 7:00 AM Peak Volume : 160 AM Peak Hour Factor : 0.87
PM Peak Hour begins : 16:15 PM Peak Volume : 137 PM PeaK Hour Factor : 0.90

1-Oct-19 **Southbound Volume for Lane 2**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	7	2	2	3	0	3	13	36	35	18	26	21
30	3	2	3	5	3	3	14	30	33	12	22	13
45	3	1	1	3	3	6	12	41	42	27	20	27
00	2	2	2	3	5	17	23	32	15	19	17	20
Hr Total	**15**	**7**	**8**	**14**	**11**	**29**	**62**	**139**	**125**	**76**	**85**	**81**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	18	18	28	34	35	38	35	17	19	9	15	4
30	29	22	29	38	33	43	31	20	16	11	4	5
45	24	10	36	20	26	37	22	13	13	16	7	4
00	21	20	30	31	37	35	20	19	19	10	5	7
Hr Total	**92**	**70**	**123**	**123**	**131**	**153**	**108**	**69**	**67**	**46**	**31**	**20**

24 Hour Total : 1,685
AM Peak Hour begins : 7:45 AM Peak Volume : 142 AM Peak Hour Factor : 0.85
PM Peak Hour begins : 16:45 PM Peak Volume : 155 PM PeaK Hour Factor : 0.90

1-Oct-19 **Total Volume for All Lanes**

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	9	4	5	12	7	14	34	75	62	41	44	42
30	4	4	3	8	8	15	38	70	65	32	42	37
45	4	1	4	12	16	17	55	87	71	51	39	49
00	4	3	4	9	8	39	55	67	47	31	34	44
Hr Total	**21**	**12**	**16**	**41**	**39**	**85**	**182**	**299**	**245**	**155**	**159**	**172**

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	50	39	54	63	64	75	58	37	30	15	19	5
30	47	40	53	72	71	73	47	44	27	19	8	10
45	44	43	63	46	57	64	36	26	23	23	9	7
00	44	43	53	66	68	61	34	30	30	14	7	7
Hr Total	**185**	**165**	**223**	**247**	**260**	**273**	**175**	**137**	**110**	**71**	**43**	**29**

24 Hour Total : 3,344
AM Peak Hour begins : 7:00 AM Peak Volume : 299 AM Peak Hour Factor : 0.86
PM Peak Hour begins : 16:45 PM Peak Volume : 280 PM PeaK Hour Factor : 0.93

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Winter Haven	Engineer:	AIM Engineering
County:	16 – Polk	Date:	June 29, 2022
District:	One		

Major Street:	SR 544	Lanes:	1	Major Approach Speed:	50
Minor Street:	Lake Hamilton Dr	Lanes:	1	Minor Approach Speed:	45

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ MAY ☑ 70% ☐ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

*Warrant 1 is satisfied if Condition A **or** Condition B is "100%" satisfied for eight hours.* ☑ Yes ☐ No

*Warrant 1 is also satisfied if both Condition A **and** Condition B are "80%" satisfied (should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems).* ☐ Yes ☑ No

*Warrant 1 is satisfied if Condition A **or** Condition B is "70%" satisfied for eight hours.* ☑ Yes ☐ No

Condition A - Minimum Vehicular Volume

Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Applicable:	☑ Yes ☐ No
100% Satisfied:	☐ Yes ☑ No
80% Satisfied:	☐ Yes ☑ No
70% Satisfied:	☐ Yes ☑ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	Minor	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

[a] Basic Minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	7 am - 8 am	8 am - 9 am	11 am - 12 pm	1 pm - 2 pm	2 pm - 3 pm	3 pm - 4 pm	4 pm - 5 pm	5 pm - 6 pm
Major	1,548	1,374	1,287	1,312	1,398	1,415	1,468	1,657
Minor	160	120	91	95	100	124	129	120

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where Condition A is not satisfied and the traffic volume on a major street is so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Applicable:	☑ Yes	☐ No
100% Satisfied:	☑ Yes	☐ No
80% Satisfied:	☑ Yes	☐ No
70% Satisfied:	☑ Yes	☐ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Eight Highest Hours								
Street	**7 am - 8 am**	**8 am - 9 am**	**11 am - 12 pm**	**1 pm - 2 pm**	**2 pm - 3 pm**	**3 pm - 4 pm**	**4 pm - 5 pm**	**5 pm - 6 pm**
Major	1,548	1,374	1,287	1,312	1,398	1,415	1,468	1,657
Minor	160	120	91	95	100	124	129	120

Existing Volumes

Appendix C

CAP-X and SPICE Analysis Summary Sheets

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Lake Hamilton Drive
Date:	Design Year (2045) AM Peak Hour
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	2	1599	91	5.00%	0.00%
Westbound	0	183	1864	3	5.00%	0.00%
Southbound	0	2	1	3	0.00%	0.00%
Northbound	0	58	0	237	4.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3C-Suburban Commercial**	
Critical Lane Volume Threshold — 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold — 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold — 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Signalized Restricted Crossing U-Turn E-W	0.67	1	6.3	Good	Good	Fair
Median U-Turn E-W	0.73	2	6.3	Good	Good	Fair
Traffic Signal	0.79	3	4.8	Fair	Fair	Good
Signalized ThruCut E-W	0.86	4	5.2	Fair	Good	Fair
2 X 2	0.89	5	5.6	Fair	Good	Good
1NS X 2EW	0.95	6	5.6	Fair	Good	Good
All-Way Stop Control	2.83	7	6.7	Good	Good	Good
Unsignalized Restricted Crossing U-Turn E-W	4.04	8	4.4	Fair	Fair	Fair
Unsignalized ThruCut E-W	212.55	9	3.3	Poor	Fair	Fair
Two-Way Stop Control E-W	263.37	10	3.7	Poor	Fair	Good

Capacity Analysis for Planning of Junctions

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Lake Hamilton Drive
Date:	Design Year (2045) AM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	2	1599	91	5.00%	0.00%
Westbound	0	183	1864	3	5.00%	0.00%
Southbound	0	2	1	3	0.00%	0.00%
Northbound	0	58	0	237	4.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone		**C3C-Suburban Commercial**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	0		1	2	0
Two-Way Stop Control	E-W		1	1	0		0	1	0		1	2	0		1	2	0
All-Way Stop Control	FULL		1	1	0		0	1	0		1	2	0		1	2	0
Signalized Restricted Crossing U-Turn	E-W				1				1	1	1	2	0	1	1	2	0
Unsignalized Restricted Crossing U-Turn	E-W				1				1	1	1	2	0	1	1	2	0
Median U-Turn	E-W			1	0			1	0	1		2	0	1		2	0
Signalized ThruCut	E-W		1		1		1		0		1	2	0		1	2	0
Unsignalized ThruCut	E-W		1		1		1		0		1	2	0		1	2	0

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1336	0.79	0.79	Fair	Fair	Good
Two-Way Stop Control	E-W									--	263.37	263.37	Poor	Fair	Good
All-Way Stop Control	FULL									4241	2.83	2.83	Good	Good	Good
Signalized Restricted Crossing U-Turn	E-W	1016	0.56	1201	0.67	1151	0.64	892	0.50			0.67	Good	Good	Fair
Unsignalized Restricted Crossing U-Turn	E-W	2019	0.12	1730	4.04	2152	0.33	1777	0.01			4.04	Fair	Fair	Fair
Median U-Turn	E-W					1154	0.64	1131	0.63	1322	0.73	0.73	Good	Good	Fair
Signalized ThruCut	E-W									1192	0.86	0.86	Fair	Good	Fair
Unsignalized ThruCut	E-W									--	212.55	212.55	Poor	Fair	Fair

Capacity Analysis for Planning of Junctions

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1NS X 2EW	0.03			0.78	0.82		0.95			0.83	0.89		0.95	Fair	Good	Good
2 X 2	0.02	0.02		0.83	0.89		0.22	0.76		0.78	0.82		0.89	Fair	Good	Good

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Lake Hamilton Drive
Date:	Design Year (2045) PM Peak Hour
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	2	1814	92	3.00%	0.00%
Westbound	0	208	1610	3	3.00%	0.00%
Southbound	0	1	2	2	0.00%	0.00%
Northbound	0	56	2	204	4.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone		**C3C-Suburban Commercial**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Signalized Restricted Crossing U-Turn E-W	0.70	1	6.3	Good	Good	Fair
Median U-Turn E-W	0.70	1	6.3	Good	Good	Fair
Traffic Signal	0.84	3	4.8	Fair	Fair	Good
Signalized ThruCut E-W	0.92	4	5.2	Fair	Good	Fair
2 X 2	0.93	5	5.6	Fair	Good	Good
1NS X 2EW	0.99	6	5.6	Fair	Good	Good
All-Way Stop Control	2.74	7	6.7	Good	Good	Good
Unsignalized Restricted Crossing U-Turn E-W	4.85	8	4.4	Fair	Fair	Fair
Unsignalized ThruCut E-W	305.71	9	3.3	Poor	Fair	Fair
Two-Way Stop Control E-W	337.95	10	3.7	Poor	Fair	Good

Capacity Analysis for Planning of Junctions

Project Name:	SR 544 PD&E Study from MLK Boulevard to SR 17
Project Number:	FPID No. 440273-1-22-01
Location:	SR 544/Lake Hamilton Drive
Date:	Design Year (2045) PM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	2	1814	92	3.00%	0.00%
Westbound	0	208	1610	3	3.00%	0.00%
Southbound	0	1	2	2	0.00%	0.00%
Northbound	0	56	2	204	4.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone		**C3C-Suburban Commercial**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	0		1	2	0
Two-Way Stop Control	E-W		1	1	0		0	1	0		1	2	0		1	2	0
All-Way Stop Control	FULL		1	1	0		0	1	0		1	2	0		1	2	0
Signalized Restricted Crossing U-Turn	E-W				1				1	1	1	2	0	1	1	2	0
Unsignalized Restricted Crossing U-Turn	E-W				1				1	1	1	2	0	1	1	2	0
Median U-Turn	E-W			1	0			1	0	1		2	0	1		2	0
Signalized ThruCut	E-W		1		1		1		0		1	2	0		1	2	0
Unsignalized ThruCut	E-W		1		1		1		0		1	2	0		1	2	0

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1421	0.84	0.84	Fair	Fair	Good
Two-Way Stop Control	E-W									--	337.95	337.95	Poor	Fair	Good
All-Way Stop Control	FULL									4117	2.74	2.74	Good	Good	Good
Signalized Restricted Crossing U-Turn	E-W	864	0.48	1255	0.70	1013	0.56	986	0.55			0.70	Good	Good	Fair
Unsignalized Restricted Crossing U-Turn	E-W	1719	0.06	1918	4.85	1875	0.24	1965	0.01			4.85	Fair	Fair	Fair
Median U-Turn	E-W					1013	0.56	1251	0.70	1197	0.66	0.70	Good	Good	Fair
Signalized ThruCut	E-W									1277	0.92	0.92	Fair	Good	Fair
Unsignalized ThruCut	E-W									--	305.71	305.71	Poor	Fair	Fair

Capacity Analysis for Planning of Junctions

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1NS X 2EW	0.02			0.88	0.93		0.99			0.73	0.78		0.99	Fair	Good	Good
2 X 2	0.01	0.01		0.73	0.78		0.26	0.77		0.88	0.93		0.93	Fair	Good	Good

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 544 PD&E Study from MLK Blvd to SR 17	**Intersection Type**	At-Grade Intersections
Intersection:	SR 544/Lake Hamilton Drive	**Opening Year**	2025
Agency:	FDOT District One	**Design Year**	2045
Project Reference:	FPID No.: 440273-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Polk County	**Number of Legs**	4-leg
State:	Florida	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	12/2/2022	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	AIM Engineering & Surveying, Inc.	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Traffic Signal	Total	7.16	13.15	211.97	5	Yes	Calibrated SPF	66	47	7
	Fatal & Injury	2.51	4.79	75.98						
Minor Road Stop	Total	3.89	6.31	107.03	3	Yes	Calibrated SPF	47	27	9
	Fatal & Injury	1.63	2.79	46.29						
All Way Stop	Total	2.87	4.78	80.16	1	N/A	N/A	86	78	2
	Fatal & Injury	1.13	2.01	32.73						
2-lane Roundabout	Total	7.58	13.25	217.92	2	No	Uncalibrated SPF	86	79	1
	Fatal & Injury	1.41	2.61	41.88						
Median U-Turn (MUT)	Total	6.09	11.18	180.17	4	N/A	CMF	85	75	3
	Fatal & Injury	1.76	3.35	53.18						
Signalized RCUT	Total	12.05	24.75	381.15	6	Yes	Uncalibrated SPF	77	64	5
	Fatal & Injury	2.36	5.07	76.64						
Unsignalized RCUT	Total	No SPF	No SPF	No SPF	--	Yes	Uncalibrated SPF	61	43	8
	Fatal & Injury	No SPF	No SPF	No SPF						
Signalized Thru-Cut	Total	No SPF	No SPF	No SPF	--	N/A	N/A	80	65	4
	Fatal & Injury	No SPF	No SPF	No SPF						
Unsignalized Thru-Cut	Total	No SPF	No SPF	No SPF	--	N/A	N/A	68	50	6
	Fatal & Injury	No SPF	No SPF	No SPF						
Other 1*	Total	No SPF	No SPF	No SPF	--	N/A	CMF	--	--	--
	Fatal & Injury	No SPF	No SPF	No SPF						
Other 2*	Total	No SPF	No SPF	No SPF	--	N/A	CMF	--	--	--
	Fatal & Injury	No SPF	No SPF	No SPF						

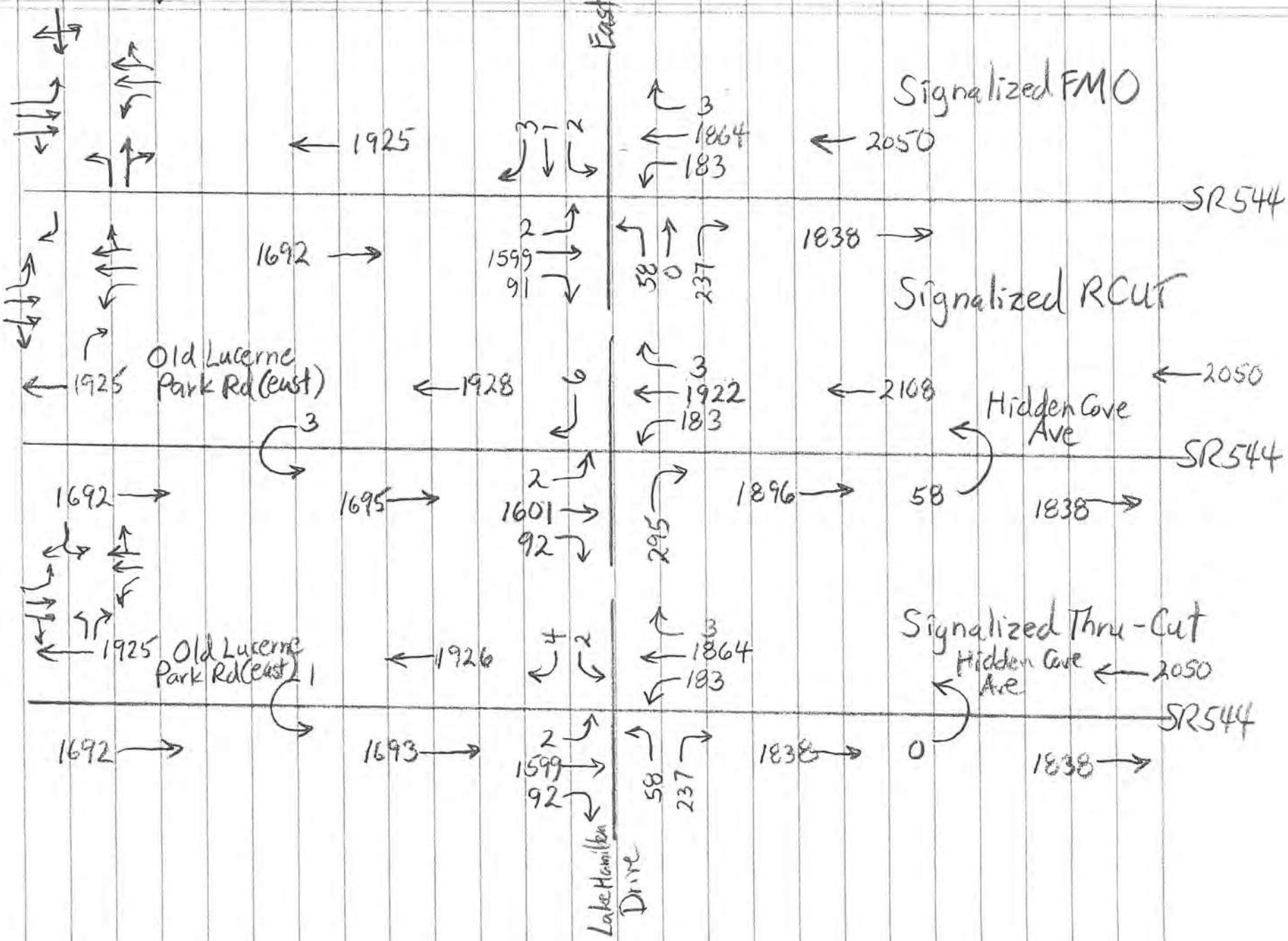
Appendix D

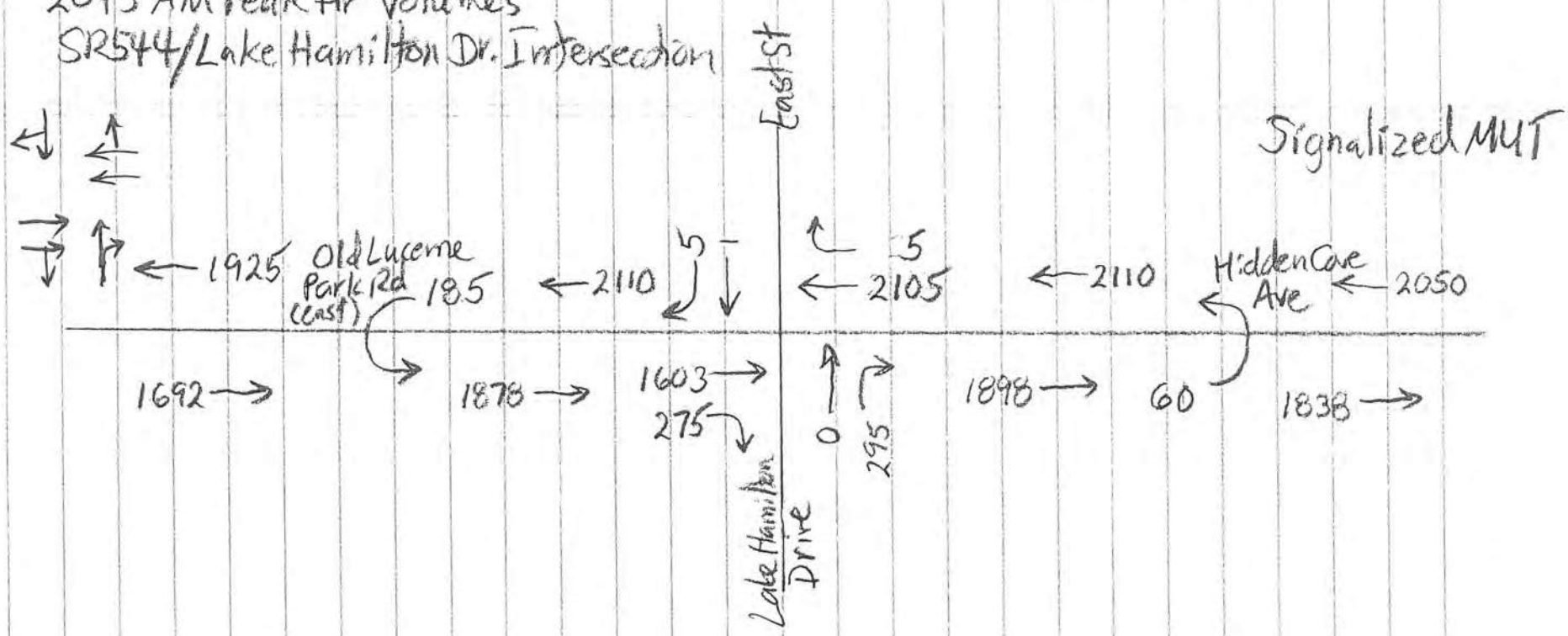
SYNCHRO Analysis Summary Sheets

Table 2: Design Year (2045) Peak Hour Operational Analysis Summary - Lake Hamilton Drive Intersection

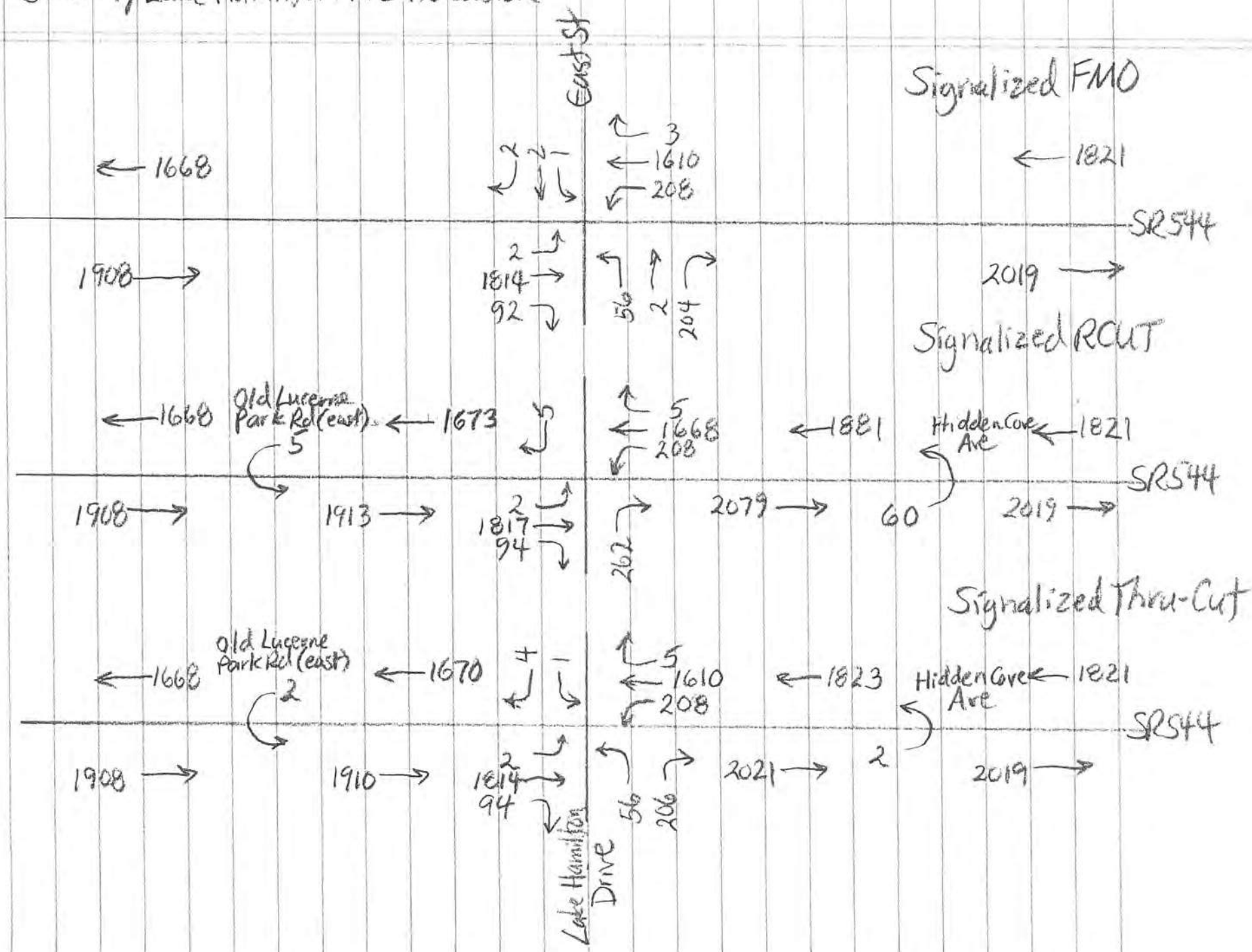
AM Peak Hour													
		Signalized FMO			Signalized RCUT			Signalized Thru-Cut			Signalized MUT		
Intersection	Movement	V/C	Avg. Delay	LOS	V/C	Avg. Delay	LOS	V/C	Avg. Delay	LOS	V/C	Avg. Delay	LOS
Lake Hamilton Dr	NB LT	0.41	56.2	E	n/a	n/a	n/a	0.38	53.6	D	n/a	n/a	n/a
	NB TH	0.65	12.8	B	n/a	n/a	n/a	n/a	n/a	n/a	0.85	54.9	D
	NB RT	0.65	12.8	B	0.67	33.0	C	0.59	16.1	B	0.85	54.9	D
	NB Approach	n/a	21.3	C	n/a	33.0	C	n/a	23.5	C	n/a	54.9	D
	SB LT	0.06	41.8	D	n/a	n/a	n/a	0.03	0.2	A	n/a	n/a	n/a
	SB TH	0.06	41.8	D	n/a	n/a	n/a	n/a	n/a	n/a	0.02	19.5	B
	SB RT	0.06	41.8	D	0.01	0.0	A	0.03	0.2	A	0.02	19.5	B
	SB Approach	n/a	41.8	D	n/a	0.0	A	n/a	0.2	A	n/a	19.5	B
	WB LT	0.78	47.3	D	0.72	33.2	C	0.85	59.0	E	n/a	n/a	n/a
	WB TH	0.85	19.5	B	0.96	29.8	C	0.85	19.9	B	0.98	32.3	C
	WB RT	0.85	19.5	B	0.96	29.8	C	0.85	19.9	B	0.98	32.3	C
	WB Approach	n/a	22.0	C	n/a	30.1	C	n/a	23.4	C	n/a	32.3	C
	EB LT	0.01	7.0	A	0.01	3.0	A	0.01	7.0	A	n/a	n/a	n/a
	EB TH	0.98	42.8	D	0.89	23.1	C	0.96	38.3	D	0.88	20.3	C
	EB RT	0.98	42.8	D	0.89	23.1	C	0.96	38.3	D	0.88	20.3	C
	EB Approach	n/a	42.7	D	n/a	23.0	C	n/a	38.2	D	n/a	20.3	C
	ALL	0.87	30.7	C	0.75	27.3	C	0.81	29.6	C	0.87	28.6	C
PM Peak Hour													
		Signalized FMO			Signalized RCUT			Signalized Thru-Cut			Signalized MUT		
Intersection	Movement	V/C	Avg. Delay	LOS	V/C	Avg. Delay	LOS	V/C	Avg. Delay	LOS	V/C	Avg. Delay	LOS
Lake Hamilton Dr	NB LT	0.40	56.1	E	n/a	n/a	n/a	0.41	65.9	E	n/a	n/a	n/a
	NB TH	0.66	17.1	B	n/a	n/a	n/a	n/a	n/a	n/a	0.83	53.8	D
	NB RT	0.66	17.1	B	0.58	29.2	C	0.53	17.8	B	0.83	53.8	D
	NB Approach	n/a	25.5	C	n/a	29.2	C	n/a	28.1	C	n/a	53.8	D
	SB LT	0.05	44.6	D	n/a	n/a	n/a	0.03	0.2	A	n/a	n/a	n/a
	SB TH	0.05	44.6	D	n/a	n/a	n/a	n/a	n/a	n/a	0.01	22.0	C
	SB RT	0.05	44.6	D	0.01	0.0	A	0.03	0.2	A	0.01	22.0	C
	SB Approach	n/a	44.6	D	n/a	0.0	A	n/a	0.2	A	n/a	22.0	C
	WB LT	0.99	89.5	F	0.78	39.0	D	0.88	71.5	E	n/a	n/a	n/a
	WB TH	0.70	14.2	B	0.79	16.2	B	0.66	12.4	B	0.82	15.1	B
	WB RT	0.70	14.2	B	0.79	16.2	B	0.66	12.4	B	0.82	15.1	B
	WB Approach	n/a	22.8	C	n/a	18.7	B	n/a	19.1	B	n/a	15.1	B
	EB LT	0.01	6.5	A	0.01	3.0	A	0.01	6.0	A	n/a	n/a	n/a
	EB TH	1.01	48.9	D	0.97	32.3	C	0.97	40.5	D	0.94	24.1	C
	EB RT	1.01	48.9	D	0.97	32.3	C	0.97	40.5	D	0.94	24.1	C
	EB Approach	n/a	48.8	D	n/a	32.3	C	n/a	40.5	D	n/a	24.1	C
	ALL	0.92	35.4	D	0.79	25.8	C	0.89	29.9	C	0.86	22.0	C

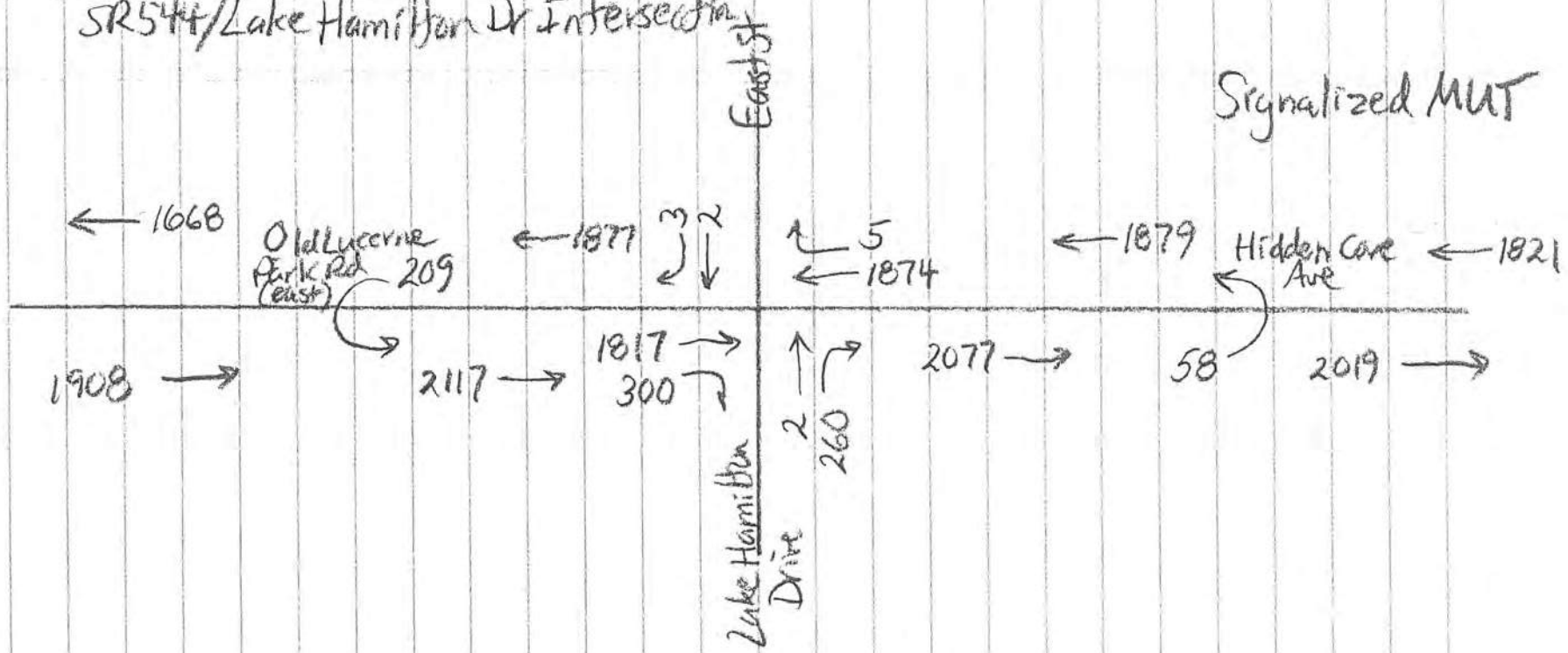
2045 AM Peak Hr Volumes
SR544/Lake Hamilton Dr Intersection




2045 AM Peak Hr Volumes
SR544/Lake Hamilton Dr. Intersection
East St
Signalized MUT
1925
Old Luceme Park Rd (east)
185
2110
5
2105
2110
Hidden Cave Ave
2050
1692
1878
1603
275
0
295
1898
60
1838
Lake Hamilton Drive

2045 PM Peak Hr Volumes
SR544/Lake Hamilton Dr Intersection




2045 PM Peak Hr Volumes
SR544/Lake Hamilton Dr Intersection
East St
Signalized MUT
1668
Old Lucerne Park Rd (east)
209
1877
3
2
1
5
1874
1879
Hidden Cove Ave
1821
1908
2117
1817
300
2077
58
2019
Lake Hamilton Drive
2
260

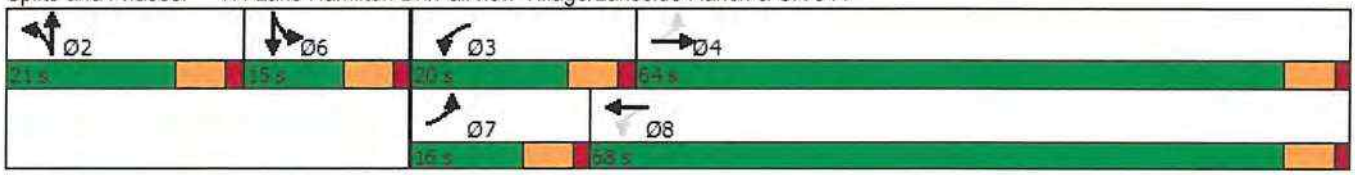
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1599	91	183	1864	3	58	0	237	2	1	3
Future Volume (vph)	2	1599	91	183	1864	3	58	0	237	2	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	500		0	200		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992						0.850			0.932	
Flt Protected	0.950			0.950			0.950				0.984	
Satd. Flow (prot)	1805	3412	0	1736	3438	0	1736	1553	0	0	1742	0
Flt Permitted	0.063			0.058			0.950				0.984	
Satd. Flow (perm)	120	3412	0	106	3438	0	1736	1553	0	0	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7						272			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1011			109			657			126	
Travel Time (s)		23.0			2.5			14.9			2.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	4%	4%	5%	0%	4%	0%	4%	0%	0%	0%
Adj. Flow (vph)	2	1683	96	193	1962	3	61	0	249	2	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1779	0	193	1965	0	61	249	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8								
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.5		11.0	24.5		21.0	21.0		15.0	15.0	
Total Split (s)	16.0	64.0		20.0	68.0		21.0	21.0		15.0	15.0	
Total Split (%)	13.3%	53.3%		16.7%	56.7%		17.5%	17.5%		12.5%	12.5%	
Maximum Green (s)	10.0	58.0		14.0	62.0		15.0	15.0		9.0	9.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	63.7	58.2		75.9	73.7		9.4	9.4			5.9	
Actuated g/C Ratio	0.58	0.53		0.69	0.67		0.09	0.09			0.05	
v/c Ratio	0.01	0.98		0.78	0.85		0.41	0.65			0.06	
Control Delay	7.0	42.8		47.3	19.5		56.2	12.8			41.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	7.0	42.8		47.3	19.5		56.2	12.8			41.8	
LOS	A	D		D	B		E	B			D	
Approach Delay		42.7			22.0			21.3			41.8	
Approach LOS		D			C			C			D	
90th %ile Green (s)	5.7	58.0		14.0	66.3		14.2	14.2		6.8	6.8	
90th %ile Term Code	Gap	Max		Max	Hold		Gap	Gap		Gap	Gap	
70th %ile Green (s)	0.0	58.0		14.0	78.0		10.7	10.7		6.1	6.1	
70th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
50th %ile Green (s)	0.0	58.0		13.3	77.3		9.2	9.2		5.6	5.6	
50th %ile Term Code	Skip	Max		Gap	Hold		Gap	Gap		Gap	Gap	
30th %ile Green (s)	0.0	58.0		10.4	74.4		7.8	7.8		5.5	5.5	
30th %ile Term Code	Skip	Max		Gap	Hold		Gap	Gap		Gap	Gap	
10th %ile Green (s)	0.0	58.0		7.6	71.6		5.8	5.8		5.5	5.5	
10th %ile Term Code	Skip	Max		Gap	Hold		Gap	Gap		Gap	Gap	
Stops (vph)	1	1393		111	1230		52	22			7	
Fuel Used(gal)	0	36		6	53		1	2			0	
CO Emissions (g/hr)	2	2498		430	3684		87	136			7	
NOx Emissions (g/hr)	0	486		84	717		17	27			1	
VOC Emissions (g/hr)	0	579		100	854		20	32			2	
Dilemma Vehicles (#)	0	0		0	0		0	0			0	
Queue Length 50th (ft)	0	624		84	449		42	0			2	
Queue Length 95th (ft)	3	#911		#197	#956		86	58			16	
Internal Link Dist (ft)		931			29			577			46	
Turn Bay Length (ft)	60			500			200					
Base Capacity (vph)	229	1818		282	2319		238	448			146	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01	0.98		0.68	0.85		0.26	0.56			0.04	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 109.3			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 30.7		Intersection LOS: C	
Intersection Capacity Utilization 86.9%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 117			
70th %ile Actuated Cycle: 112.8			
50th %ile Actuated Cycle: 110.1			
30th %ile Actuated Cycle: 105.7			
10th %ile Actuated Cycle: 100.9			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 17: Lake Hamilton Dr./Fairview Village/Lakeside Ranch & SR 544



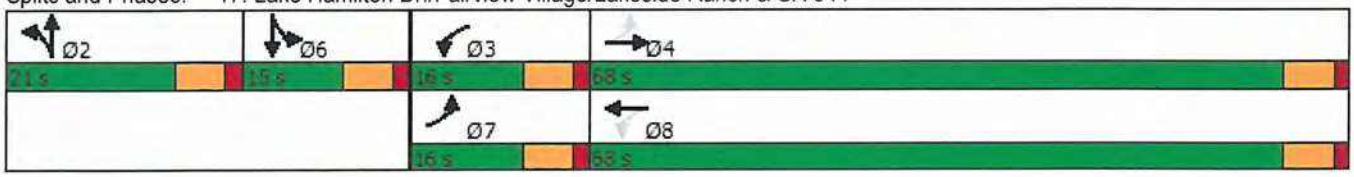
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1814	92	208	1610	3	56	2	204	1	2	2
Future Volume (vph)	2	1814	92	208	1610	3	56	2	204	1	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	500		0	200		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993						0.851			0.946	
Flt Protected	0.950			0.950			0.950				0.990	
Satd. Flow (prot)	1805	3479	0	1736	3505	0	1736	1555	0	0	1779	0
Flt Permitted	0.096			0.055			0.950				0.990	
Satd. Flow (perm)	182	3479	0	100	3505	0	1736	1555	0	0	1779	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6						210			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1011			109			657			126	
Travel Time (s)		23.0			2.5			14.9			2.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	3%	4%	4%	3%	0%	4%	0%	4%	0%	0%	0%
Adj. Flow (vph)	2	1870	95	214	1660	3	58	2	210	1	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1965	0	214	1663	0	58	212	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8								
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.5		11.0	24.5		11.0	11.0		11.0	11.0	
Total Split (s)	16.0	68.0		16.0	68.0		21.0	21.0		15.0	15.0	
Total Split (%)	13.3%	56.7%		13.3%	56.7%		17.5%	17.5%		12.5%	12.5%	
Maximum Green (s)	10.0	62.0		10.0	62.0		15.0	15.0		9.0	9.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	67.6	62.0		77.7	75.8		9.4	9.4			5.9	
Actuated g/C Ratio	0.61	0.56		0.70	0.68		0.08	0.08			0.05	
v/c Ratio	0.01	1.01		0.99	0.70		0.40	0.66			0.05	
Control Delay	6.5	48.9		89.5	14.2		56.1	17.1			44.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	6.5	48.9		89.5	14.2		56.1	17.1			44.6	
LOS	A	D		F	B		E	B			D	
Approach Delay		48.8			22.8			25.5			44.6	
Approach LOS		D			C			C			D	
90th %ile Green (s)	5.7	62.0		10.0	66.3		14.3	14.3		6.7	6.7	
90th %ile Term Code	Gap	Max		Max	Hold		Gap	Gap		Gap	Gap	
70th %ile Green (s)	0.0	62.0		10.0	78.0		10.5	10.5		6.0	6.0	
70th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
50th %ile Green (s)	0.0	62.0		10.0	78.0		9.0	9.0		5.6	5.6	
50th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
30th %ile Green (s)	0.0	62.0		10.0	78.0		7.7	7.7		5.5	5.5	
30th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
10th %ile Green (s)	0.0	62.0		10.0	78.0		5.8	5.8		5.5	5.5	
10th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
Stops (vph)	1	1601		114	956		50	30			7	
Fuel Used(gal)	0	43		9	43		1	2			0	
CO Emissions (g/hr)	2	2994		609	3019		84	135			6	
NOx Emissions (g/hr)	0	582		118	587		16	26			1	
VOC Emissions (g/hr)	0	694		141	700		19	31			1	
Dilemma Vehicles (#)	0	0		0	0		0	0			0	
Queue Length 50th (ft)	0	~712		107	307		40	1			2	
Queue Length 95th (ft)	3	#1002		#286	627		82	74			15	
Internal Link Dist (ft)		931			29			577			46	
Turn Bay Length (ft)	60			500			200					
Base Capacity (vph)	263	1941		217	2387		234	391			145	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01	1.01		0.99	0.70		0.25	0.54			0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 111.3			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 35.4		Intersection LOS: D	
Intersection Capacity Utilization 92.3%		ICU Level of Service F	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 117			
70th %ile Actuated Cycle: 112.5			
50th %ile Actuated Cycle: 110.6			
30th %ile Actuated Cycle: 109.2			
10th %ile Actuated Cycle: 107.3			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 17: Lake Hamilton Dr./Fairview Village/Lakeside Ranch & SR 544



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1601	92	183	1922	3	0	0	295	0	0	6
Future Volume (vph)	2	1601	92	183	1922	3	0	0	295	0	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	500		0	200		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992							0.865			0.865
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1805	3412	0	1736	3438	0	0	0	1580	0	0	1644
Flt Permitted	0.077			0.074								
Satd. Flow (perm)	146	3412	0	135	3438	0	0	0	1580	0	0	1644
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11							36			36
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1011			109			657			126	
Travel Time (s)		23.0			2.5			14.9			2.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	4%	4%	5%	0%	4%	0%	4%	0%	0%	0%
Adj. Flow (vph)	2	1685	97	193	2023	3	0	0	311	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1782	0	193	2026	0	0	0	311	0	0	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2				1			1
Detector Template	Left	Thru		Left	Thru				Right			Right
Leading Detector (ft)	20	100		20	100				20			20
Trailing Detector (ft)	0	0		0	0				0			0
Detector 1 Position(ft)	0	0		0	0				0			0
Detector 1 Size(ft)	20	6		20	6				20			20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0				0.0			0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0				0.0			0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0				0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	pm+pt	NA		pm+pt	NA				Perm			Perm
Protected Phases	7	4		3	8							

Lane Group	Ø2	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	2	6

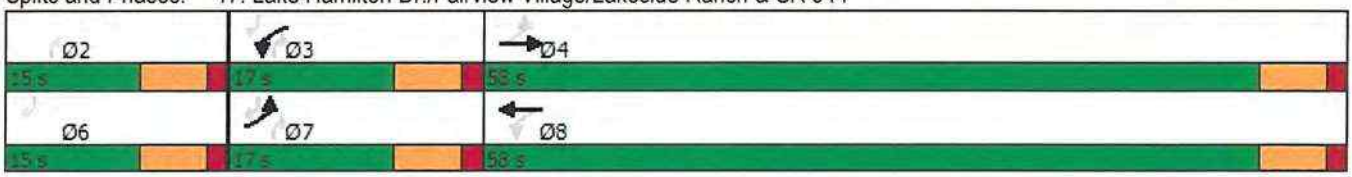
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8					2 7 3			6 7 3
Detector Phase	7	4		3	8				2 7 3			6 7 3
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0							
Minimum Split (s)	11.0	24.5		11.0	24.5							
Total Split (s)	17.0	58.0		17.0	58.0							
Total Split (%)	18.9%	64.4%		18.9%	64.4%							
Maximum Green (s)	11.0	52.0		11.0	52.0							
Yellow Time (s)	4.5	4.5		4.5	4.5							
All-Red Time (s)	1.5	1.5		1.5	1.5							
Lost Time Adjust (s)	0.0	0.0		0.0	0.0							
Total Lost Time (s)	6.0	6.0		6.0	6.0							
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	None	None		None	None							
Act Effct Green (s)	58.9	51.8		63.6	54.2				24.5			24.5
Actuated g/C Ratio	0.67	0.59		0.72	0.61				0.28			0.28
v/c Ratio	0.01	0.89		0.72	0.96				0.67			0.01
Control Delay	3.0	23.1		33.2	29.8				33.0			0.0
Queue Delay	0.0	0.0		0.0	0.0				0.0			0.0
Total Delay	3.0	23.1		33.2	29.8				33.0			0.0
LOS	A	C		C	C				C			A
Approach Delay		23.0			30.1			33.0				
Approach LOS		C			C			C				
90th %ile Green (s)	11.0	52.0		11.0	52.0							
90th %ile Term Code	Max	Max		Max	Max							
70th %ile Green (s)	8.1	52.0		11.0	54.9							
70th %ile Term Code	Gap	Max		Max	Hold							
50th %ile Green (s)	5.5	52.0		10.6	57.1							
50th %ile Term Code	Gap	Max		Gap	Hold							
30th %ile Green (s)	5.5	52.0		8.3	54.8							
30th %ile Term Code	Gap	Max		Gap	Hold							
10th %ile Green (s)	5.5	50.9		6.6	52.0							
10th %ile Term Code	Gap	Hold		Gap	Max							
Stops (vph)	1	1338		95	1513				229			0
Fuel Used(gal)	0	29		6	60				5			0
CO Emissions (g/hr)	2	2005		387	4174				333			0
NOx Emissions (g/hr)	0	390		75	812				65			0
VOC Emissions (g/hr)	0	465		90	967				77			0
Dilemma Vehicles (#)	0	0		0	0				0			0
Queue Length 50th (ft)	0	427		50	478				136			0
Queue Length 95th (ft)	2	#580		#142	#787				227			0
Internal Link Dist (ft)		931			29			577			46	
Turn Bay Length (ft)	60			500								
Base Capacity (vph)	310	2015		299	2109				491			509
Starvation Cap Reductn	0	0		0	0				0			0
Spillback Cap Reductn	0	0		0	0				0			0
Storage Cap Reductn	0	0		0	0				0			0

Lane Group	Ø2	Ø6
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	21.0	21.0
Total Split (s)	15.0	15.0
Total Split (%)	17%	17%
Maximum Green (s)	9.0	9.0
Yellow Time (s)	4.5	4.5
All-Red Time (s)	1.5	1.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	9.0	9.0
90th %ile Term Code	Max	Hold
70th %ile Green (s)	9.0	9.0
70th %ile Term Code	Max	Hold
50th %ile Green (s)	9.0	9.0
50th %ile Term Code	Max	Hold
30th %ile Green (s)	9.0	9.0
30th %ile Term Code	Max	Hold
10th %ile Green (s)	9.0	9.0
10th %ile Term Code	Max	Hold
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01	0.88		0.65	0.96				0.63			0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 27.3		Intersection LOS: C	
Intersection Capacity Utilization 75.4%		ICU Level of Service D	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 90			
70th %ile Actuated Cycle: 90			
50th %ile Actuated Cycle: 89.6			
30th %ile Actuated Cycle: 87.3			
10th %ile Actuated Cycle: 84.5			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 17: Lake Hamilton Dr./Fairview Village/Lakeside Ranch & SR 544



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1817	94	208	1668	5	0	0	262	0	0	5
Future Volume (vph)	2	1817	94	208	1668	5	0	0	262	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	500		0	200		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993							0.865			0.865
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1805	3479	0	1736	3505	0	0	0	1580	0	0	1644
Flt Permitted	0.077			0.072								
Satd. Flow (perm)	146	3479	0	132	3505	0	0	0	1580	0	0	1644
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			1				36			36
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1011			109			657			126	
Travel Time (s)		23.0			2.5			14.9			2.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	3%	4%	4%	3%	0%	4%	0%	4%	0%	0%	0%
Adj. Flow (vph)	2	1873	97	214	1720	5	0	0	270	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1970	0	214	1725	0	0	0	270	0	0	5
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2				1			1
Detector Template	Left	Thru		Left	Thru				Right			Right
Leading Detector (ft)	20	100		20	100				20			20
Trailing Detector (ft)	0	0		0	0				0			0
Detector 1 Position(ft)	0	0		0	0				0			0
Detector 1 Size(ft)	20	6		20	6				20			20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0				0.0			0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0				0.0			0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0				0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	pm+pt	NA		pm+pt	NA				Perm			Perm
Protected Phases	7	4		3	8							

Lane Group	Ø2	Ø6
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	2	6

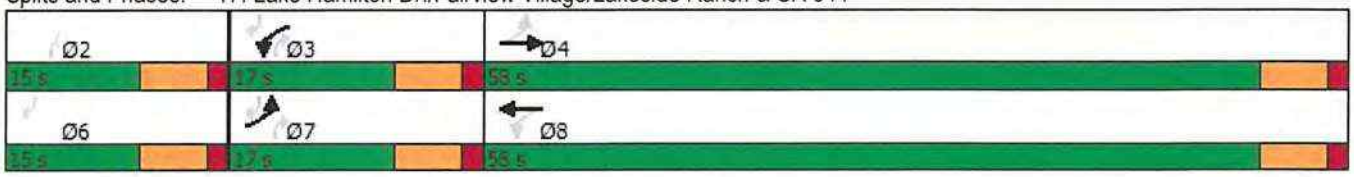
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8					2 7 3			6 7 3
Detector Phase	7	4		3	8				2 7 3			6 7 3
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0							
Minimum Split (s)	11.0	24.5		11.0	24.5							
Total Split (s)	17.0	58.0		17.0	58.0							
Total Split (%)	18.9%	64.4%		18.9%	64.4%							
Maximum Green (s)	11.0	52.0		11.0	52.0							
Yellow Time (s)	4.5	4.5		4.5	4.5							
All-Red Time (s)	1.5	1.5		1.5	1.5							
Lost Time Adjust (s)	0.0	0.0		0.0	0.0							
Total Lost Time (s)	6.0	6.0		6.0	6.0							
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	None	None		None	None							
Act Effct Green (s)	58.5	52.0		65.4	55.4				24.9			24.9
Actuated g/C Ratio	0.66	0.58		0.74	0.62				0.28			0.28
v/c Ratio	0.01	0.97		0.78	0.79				0.58			0.01
Control Delay	3.0	32.3		39.0	16.2				29.2			0.0
Queue Delay	0.0	0.0		0.0	0.0				0.0			0.0
Total Delay	3.0	32.3		39.0	16.2				29.2			0.0
LOS	A	C		D	B				C			A
Approach Delay		32.3			18.7			29.2				
Approach LOS		C			B			C				
90th %ile Green (s)	10.4	52.0		11.0	52.6							
90th %ile Term Code	Gap	Max		Max	Hold							
70th %ile Green (s)	5.5	52.0		11.0	57.5							
70th %ile Term Code	Gap	Max		Max	Hold							
50th %ile Green (s)	5.5	52.0		11.0	57.5							
50th %ile Term Code	Gap	Max		Max	Hold							
30th %ile Green (s)	5.5	52.0		9.5	56.0							
30th %ile Term Code	Gap	Max		Gap	Hold							
10th %ile Green (s)	5.5	52.0		7.2	53.7							
10th %ile Term Code	Gap	Max		Gap	Hold							
Stops (vph)	1	1562		112	1177				192			0
Fuel Used(gal)	0	36		7	46				4			0
CO Emissions (g/hr)	2	2536		458	3249				277			0
NOx Emissions (g/hr)	0	493		89	632				54			0
VOC Emissions (g/hr)	0	588		106	753				64			0
Dilemma Vehicles (#)	0	0		0	0				0			0
Queue Length 50th (ft)	0	528		64	328				112			0
Queue Length 95th (ft)	2	#744		#173	498				192			0
Internal Link Dist (ft)		931			29			577			46	
Turn Bay Length (ft)	60			500								
Base Capacity (vph)	308	2038		297	2185				487			506
Starvation Cap Reductn	0	0		0	0				0			0
Spillback Cap Reductn	0	0		0	0				0			0
Storage Cap Reductn	0	0		0	0				0			0

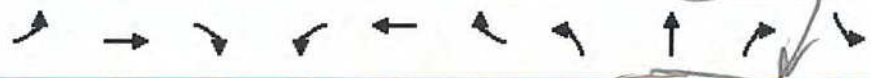
Lane Group	Ø2	Ø6
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	17.0	17.0
Total Split (s)	15.0	15.0
Total Split (%)	17%	17%
Maximum Green (s)	9.0	9.0
Yellow Time (s)	4.5	4.5
All-Red Time (s)	1.5	1.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
90th %ile Green (s)	9.0	9.0
90th %ile Term Code	Max	Hold
70th %ile Green (s)	9.0	9.0
70th %ile Term Code	Max	Hold
50th %ile Green (s)	9.0	9.0
50th %ile Term Code	Max	Hold
30th %ile Green (s)	9.0	9.0
30th %ile Term Code	Max	Hold
10th %ile Green (s)	9.0	9.0
10th %ile Term Code	Max	Hold
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01	0.97		0.72	0.79				0.55			0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 90			
70th %ile Actuated Cycle: 90			
50th %ile Actuated Cycle: 90			
30th %ile Actuated Cycle: 88.5			
10th %ile Actuated Cycle: 86.2			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 17: Lake Hamilton Dr./Fairview Village/Lakeside Ranch & SR 544





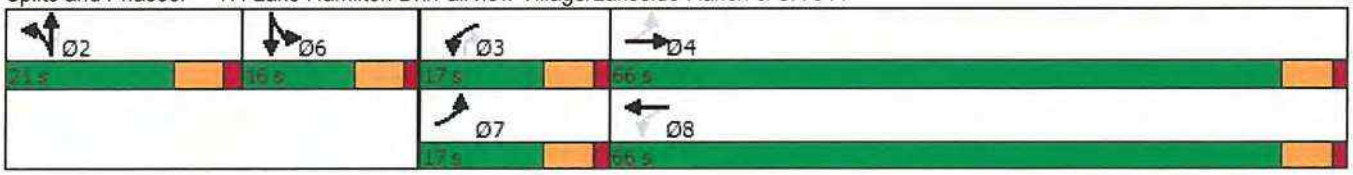
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1599	92	183	1864	3	58	0	237	2	0	4
Future Volume (vph)	2	1599	92	183	1864	3	58	0	237	2	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	500		0	200		0	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992							0.850		0.910	
Flt Protected	0.950			0.950				0.950			0.984	
Satd. Flow (prot)	1805	3412	0	1736	3438	0	0	1736	1553	0	1701	0
Flt Permitted	0.062			0.056				0.950			0.984	
Satd. Flow (perm)	118	3412	0	102	3438	0	0	1736	1553	0	1701	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7							160		136	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1011			109			657			126	
Travel Time (s)		23.0			2.5			14.9			2.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	4%	4%	5%	0%	4%	0%	4%	0%	0%	0%
Adj. Flow (vph)	2	1683	97	193	1962	3	61	0	249	2	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1780	0	193	1965	0	0	61	249	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	custom	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	

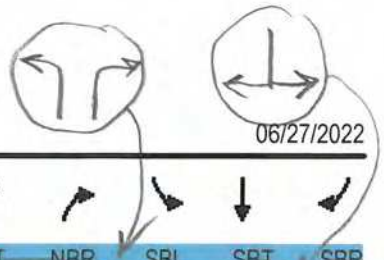
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8					2 3			
Detector Phase	7	4		3	8		2	2	2 3	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.5		11.0	24.5		21.0	21.0		16.0	16.0	
Total Split (s)	17.0	66.0		17.0	66.0		21.0	21.0		16.0	16.0	
Total Split (%)	14.2%	55.0%		14.2%	55.0%		17.5%	17.5%		13.3%	13.3%	
Maximum Green (s)	11.0	60.0		11.0	60.0		15.0	15.0		10.0	10.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	65.7	60.1		76.6	74.5			10.3	21.0		5.5	
Actuated g/C Ratio	0.59	0.54		0.69	0.67			0.09	0.19		0.05	
v/c Ratio	0.01	0.96		0.85	0.85			0.38	0.59		0.03	
Control Delay	7.0	38.3		59.0	19.9			53.6	16.1		0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	7.0	38.3		59.0	19.9			53.6	16.1		0.2	
LOS	A	D		E	B			D	B		A	
Approach Delay		38.2			23.4			23.5			0.2	
Approach LOS		D			C			C			A	
90th %ile Green (s)	5.7	60.0		11.0	65.3		15.0	15.0		5.5	5.5	
90th %ile Term Code	Gap	Max		Max	Hold		Max	Max		Gap	Gap	
70th %ile Green (s)	0.0	60.0		11.0	77.0		13.1	13.1		5.5	5.5	
70th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
50th %ile Green (s)	0.0	60.0		11.0	77.0		10.4	10.4		5.5	5.5	
50th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
30th %ile Green (s)	0.0	60.0		11.0	77.0		7.8	7.8		5.5	5.5	
30th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
10th %ile Green (s)	0.0	60.0		9.2	75.2		5.8	5.8		5.5	5.5	
10th %ile Term Code	Skip	Max		Gap	Hold		Gap	Gap		Gap	Gap	
Stops (vph)	1	1404		104	1240			51	79		0	
Fuel Used(gal)	0	34		7	53			1	2		0	
CO Emissions (g/hr)	2	2395		458	3697			85	170		0	
NOx Emissions (g/hr)	0	466		89	719			16	33		0	
VOC Emissions (g/hr)	0	555		106	857			20	39		0	
Dilemma Vehicles (#)	0	0		0	0			0	0		0	
Queue Length 50th (ft)	0	608		89	467			42	43		0	
Queue Length 95th (ft)	3	#867		#231	#948			85	107		0	
Internal Link Dist (ft)		931			29			577			46	
Turn Bay Length (ft)	60			500								
Base Capacity (vph)	243	1857		233	2316			235	487		277	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01	0.96		0.83	0.85			0.26	0.51		0.02	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 110.6			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 29.6		Intersection LOS: C	
Intersection Capacity Utilization 81.0%		ICU Level of Service D	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 115.5			
70th %ile Actuated Cycle: 113.6			
50th %ile Actuated Cycle: 110.9			
30th %ile Actuated Cycle: 108.3			
10th %ile Actuated Cycle: 104.5			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 17: Lake Hamilton Dr./Fairview Village/Lakeside Ranch & SR 544





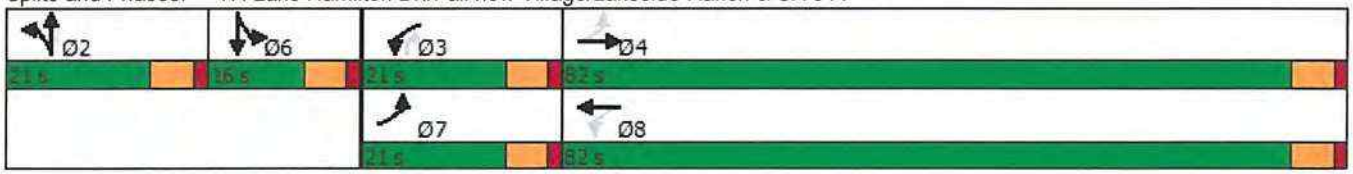
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1814	94	208	1610	5	56	0	206	1	0	4
Future Volume (vph)	2	1814	94	208	1610	5	56	0	206	1	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	500		0	200		0	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993							0.850		0.892	
Flt Protected	0.950			0.950				0.950			0.990	
Satd. Flow (prot)	1805	3479	0	1736	3505	0	0	1736	1553	0	1678	0
Flt Permitted	0.111			0.046				0.950			0.990	
Satd. Flow (perm)	211	3479	0	84	3505	0	0	1736	1553	0	1678	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6							133		117	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1011			109			657			126	
Travel Time (s)		23.0			2.5			14.9			2.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	3%	4%	4%	3%	0%	4%	0%	4%	0%	0%	0%
Adj. Flow (vph)	2	1870	97	214	1660	5	58	0	212	1	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1967	0	214	1665	0	0	58	212	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	custom	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8					2 3			
Detector Phase	7	4		3	8		2	2	2 3	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.5		11.0	24.5		21.0	21.0		16.0	16.0	
Total Split (s)	21.0	82.0		21.0	82.0		21.0	21.0		16.0	16.0	
Total Split (%)	15.0%	58.6%		15.0%	58.6%		15.0%	15.0%		11.4%	11.4%	
Maximum Green (s)	15.0	76.0		15.0	76.0		15.0	15.0		10.0	10.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	81.6	76.1		96.3	94.1			10.5	24.8		5.5	
Actuated g/C Ratio	0.63	0.58		0.74	0.72			0.08	0.19		0.04	
v/c Ratio	0.01	0.97		0.88	0.66			0.41	0.53		0.03	
Control Delay	6.0	40.5		71.5	12.4			65.9	17.8		0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	6.0	40.5		71.5	12.4			65.9	17.8		0.2	
LOS	A	D		E	B			E	B		A	
Approach Delay		40.5			19.1			28.1			0.2	
Approach LOS		D			B			C			A	
90th %ile Green (s)	5.7	76.0		15.0	85.3		15.0	15.0		5.5	5.5	
90th %ile Term Code	Gap	Max		Max	Hold		Max	Max		Gap	Gap	
70th %ile Green (s)	0.0	76.0		15.0	97.0		13.4	13.4		5.5	5.5	
70th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
50th %ile Green (s)	0.0	76.0		15.0	97.0		10.6	10.6		5.5	5.5	
50th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
30th %ile Green (s)	0.0	76.0		15.0	97.0		8.2	8.2		5.5	5.5	
30th %ile Term Code	Skip	Max		Max	Hold		Gap	Gap		Gap	Gap	
10th %ile Green (s)	0.0	76.0		11.5	93.5		6.0	6.0		5.5	5.5	
10th %ile Term Code	Skip	Max		Gap	Hold		Gap	Gap		Gap	Gap	
Stops (vph)	1	1594		133	833			52	68		0	
Fuel Used(gal)	0	40		8	42			1	2		0	
CO Emissions (g/hr)	2	2767		563	2932			93	152		0	
NOx Emissions (g/hr)	0	538		109	570			18	30		0	
VOC Emissions (g/hr)	0	641		130	680			21	35		0	
Dilemma Vehicles (#)	0	0		0	0			0	0		0	
Queue Length 50th (ft)	0	809		132	325			48	47		0	
Queue Length 95th (ft)	3	#1089		#287	605			94	113		0	
Internal Link Dist (ft)		931			29			577			46	
Turn Bay Length (ft)	60			500								
Base Capacity (vph)	330	2031		252	2529			199	460		236	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01	0.97		0.85	0.66			0.29	0.46		0.02	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 130.4			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 29.9		Intersection LOS: C	
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 135.5			
70th %ile Actuated Cycle: 133.9			
50th %ile Actuated Cycle: 131.1			
30th %ile Actuated Cycle: 128.7			
10th %ile Actuated Cycle: 123			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 17: Lake Hamilton Dr./Fairview Village/Lakeside Ranch & SR 544



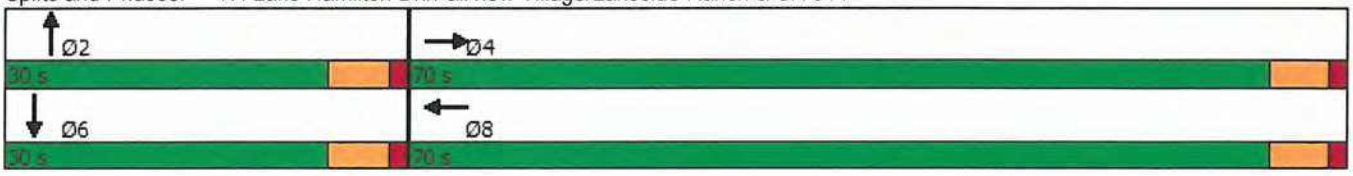
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1603	275	0	2105	5	0	1	295	0	1	5
Future Volume (vph)	0	1603	275	0	2105	5	0	1	295	0	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	500		0	200		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.978						0.865			0.887	
Flt Protected												
Satd. Flow (prot)	0	3367	0	0	3438	0	0	1580	0	0	1685	0
Flt Permitted												
Satd. Flow (perm)	0	3367	0	0	3438	0	0	1580	0	0	1685	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38						31			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1011			109			657			126	
Travel Time (s)		23.0			2.5			14.9			2.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	4%	4%	5%	0%	4%	0%	4%	0%	0%	0%
Adj. Flow (vph)	0	1687	289	0	2216	5	0	1	311	0	1	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1976	0	0	2221	0	0	312	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2			2			2			2	
Detector Template		Thru			Thru			Thru			Thru	
Leading Detector (ft)		100			100			100			100	
Trailing Detector (ft)		0			0			0			0	
Detector 1 Position(ft)		0			0			0			0	
Detector 1 Size(ft)		6			6			6			6	
Detector 1 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0			0.0			0.0	
Detector 1 Queue (s)		0.0			0.0			0.0			0.0	
Detector 1 Delay (s)		0.0			0.0			0.0			0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA			NA			NA			NA	
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase		4			8			2			6	
Switch Phase												
Minimum Initial (s)		5.0			5.0			5.0			5.0	
Minimum Split (s)		24.5			24.5			21.0			21.0	
Total Split (s)		70.0			70.0			30.0			30.0	
Total Split (%)		70.0%			70.0%			30.0%			30.0%	
Maximum Green (s)		64.0			64.0			24.0			24.0	
Yellow Time (s)		4.5			4.5			4.5			4.5	
All-Red Time (s)		1.5			1.5			1.5			1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Recall Mode		None			None			Min			Min	
Act Effct Green (s)		64.1			64.1			21.1			21.1	
Actuated g/C Ratio		0.66			0.66			0.22			0.22	
v/c Ratio		0.88			0.98			0.85			0.02	
Control Delay		20.3			32.3			54.9			19.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.3			32.3			54.9			19.5	
LOS		C			C			D			B	
Approach Delay		20.3			32.3			54.9			19.5	
Approach LOS		C			C			D			B	
90th %ile Green (s)		64.0			64.0			24.0			24.0	
90th %ile Term Code		Max			Max			Max			Hold	
70th %ile Green (s)		64.0			64.0			24.0			24.0	
70th %ile Term Code		Max			Max			Max			Hold	
50th %ile Green (s)		64.0			64.0			23.8			23.8	
50th %ile Term Code		Max			Max			Gap			Hold	
30th %ile Green (s)		64.0			64.0			19.7			19.7	
30th %ile Term Code		Max			Max			Gap			Hold	
10th %ile Green (s)		64.0			64.0			14.4			14.4	
10th %ile Term Code		Hold			Max			Gap			Hold	
Stops (vph)		1398			1662			244			4	
Fuel Used(gal)		30			67			6			0	
CO Emissions (g/hr)		2116			4651			432			4	
NOx Emissions (g/hr)		412			905			84			1	
VOC Emissions (g/hr)		490			1078			100			1	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		509			~698			169			1	
Queue Length 95th (ft)		#664			#924			#299			11	
Internal Link Dist (ft)		931			29			577			46	
Turn Bay Length (ft)												
Base Capacity (vph)		2233			2267			414			420	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.88			0.98			0.75			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 97.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 28.6		Intersection LOS: C	
Intersection Capacity Utilization 86.7%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 100			
70th %ile Actuated Cycle: 100			
50th %ile Actuated Cycle: 99.8			
30th %ile Actuated Cycle: 95.7			
10th %ile Actuated Cycle: 90.4			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 17: Lake Hamilton Dr./Fairview Village/Lakeside Ranch & SR 544



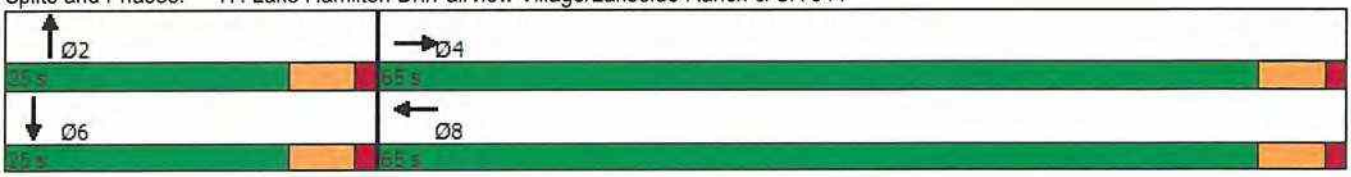
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1817	300	0	1874	5	0	2	260	0	2	3
Future Volume (vph)	0	1817	300	0	1874	5	0	2	260	0	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	500		0	200		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979						0.866			0.919	
Flt Protected												
Satd. Flow (prot)	0	3427	0	0	3505	0	0	1583	0	0	1746	0
Flt Permitted												
Satd. Flow (perm)	0	3427	0	0	3505	0	0	1583	0	0	1746	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43			1			22			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1011			109			657			126	
Travel Time (s)		23.0			2.5			14.9			2.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	3%	4%	4%	3%	0%	4%	0%	4%	0%	0%	0%
Adj. Flow (vph)	0	1873	309	0	1932	5	0	2	268	0	2	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2182	0	0	1937	0	0	270	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2			2			2			2	
Detector Template		Thru			Thru			Thru			Thru	
Leading Detector (ft)		100			100			100			100	
Trailing Detector (ft)		0			0			0			0	
Detector 1 Position(ft)		0			0			0			0	
Detector 1 Size(ft)		6			6			6			6	
Detector 1 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0			0.0			0.0	
Detector 1 Queue (s)		0.0			0.0			0.0			0.0	
Detector 1 Delay (s)		0.0			0.0			0.0			0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA			NA			NA			NA	
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases												
Detector Phase		4			8			2			6	
Switch Phase												
Minimum Initial (s)		5.0			5.0			5.0			5.0	
Minimum Split (s)		24.5			24.5			21.0			21.0	
Total Split (s)		65.0			65.0			25.0			25.0	
Total Split (%)		72.2%			72.2%			27.8%			27.8%	
Maximum Green (s)		59.0			59.0			19.0			19.0	
Yellow Time (s)		4.5			4.5			4.5			4.5	
All-Red Time (s)		1.5			1.5			1.5			1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Recall Mode		None			None			Min			Min	
Act Effct Green (s)		59.1			59.1			17.1			17.1	
Actuated g/C Ratio		0.67			0.67			0.19			0.19	
v/c Ratio		0.94			0.82			0.83			0.01	
Control Delay		24.1			15.1			53.8			22.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		24.1			15.1			53.8			22.0	
LOS		C			B			D			C	
Approach Delay		24.1			15.1			53.8			22.0	
Approach LOS		C			B			D			C	
90th %ile Green (s)		59.0			59.0			19.0			19.0	
90th %ile Term Code		Max			Max			Max			Hold	
70th %ile Green (s)		59.0			59.0			19.0			19.0	
70th %ile Term Code		Max			Max			Max			Hold	
50th %ile Green (s)		59.0			59.0			19.0			19.0	
50th %ile Term Code		Max			Max			Max			Hold	
30th %ile Green (s)		59.0			59.0			16.7			16.7	
30th %ile Term Code		Max			Hold			Gap			Hold	
10th %ile Green (s)		59.0			59.0			12.1			12.1	
10th %ile Term Code		Max			Hold			Gap			Hold	
Stops (vph)		1611			1325			217			4	
Fuel Used(gal)		36			52			5			0	
CO Emissions (g/hr)		2514			3623			378			3	
NOx Emissions (g/hr)		489			705			74			1	
VOC Emissions (g/hr)		583			840			88			1	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		536			395			134			1	
Queue Length 95th (ft)		#796			512			#255			10	
Internal Link Dist (ft)		931			29			577			46	
Turn Bay Length (ft)												
Base Capacity (vph)		2309			2348			358			378	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.94			0.82			0.75			0.01	

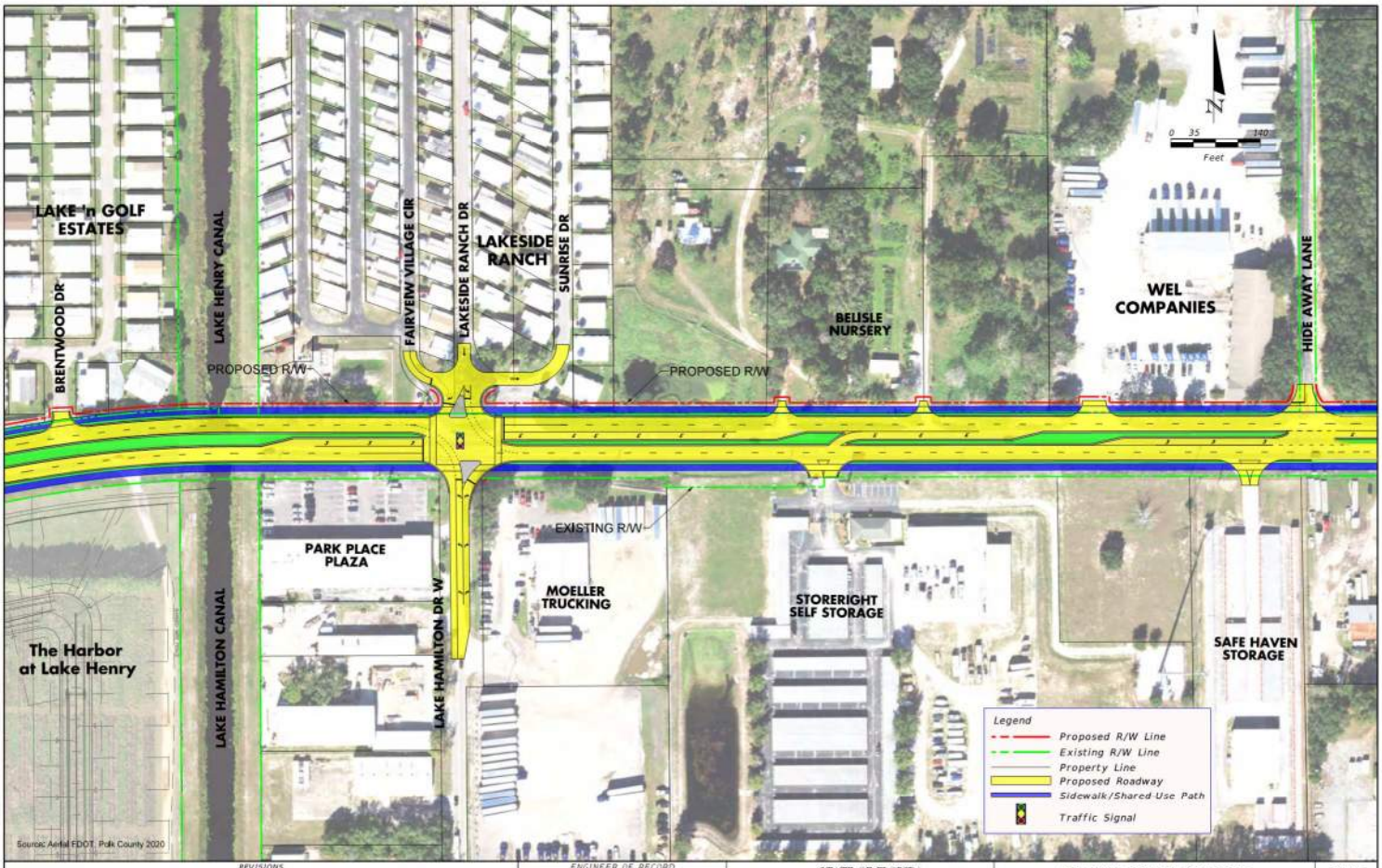
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 86.0%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 90			
70th %ile Actuated Cycle: 90			
50th %ile Actuated Cycle: 90			
30th %ile Actuated Cycle: 87.7			
10th %ile Actuated Cycle: 83.1			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 17: Lake Hamilton Dr./Fairview Village/Lakeside Ranch & SR 544



Appendix E

Signalized Intersection Preliminary Geometric Concept



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
LAKE HAMILTON DRIVE
SIGNALIZED ALTERNATIVE

SHEET NO. 1

gpanaccione

7/12/2022 10:02:51 AM LK HAMILTON 100 SCALE

F:\Projects\DT1-022-01\emo\PLANEM02_INTERSECT_LAKE_HAMILTON.DGN

CERTIFICATION

AGENCY: Florida Department of Transportation District One
801 North Broadway Avenue
Bartow, Florida 33831-1249

I hereby certify that I am a registered professional engineer in the State of Florida and that I have supervised the preparation of, and approved the analysis, findings, opinions, conclusions and technical advice hereby reported for:

REPORT: SR 544/Old Lucerne Park Road (East End) Intersection Control Evaluation (ICE) - Stage 2

PROJECT: SR 544 Project Development and Environment (PD&E) Study

LOCATION: SR 544 from Martin Luther King Boulevard to SR 17
Polk County, Florida

ROADWAY ID: 16140000

MILEPOST No: 8.965

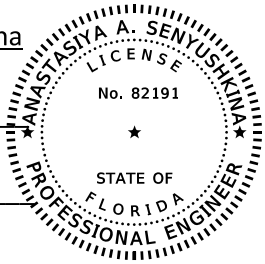
FPID No.: 440273-1-22-01

I acknowledge that the procedures and references used to develop the information contained in this memorandum are standard to the professional practice of transportation engineering as applied through professional judgement and experience.

Engineer in Responsible Charge: Anastasiya A. Senyushkina

Professional Registration No.: 82191

Date: 3/20/2023



Anastasiya A Senyushkina
Date: 2023.03.20 09:26:29-04'00'

AIM Engineering & Surveying, Inc.

MEMORANDUM

Tampa Office
201 E. Kennedy Boulevard, Suite 1800
Tampa, Florida 33602
813-627-4144
www.aimengr.com

Date:	March 20, 2023
To:	David C. Turley, P.E. – FDOT District One DEMO Project Manager Abra Horne – FDOT District One Planning and Environmental Administrator
From:	Greg Root/Anastasiya Senyushkina, P.E.
Subject:	SR 544/Old Lucerne Park Road (east end) Intersection (Polk County) — Stage 2 Intersection Control Evaluation

INTRODUCTION/PROJECT BACKGROUND

This memorandum documents the Stage 2 Intersection Control Evaluation (ICE) conducted for the Old Lucerne Park Road (east end) intersection. This analysis was conducted in support of the SR 544 Project Development & Environment (PD&E) Study from Martin Luther King Boulevard to SR 17 in Polk County. The PD&E study goals are to determine the location and conceptual design of the improvement(s) that satisfy the purpose and need for the project, while also minimizing the impacts to the natural and social environment and satisfying the requirements of the National Environmental Policy Act (NEPA).

A Stage 1+ ICE Technical Memorandum and Stage 1 ICE Form were submitted to District One on February 22, 202. The Stage 1 evaluation recommended that a conventional signalized intersection and a two-lane roundabout be advanced to a Stage 2 evaluation. This recommendation was approved by the District Traffic Operations Engineer and the District Design Engineer on 3/13/2023 and 3/14/2023, respectively. This memorandum documents the Stage 2 Benefit/Cost (B/C) analysis and Net Present Value (NPV) Costs.

EXISTING INTERSECTION CHARACTERISTICS

The east end of Old Lucerne Park Road intersects SR 544 at a T- intersection. This roadway curves to the right approximately 125 feet northwest of the intersection stop bar and intersects SR 544 at a 90-degree angle. The north leg is controlled by a stop sign. A Chevron gas station/convenience store is located in the northwest quadrant of the intersection and Lake 'n Golf Estates is located on the north side of SR 544 and Old Lucerne Park Road. Access to and from this manufactured home community is provided on both SR 544 (via Brentwood Drive) and on Old Lucerne Park Road (via Westchester Drive). Brentwood Drive is located approximately 400 feet east of the Old Lucerne Park Road intersection, while Westchester Drive is located approximately 325 feet northwest of this intersection. An aerial depicting the Old Lucerne Park Road intersection (**Figure 1**) is provided in **Appendix A**.

Approximately 175 feet east of Brentwood Drive, there is a bridge over the Lake Hamilton canal. Although the land on the south side of SR 544 is currently undeveloped, there is a residential

development (i.e., The Harbor at Lake Henry) currently going through the permit approval process. The proposed entrance/exit for this residential development is located approximately 950 feet southwest of the Old Lucerne Park Road intersection. Another future residential development (i.e., Tuscany Village) is located between SR 544 and Old Lucerne Park Road. This development proposes access to both SR 544 and Old Lucerne Park Road. In addition, Duke Energy is currently in the process of acquiring an easement for the construction of a 230-kilovolt transmission line to be located on the south side of SR 544. An aerial image depicting the Old Lucerne Park Road intersection, the two proposed residential developments, the Lake Hamilton canal, and the Lake Hamilton Drive intersection (**Figure 2**) is also provided in **Appendix A**. The posted speed limit on SR 544 in the vicinity of this intersection is 50 miles per hour (mph). The posted speed limit on Old Lucerne Park Road is 40 mph; however, there is a 15 mph advisory speed sign in the southbound direction in advance of the horizontal curve.

STAGE 2 INTERSECTION CONTROL EVALUATION

Opening year (2025) and design year (2045) peak hour SYNCHRO and SIDRA analyses were conducted for the conventional signalized intersection and the roundabout. These analyses were conducted using the peak hour volumes documented in the FDOT approved Project Traffic Analysis Report (*January 2021*). These volumes are provided in **Appendix B.** The operational analysis results are summarized in **Table 1**. Both alternatives are projected to operate with v/c ratios less than 1.00 during both peak hours.

Table 1: Peak Hour Operational Analysis Summary - Old Lucerne Park Road (East) Intersection

Opening Year (2025)						
Peak Hour	Signalized Intersection			Roundabout		
AM	Max V/C [(1)]	Avg. Delay	LOS	Max V/C [(1)]	Avg. Delay	LOS
	0.67	13.5	B	0.40	6.7	A
Peak Hour	Signalized Intersection			Roundabout		
PM	Max V/C [(1)]	Avg. Delay	LOS	Max V/C [(1)]	Avg. Delay	LOS
	0.57	11.4	B	0.42	6.9	A
Design Year (2045)						
Peak Hour	Signalized Intersection			Roundabout		
AM	Max V/C [(1)]	Avg. Delay	LOS	Max V/C [(1)]	Avg. Delay	LOS
	0.94	22.9	C	0.79	19.6	C
Peak Hour	Signalized Intersection			Roundabout		
PM	Max V/C [(1)]	Avg. Delay	LOS	Max V/C [(1)]	Avg. Delay	LOS
	0.80	15.6	B	0.81	16.4	C

[(1)] *Highest volume-to-capacity ratio of all the individual movements.*

The average delay for the southbound roundabout approach is projected to be 50.2 seconds per vehicle in the design year a.m. peak hour. The maximum delay for Level of Service E is 50.0 seconds per vehicle. Consequently, the year of failure is estimated to be 2045. The opening year and design year SYNCHRO and SIDRA analysis summary sheets are provided in **Appendix C**. The total number of crashes and the total number of fatal and injury crashes that were previously estimated for these two control strategies using the SPICE software (and documented in the FDOT approved Stage 1+ ICE Technical Memorandum) are provided in **Appendix D**.

Geometric improvement concepts were developed for both of these alternatives, and these are provided in **Appendix E**. The roundabout improvement concept impacts six parcels, requires approximately 0.70 acres of right-of-way and results in one business relocation (i.e., the Chevron gas station). In comparison, the conventional signalized intersection impacts five parcels, requires approximately 0.08 acres of right-of-way and does not result in any business relocations. Right-of-way cost estimates and roadway construction cost estimates were prepared for both alternatives and were provided by District One. Wetland mitigation cost estimates and reimbursable utility relocation cost estimates were also developed for both alternatives and were provided by Inwood Consulting Engineers. The cost estimates are summarized in **Table 2**, while the supporting information is provided in **Appendix F**.

Table 2: Cost Comparison - Old Lucerne Park Road (East) Intersection

Estimated Present Day Costs	Intersection Control Strategy	
	Roundabout	Signalized Intersection
Design	$279,000	$55,000
Right-of-Way	4,225,000	$520,000
Reimbursable Utility Relocation	$25,900	$3,800
Wetland Mitigation	$13,500	$13,500
Roadway Construction	$1,858,000	$369,000
Construction Engineering & Inspection	$223,000	$44,000
Total	**$6,624,400**	**$1,005,300**

The design costs were assumed to be equal to 15% of the roadway construction costs, while the Construction Engineering & Inspection costs were assumed to be equal to 12% of the roadway construction costs. The wetland mitigation cost was estimated based on a value of $135,000 per acre.

The Stage 2 B/C analysis and NPV costs were calculated using the FDOT's ICE Tool that was downloaded from the FDOT Traffic Studies/Intersection Operations website. Compared to the conventional signalized intersection, the roundabout has a B/C ratio equal to 3.96 and a NPV equal to $7,774,263. The Stage 2 ICE analysis summary is provided in **Appendix G**.

RECOMMENDED INTERSECTION CONTROL STRATEGY

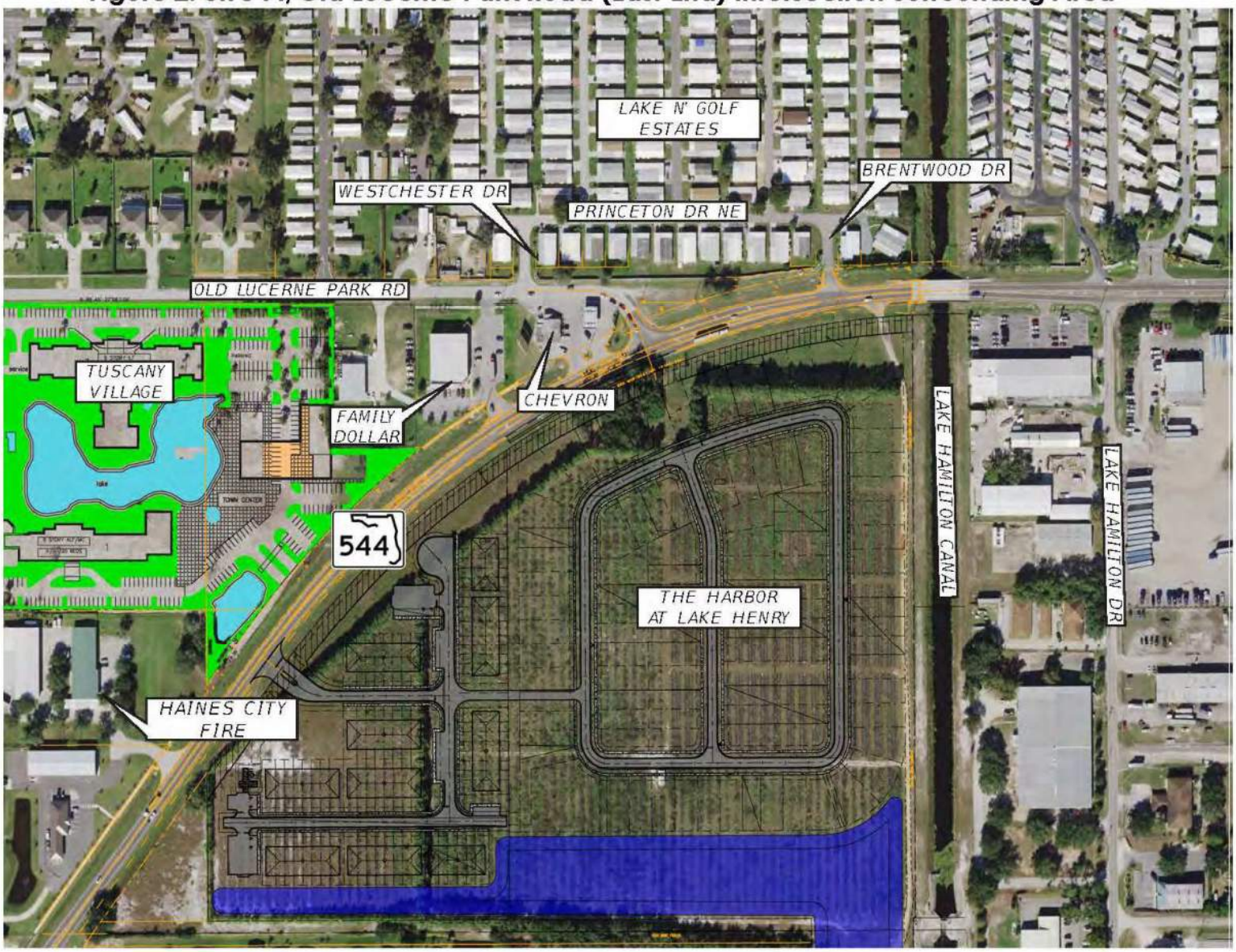
The implementation of a roundabout at the SR 544/Old Lucerne Park Road (east) intersection would provide positive speed control and result in a lower number of fatal and injury crashes as compared to a conventional signalized intersection. Although the current posted speed limit in the vicinity of this intersection is 50 mph, the proposed SR 544 typical section and horizontal alignment is based on a 45 mph target speed. A roundabout would help to facilitate slower vehicle speeds east and west of this intersection. A roundabout is estimated to have significantly higher SSI scores as compared to a conventional signalized intersection. Compared to the conventional signalized intersection, the roundabout has a B/C ratio equal to 3.96 and a NPV equal to $7,774,263. Consequently, a two-lane roundabout is the recommended intersection control; strategy for the Old Lucerne Park Road (east) intersection.

Appendix A

Existing Intersection Aerials

Figure 1: Existing SR 544/Old Lucerne Park Road (East End) Intersection

Figure 2: SR 544/Old Lucerne Park Road (East End) Intersection Surrounding Area



Appendix B

Future Year Peak Hour Traffic Volumes

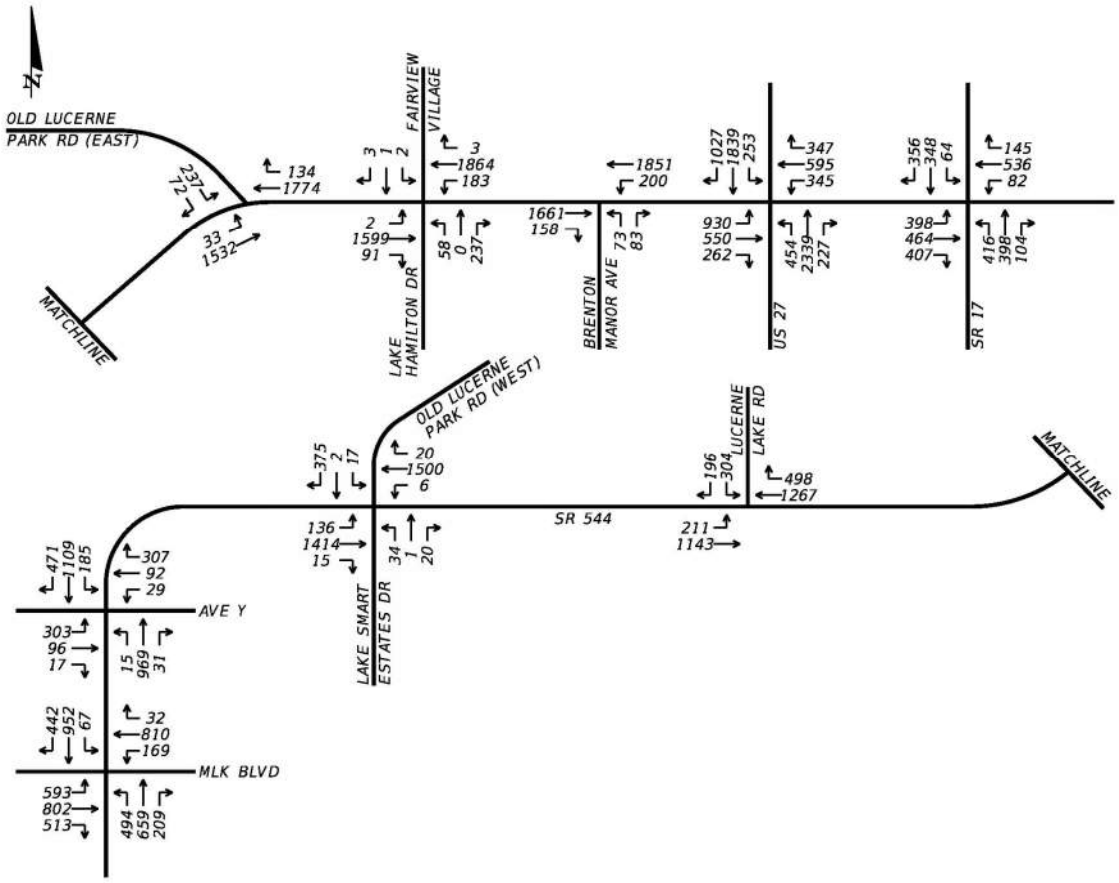


Figure 3-21: Design Year (2045) A.M. Peak Hour Intersection Volumes – Build Alternative No. 2

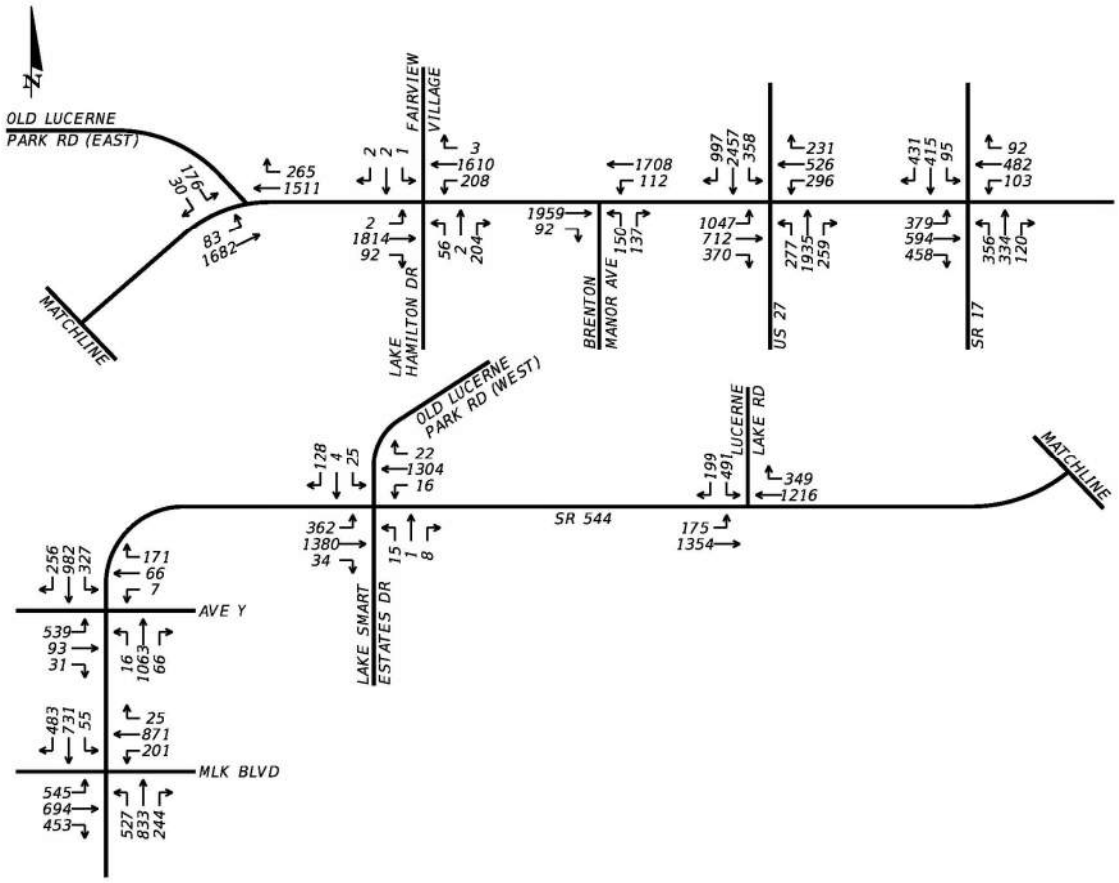


Figure 3-22: Design Year (2045) P.M. Peak Hour Intersection Volumes – Build Alternative No. 2

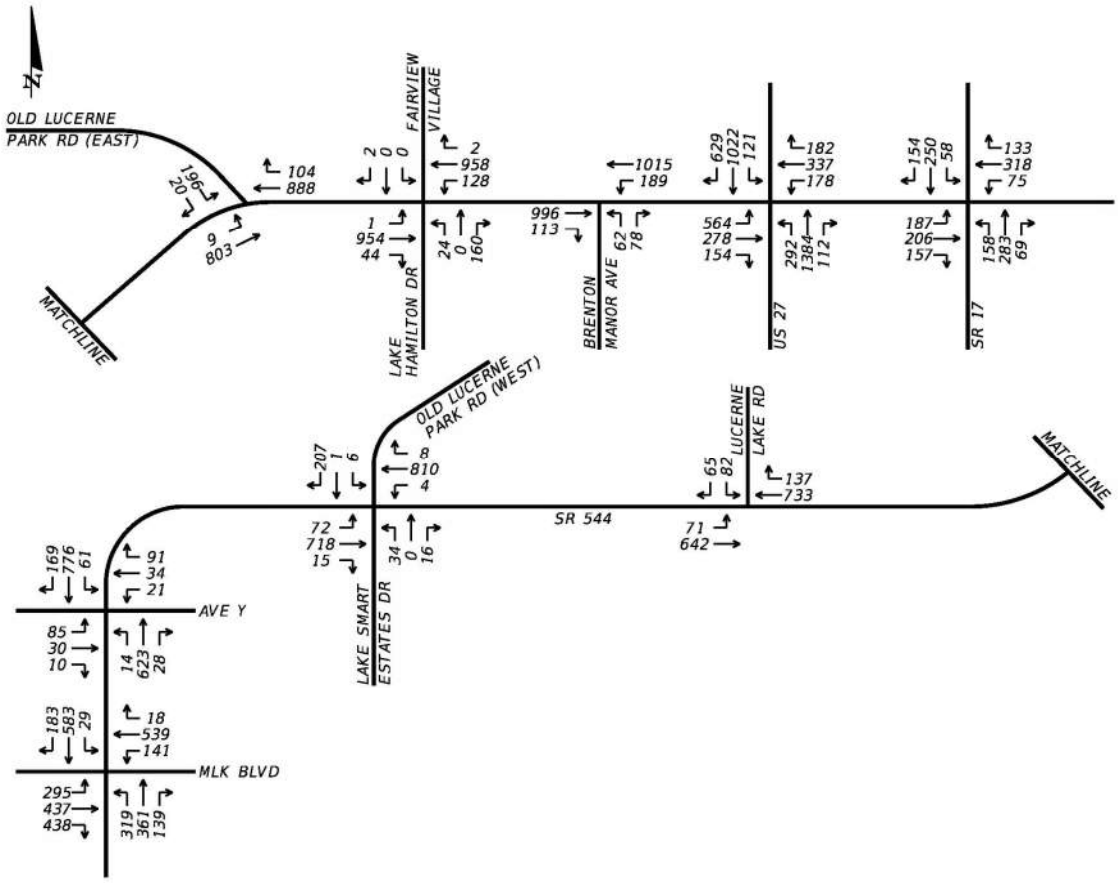


Figure 3-23: Opening Year (2025) A.M. Peak Hour Intersection Volumes – Build Alternative No. 2

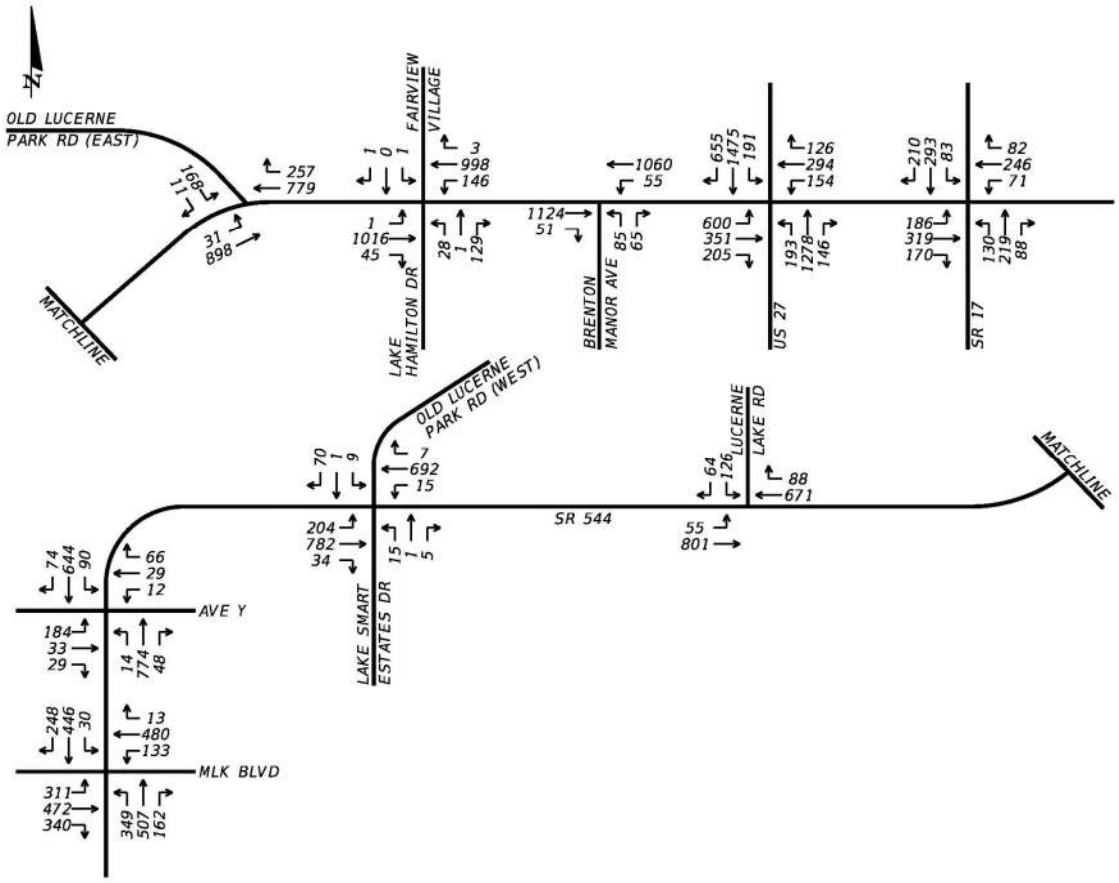


Figure 3-24: Opening Year (2025) P.M. Peak Hour Intersection Volumes – Build Alternative No. 2

Appendix C

SYNCHRO and SIDRA Analysis Summary Sheets

Table 1A: Peak Hour Operational Analysis Summary - Old Lucerne Park Road (East) Intersection

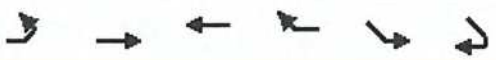
Opening Year (2025) AM Peak Hour

	Signalized Intersection			Roundabout		
Movement	V/C Ratio	Avg. Delay	LOS	V/C Ratio	Avg. Delay	LOS
EB LT	0.03	6.4	A	0.40	7.8	A
EB TH	0.51	9.5	A	0.40	7.5	A
EB APPROACH	0.51[(1)]	9.5	A	0.40[(1)]	7.5	A
WB TH	0.67	16.3	B	0.39	5.3	A
WB RT	0.08	0.9	A	0.39	5.4	A
WB APPROACH	0.67[(1)]	14.7	B	0.39[(1)]	5.3	A
SB LT	0.53	24.6	C	0.23	10.7	B
SB RT	0.03	5.5	A	0.23	10.2	B
SB APPROACH	0.53[(1)]	22.8	C	0.23[(1)]	10.6	B
OVERALL	0.67[(1)]	13.5	B	0.40[(1)]	6.7	A

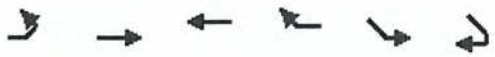
Opening Year (2025) PM Peak Hour

	Signalized Intersection			Roundabout		
Movement	V/C Ratio	Avg. Delay	LOS	V/C Ratio	Avg. Delay	LOS
EB LT	0.09	6.7	A	0.42	8.0	A
EB TH	0.54	9.5	A	0.42	7.5	A
EB APPROACH	0.54[(1)]	9.4	A	0.42[(1)]	7.5	A
WB TH	0.57	14.6	B	0.40	6.0	A
WB RT	0.20	0.9	A	0.40	6.3	A
WB APPROACH	0.57[(1)]	11.2	B	0.40[(1)]	6.1	A
SB LT	0.46	23.8	C	0.16	8.3	A
SB RT	0.01	6.2	A	0.16	7.9	A
SB APPROACH	0.46[(1)]	22.8	C	0.16[(1)]	8.2	A
OVERALL	0.57[(1)]	11.4	B	0.42[(1)]	6.9	A

[(1)] *Highest movement volume-to-capacity ratio*



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	9	803	888	104	196	20
Future Volume (vph)	9	803	888	104	196	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	425			250	0	200
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3438	3438	1509	1687	1509
Flt Permitted	0.163				0.950	
Satd. Flow (perm)	289	3438	3438	1509	1687	1509
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				109		21
Link Speed (mph)		30	30		30	
Link Distance (ft)		9058	1011		169	
Travel Time (s)		205.9	23.0		3.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	5%	5%	7%	7%	7%
Adj. Flow (vph)	9	845	935	109	206	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	845	935	109	206	21
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	7	4	8	5	5	7

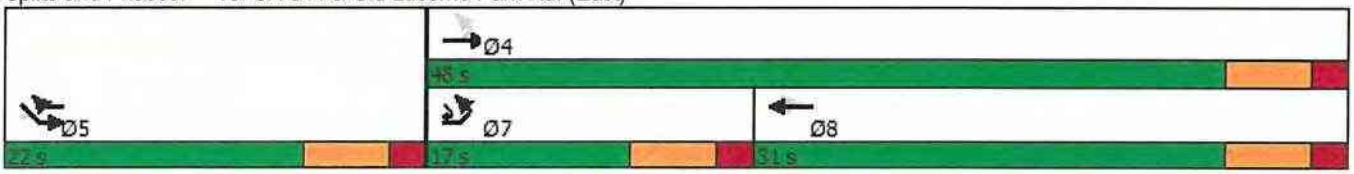


Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Permitted Phases	4			8		5
Detector Phase	7	4	8	5	5	7
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	17.0	24.0	24.0	17.0	17.0	17.0
Total Split (s)	17.0	48.0	31.0	22.0	22.0	17.0
Total Split (%)	24.3%	68.6%	44.3%	31.4%	31.4%	24.3%
Maximum Green (s)	10.5	41.5	24.5	15.5	15.5	10.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	Min	None
Act Effct Green (s)	24.0	24.0	20.1	43.7	11.5	24.7
Actuated g/C Ratio	0.48	0.48	0.41	0.88	0.23	0.50
v/c Ratio	0.03	0.51	0.67	0.08	0.53	0.03
Control Delay	6.4	9.5	16.3	0.9	24.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	9.5	16.3	0.9	24.6	5.5
LOS	A	A	B	A	C	A
Approach Delay		9.5	14.7		22.8	
Approach LOS		A	B		C	
90th %ile Green (s)	6.3	37.3	24.5	15.5	15.5	6.3
90th %ile Term Code	Gap	Hold	Max	Max	Max	Gap
70th %ile Green (s)	6.0	37.0	24.5	15.0	15.0	6.0
70th %ile Term Code	Gap	Hold	Max	Gap	Gap	Gap
50th %ile Green (s)	0.0	20.3	20.3	11.0	11.0	0.0
50th %ile Term Code	Skip	Hold	Gap	Gap	Gap	Skip
30th %ile Green (s)	0.0	16.9	16.9	9.3	9.3	0.0
30th %ile Term Code	Skip	Hold	Gap	Gap	Gap	Skip
10th %ile Green (s)	0.0	13.1	13.1	7.0	7.0	0.0
10th %ile Term Code	Skip	Hold	Gap	Gap	Gap	Skip
Stops (vph)	6	462	657	7	156	7
Fuel Used(gal)	1	61	14	1	2	0
CO Emissions (g/hr)	48	4251	949	61	147	6
NOx Emissions (g/hr)	9	827	185	12	29	1
VOC Emissions (g/hr)	11	985	220	14	34	1
Dilemma Vehicles (#)	0	0	0	0	0	0
Queue Length 50th (ft)	1	74	84	0	45	0
Queue Length 95th (ft)	7	129	230	10	133	11
Internal Link Dist (ft)		8978	931		89	
Turn Bay Length (ft)	425			250		200
Base Capacity (vph)	459	2892	1834	1332	569	917
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0

Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Reduced v/c Ratio	0.02	0.29	0.51	0.08	0.36	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 49.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 46.2%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 65.8			
70th %ile Actuated Cycle: 65			
50th %ile Actuated Cycle: 44.3			
30th %ile Actuated Cycle: 39.2			
10th %ile Actuated Cycle: 33.1			

Splits and Phases: 15: SR 544 & Old Lucerne Park Rd. (East)



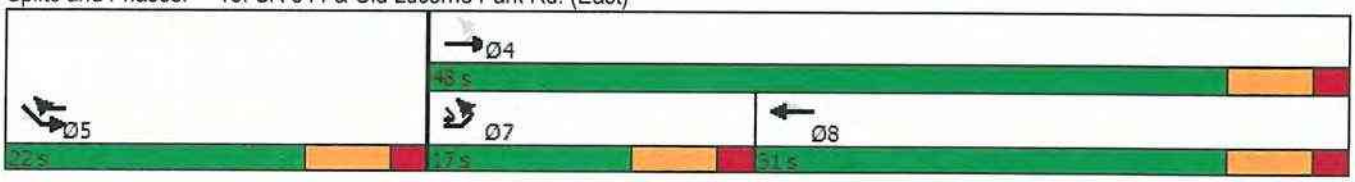
Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	31	898	779	257	168	11
Future Volume (vph)	31	898	779	257	168	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	425			250	0	200
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3505	3505	1509	1687	1509
Flt Permitted	0.216				0.950	
Satd. Flow (perm)	384	3505	3505	1509	1687	1509
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				265		11
Link Speed (mph)		30	30		30	
Link Distance (ft)		9058	1011		169	
Travel Time (s)		205.9	23.0		3.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	7%	3%	3%	7%	7%	7%
Adj. Flow (vph)	32	926	803	265	173	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	926	803	265	173	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	7	4	8	5	5	7

Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Permitted Phases	4			8		5
Detector Phase	7	4	8	5	5	7
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	17.0	24.0	24.0	17.0	17.0	17.0
Total Split (s)	17.0	48.0	31.0	22.0	22.0	17.0
Total Split (%)	24.3%	68.6%	44.3%	31.4%	31.4%	24.3%
Maximum Green (s)	10.5	41.5	24.5	15.5	15.5	10.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	Min	None
Act Effct Green (s)	23.9	23.9	19.9	43.0	10.9	24.6
Actuated g/C Ratio	0.49	0.49	0.41	0.88	0.22	0.50
v/c Ratio	0.09	0.54	0.57	0.20	0.46	0.01
Control Delay	6.7	9.5	14.6	0.9	23.8	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	9.5	14.6	0.9	23.8	6.2
LOS	A	A	B	A	C	A
Approach Delay		9.4	11.2		22.8	
Approach LOS		A	B		C	
90th %ile Green (s)	7.4	38.4	24.5	15.5	15.5	7.4
90th %ile Term Code	Gap	Hold	Max	Max	Max	Gap
70th %ile Green (s)	6.8	37.6	24.3	13.5	13.5	6.8
70th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Gap
50th %ile Green (s)	0.0	20.3	20.3	11.2	11.2	0.0
50th %ile Term Code	Skip	Hold	Gap	Gap	Gap	Skip
30th %ile Green (s)	0.0	16.1	16.1	8.2	8.2	0.0
30th %ile Term Code	Skip	Gap	Hold	Gap	Gap	Skip
10th %ile Green (s)	0.0	12.6	12.6	6.4	6.4	0.0
10th %ile Term Code	Skip	Gap	Hold	Gap	Gap	Skip
Stops (vph)	14	522	541	13	132	4
Fuel Used(gal)	2	68	11	2	2	0
CO Emissions (g/hr)	161	4757	800	150	123	4
NOx Emissions (g/hr)	31	925	156	29	24	1
VOC Emissions (g/hr)	37	1102	186	35	29	1
Dilemma Vehicles (#)	0	0	0	0	0	0
Queue Length 50th (ft)	4	83	68	0	37	0
Queue Length 95th (ft)	15	143	194	17	115	8
Internal Link Dist (ft)		8978	931		89	
Turn Bay Length (ft)	425			250		200
Base Capacity (vph)	491	2944	1907	1351	580	910
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0

Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Reduced v/c Ratio	0.07	0.31	0.42	0.20	0.30	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 49			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 45.9%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 66.9			
70th %ile Actuated Cycle: 64.1			
50th %ile Actuated Cycle: 44.5			
30th %ile Actuated Cycle: 37.3			
10th %ile Actuated Cycle: 32			

Splits and Phases: 15: SR 544 & Old Lucerne Park Rd. (East)

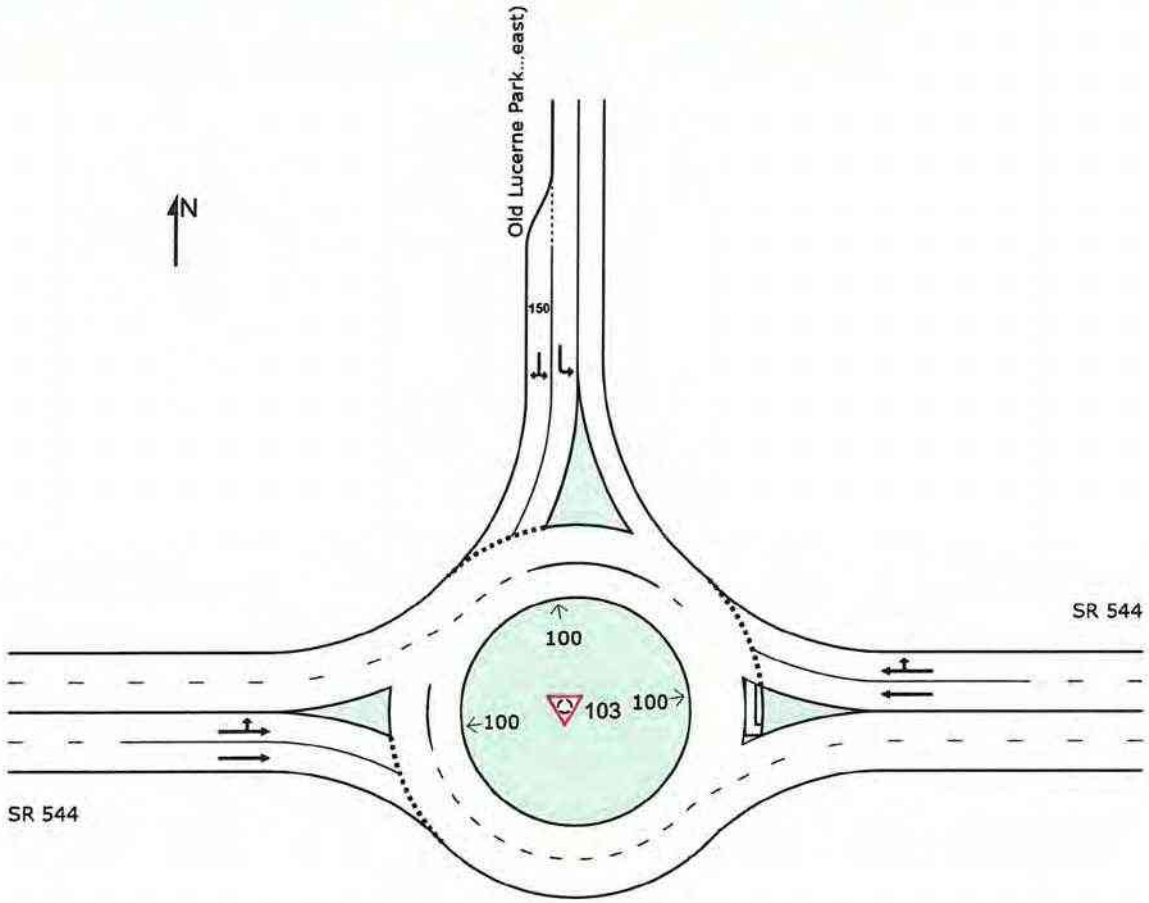


SITE LAYOUT

Site: 103 [SR 544/Old Lucerne Park Rd (east end) Intersection (Site Folder: General)]

Opening Year (2025) AM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: T:\PROJECTS\2 - DISTRICT 1\D1_SR 544\Traffic\Roundabouts\Interim Years\SR 544_OLP Rd_East_2025 AM Pk Hr_Build Alt 2.sip9

MOVEMENT SUMMARY

Site: 103 [SR 544/Old Lucerne Park Rd (east end) Intersection (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Opening Year (2025) AM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
East: SR 544															
6	T1	All MCs	935	5.0	935	5.0	0.390	5.3	LOS A	2.3	60.7	0.08	0.01	0.08	33.7
16	R2	All MCs	109	7.0	109	7.0	0.390	5.4	LOS A	2.3	60.6	0.08	0.01	0.08	33.3
Approach			1044	5.2	1044	5.2	0.390	5.3	LOS A	2.3	60.7	0.08	0.01	0.08	33.7
North: Old Lucerne Park Rd (east)															
7	L2	All MCs	206	7.0	206	7.0	0.231	10.7	LOS B	0.7	19.2	0.65	0.64	0.65	28.8
14	R2	All MCs	21	7.0	21	7.0	0.231	10.2	LOS B	0.7	18.6	0.64	0.63	0.64	29.4
Approach			227	7.0	227	7.0	0.231	10.6	LOS B	0.7	19.2	0.65	0.64	0.65	28.8
West: SR 544															
5	L2	All MCs	9	7.0	9	7.0	0.398	7.8	LOS A	2.0	52.6	0.45	0.27	0.45	31.9
2	T1	All MCs	845	5.0	845	5.0	0.398	7.5	LOS A	2.0	52.6	0.44	0.26	0.44	32.7
Approach			855	5.0	855	5.0	0.398	7.5	LOS A	2.0	52.6	0.44	0.26	0.44	32.7
All Vehicles			2126	5.3	2126	5.3	0.398	6.7	LOS A	2.3	60.7	0.29	0.18	0.29	32.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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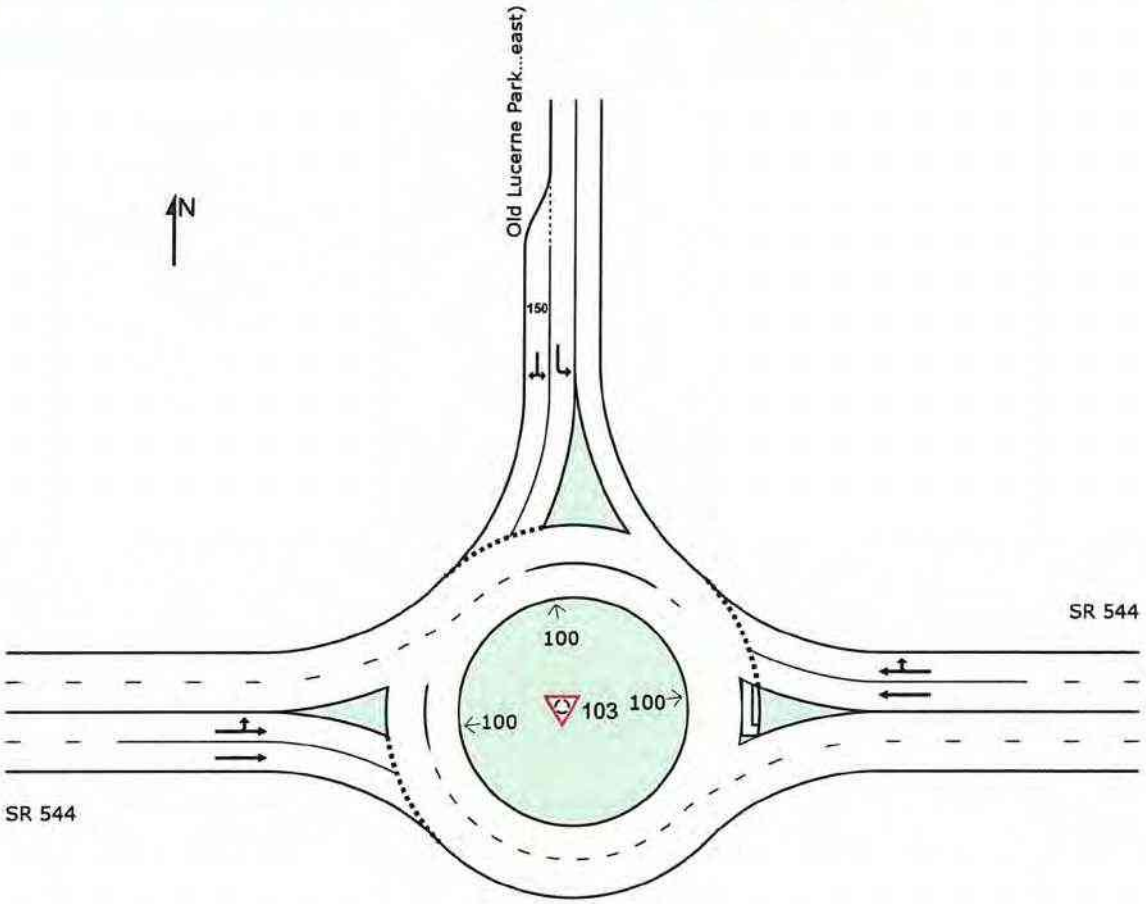
SITE LAYOUT

Site: 103 [SR 544/Old Lucerne Park Rd (east end) Intersection (Site Folder: General)]

Opening Year (2025) PM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 103 [SR 544/Old Lucerne Park Rd (east end) Intersection (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Opening Year (2025) PM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
East: SR 544															
6	T1	All MCs	803	3.0	803	3.0	0.404	6.0	LOS A	2.5	63.3	0.18	0.05	0.18	33.4
16	R2	All MCs	265	7.0	265	7.0	0.404	6.3	LOS A	2.4	63.0	0.18	0.05	0.18	32.9
Approach			1068	4.0	1068	4.0	0.404	6.1	LOS A	2.5	63.3	0.18	0.05	0.18	33.3
North: Old Lucerne Park Rd (east)															
7	L2	All MCs	173	7.0	173	7.0	0.160	8.3	LOS A	0.5	13.5	0.60	0.56	0.60	29.6
14	R2	All MCs	11	7.0	11	7.0	0.160	7.9	LOS A	0.5	13.1	0.59	0.55	0.59	30.2
Approach			185	7.0	185	7.0	0.160	8.2	LOS A	0.5	13.5	0.60	0.56	0.60	29.6
West: SR 544															
5	L2	All MCs	32	7.0	32	7.0	0.422	8.0	LOS A	2.3	59.1	0.43	0.24	0.43	31.7
2	T1	All MCs	926	3.0	926	3.0	0.422	7.5	LOS A	2.3	59.1	0.42	0.24	0.42	32.7
Approach			958	3.1	958	3.1	0.422	7.5	LOS A	2.3	59.1	0.42	0.24	0.42	32.6
All Vehicles			2210	3.9	2210	3.9	0.422	6.9	LOS A	2.5	63.3	0.32	0.17	0.32	32.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Table 1B: Peak Hour Operational Analysis Summary - Old Lucerne Park Road (East) Intersection

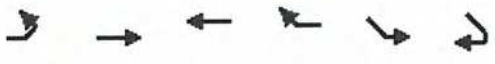
Design Year (2045) AM Peak Hour

Movement	Signalized Intersection			Roundabout		
	V/C Ratio	Avg. Delay	LOS	V/C Ratio	Avg. Delay	LOS
EB LT	0.19	7.5	A	0.79	19.6	C
EB TH	0.69	11.0	B	0.79	19.0	C
EB APPROACH	0.69[(1)]	11.0	B	0.79[(1)]	19.0	C
WB TH	0.94	30.8	C	0.77	15.1	C
WB RT	0.11	0.5	A	0.77	15.2	C
WB APPROACH	0.94[(1)]	28.6	C	0.77[(1)]	15.1	C
SB LT	0.79	55.5	E	0.71	51.3	F
SB RT	0.16	22.3	C	0.71	46.7	E
SB APPROACH	0.79[(1)]	47.7	D	0.71[(1)]	50.2	F
OVERALL	0.94[(1)]	22.9	C	0.79[(1)]	19.6	C

Design Year (2045) PM Peak Hour

Movement	Signalized Intersection			Roundabout		
	V/C Ratio	Avg. Delay	LOS	V/C Ratio	Avg. Delay	LOS
EB LT	0.38	11.8	B	0.81	19.4	C
EB TH	0.73	10.9	B	0.81	18.8	C
EB APPROACH	0.73[(1)]	10.9	B	0.81[(1)]	18.8	C
WB TH	0.80	20.1	C	0.73	13.6	B
WB RT	0.21	0.7	A	0.73	13.8	B
WB APPROACH	0.80[(1)]	17.2	B	0.73[(1)]	13.6	B
SB LT	0.63	45.8	D	0.34	19.1	C
SB RT	0.06	12.7	B	0.34	17.6	C
SB APPROACH	0.63[(1)]	41.0	D	0.34[(1)]	18.9	C
OVERALL	0.80[(1)]	15.6	B	0.81[(1)]	16.4	C

[(1)] *Highest movement volume-to-capacity ratio*



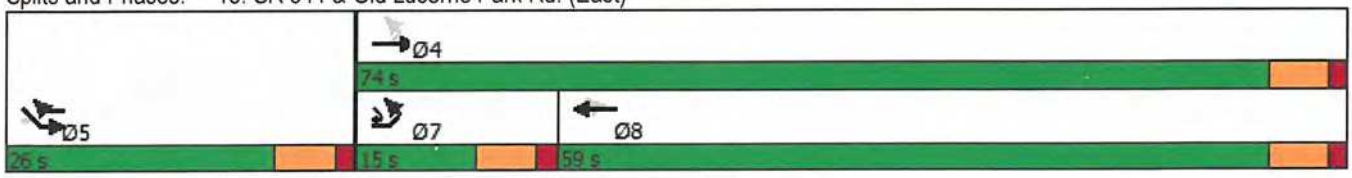
Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	33	1532	1774	134	237	72
Future Volume (vph)	33	1532	1774	134	237	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	425			250	0	200
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3438	3438	1509	1687	1509
Flt Permitted	0.067				0.950	
Satd. Flow (perm)	119	3438	3438	1509	1687	1509
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				141		8
Link Speed (mph)		30	30		30	
Link Distance (ft)		9058	1011		169	
Travel Time (s)		205.9	23.0		3.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	5%	5%	7%	7%	7%
Adj. Flow (vph)	35	1613	1867	141	249	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	1613	1867	141	249	76
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	7	4	8	5	5	7
Permitted Phases	4			8		5
Detector Phase	7	4	8	5	5	7
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	24.0	24.0	24.0	11.0
Total Split (s)	15.0	74.0	59.0	26.0	26.0	15.0
Total Split (%)	15.0%	74.0%	59.0%	26.0%	26.0%	15.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	None	None	Min	Min	None
Act Effct Green (s)	63.5	63.5	53.9	78.8	17.4	29.8
Actuated g/C Ratio	0.68	0.68	0.58	0.85	0.19	0.32
v/c Ratio	0.19	0.69	0.94	0.11	0.79	0.16
Control Delay	7.5	11.0	30.8	0.5	55.5	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	11.0	30.8	0.5	55.5	22.3
LOS	A	B	C	A	E	C
Approach Delay		11.0	28.6		47.7	
Approach LOS		B	C		D	
Stops (vph)	10	851	1404	4	212	44

Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Fuel Used(gal)	2	116	33	1	4	1
CO Emissions (g/hr)	170	8132	2296	76	291	46
NOx Emissions (g/hr)	33	1582	447	15	57	9
VOC Emissions (g/hr)	39	1885	532	18	67	11
Dilemma Vehicles (#)	0	0	0	0	0	0
Queue Length 50th (ft)	6	287	571	0	145	29
Queue Length 95th (ft)	16	362	#786	9	#262	64
Internal Link Dist (ft)		8978	931		89	
Turn Bay Length (ft)	425			250		200
Base Capacity (vph)	234	2537	1991	1310	366	533
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.64	0.94	0.11	0.68	0.14

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 93
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 22.9 Intersection LOS: C
Intersection Capacity Utilization 72.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: SR 544 & Old Lucerne Park Rd. (East)

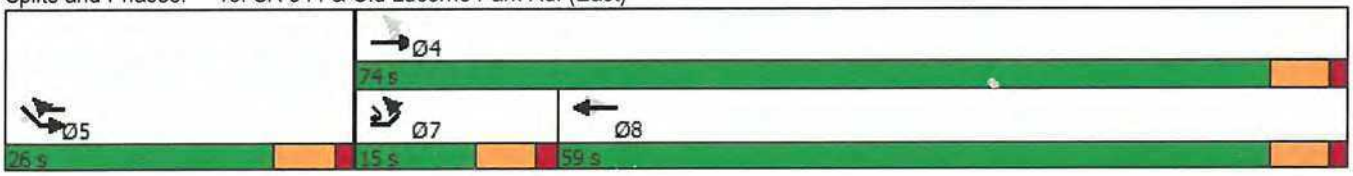


Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	83	1682	1511	265	176	30
Future Volume (vph)	83	1682	1511	265	176	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	425			250	0	200
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3505	3505	1509	1687	1509
Flt Permitted	0.075				0.950	
Satd. Flow (perm)	133	3505	3505	1509	1687	1509
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				273		20
Link Speed (mph)		30	30		30	
Link Distance (ft)		9058	1011		169	
Travel Time (s)		205.9	23.0		3.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	7%	3%	3%	7%	7%	7%
Adj. Flow (vph)	86	1734	1558	273	181	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	1734	1558	273	181	31
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	7	4	8	5	5	7
Permitted Phases	4			8		5
Detector Phase	7	4	8	5	5	7
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	24.0	24.0	24.0	11.0
Total Split (s)	15.0	74.0	59.0	26.0	26.0	15.0
Total Split (%)	15.0%	74.0%	59.0%	26.0%	26.0%	15.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	None	None	Min	Min	None
Act Effct Green (s)	57.4	57.4	47.3	70.1	14.5	28.4
Actuated g/C Ratio	0.68	0.68	0.56	0.83	0.17	0.34
v/c Ratio	0.38	0.73	0.80	0.21	0.63	0.06
Control Delay	11.8	10.9	20.1	0.7	45.8	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	10.9	20.1	0.7	45.8	12.7
LOS	B	B	C	A	D	B
Approach Delay		10.9	17.2		41.0	
Approach LOS		B	B		D	
Stops (vph)	27	949	1130	7	154	12

Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Fuel Used(gal)	6	128	24	2	3	0
CO Emissions (g/hr)	434	8930	1701	151	191	13
NOx Emissions (g/hr)	84	1738	331	29	37	2
VOC Emissions (g/hr)	101	2070	394	35	44	3
Dilemma Vehicles (#)	0	0	0	0	0	0
Queue Length 50th (ft)	13	265	356	0	102	5
Queue Length 95th (ft)	44	409	526	14	175	24
Internal Link Dist (ft)		8978	931		89	
Turn Bay Length (ft)	425			250		200
Base Capacity (vph)	265	2766	2311	1338	422	554
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.63	0.67	0.20	0.43	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 84.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 15: SR 544 & Old Lucerne Park Rd. (East)

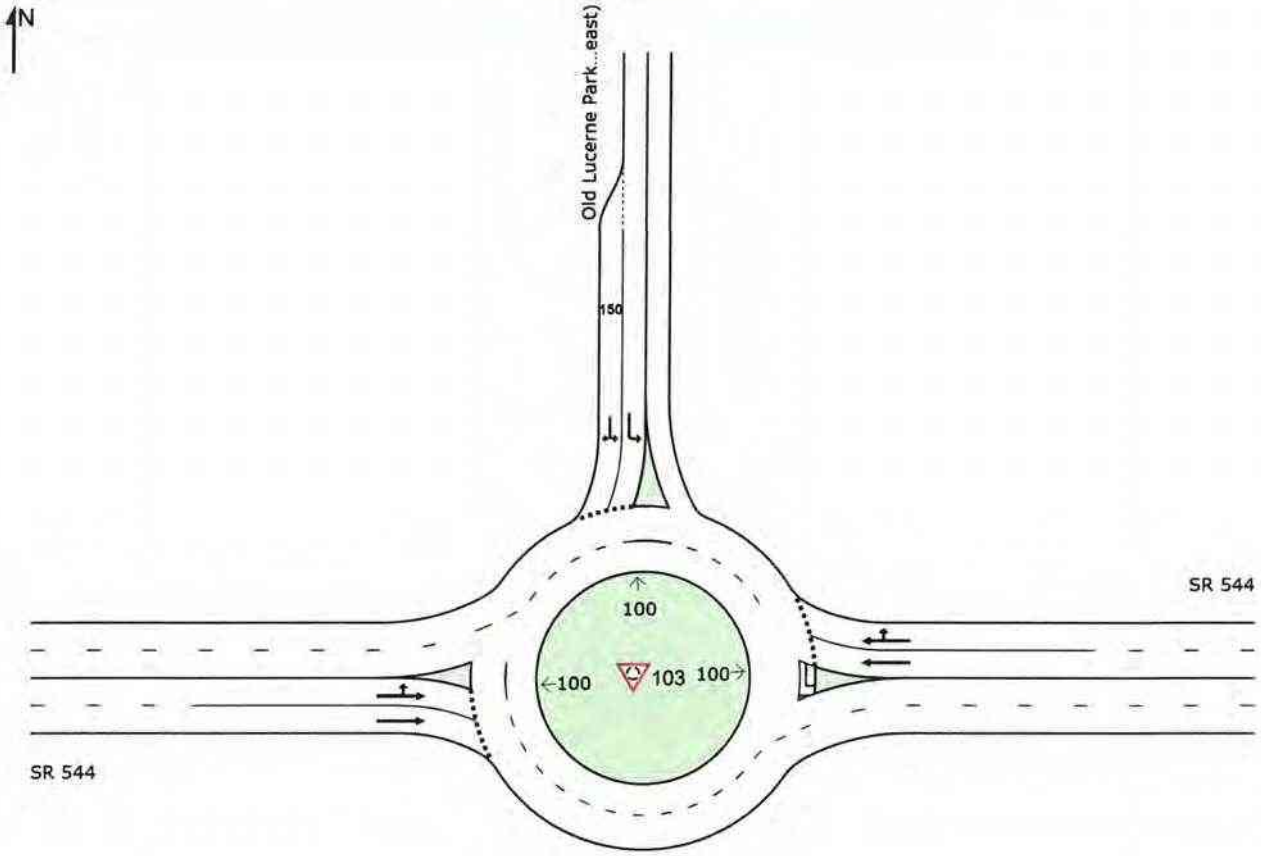


SITE LAYOUT

Site: 103 [SR 544/Old Lucerne Park Rd (east end) Intersection (Site Folder: General)]

Design Year (2045) AM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: 103 [SR 544/Old Lucerne Park Rd (east end) Intersection (Site Folder: General)]

Design Year (2045) AM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed mph
East: SR 544														
6	T1	1774	5.0	1867	5.0	0.769	15.1	LOS C	9.6	250.5	0.38	0.15	0.38	30.5
16	R2	134	7.0	141	7.0	0.769	15.2	LOS C	9.5	248.8	0.38	0.15	0.38	29.6
Approach		1908	5.1	2008	5.1	0.769	15.1	LOS C	9.6	250.5	0.38	0.15	0.38	30.4
North: Old Lucerne Park Rd (east)														
7	L2	237	7.0	249	7.0	0.710	51.3	LOS F	3.2	84.6	0.93	1.18	1.92	19.9
14	R2	72	7.0	76	7.0	0.710	46.7	LOS E	3.2	84.6	0.93	1.18	1.92	20.4
Approach		309	7.0	325	7.0	0.710	50.2	LOS F	3.2	84.6	0.93	1.18	1.92	20.0
West: SR 544														
5	L2	33	7.0	35	7.0	0.791	19.6	LOS C	17.1	445.2	0.82	1.09	1.65	28.7
2	T1	1532	5.0	1613	5.0	0.791	19.0	LOS C	17.4	453.5	0.81	1.07	1.63	28.9
Approach		1565	5.0	1647	5.0	0.791	19.0	LOS C	17.4	453.5	0.81	1.07	1.63	28.9
All Vehicles		3782	5.3	3981	5.3	0.791	19.6	LOS C	17.4	453.5	0.60	0.61	1.02	28.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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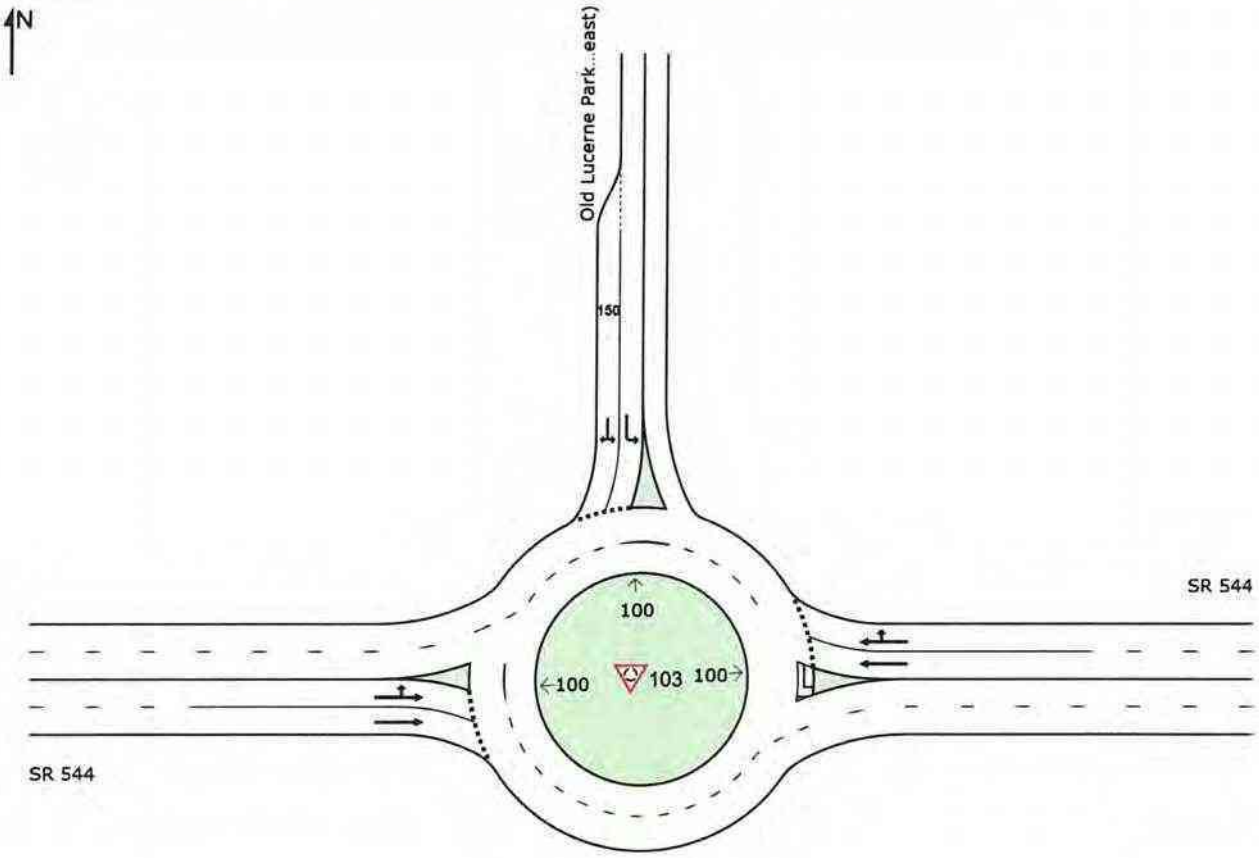
SITE LAYOUT

Site: 103 [SR 544/Old Lucerne Park Rd (east end) Intersection (Site Folder: General)]

Design Year (2045) PM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Organisation: AIM ENGINEERING AND SURVEYING | Licence: NETWORK / 1PC | Created: Monday, January 18, 2021 12:36:50 PM
Project: T:\PROJECTS\2 - DISTRICT 1\D1_SR 544\Traffic\Roundabouts\Design Year 2045\PM Pk Hr\SR 544_OLP Rd_East_2045 PM Pk Hr_Build Alt 2.sip9

MOVEMENT SUMMARY

Site: 103 [SR 544/Old Lucerne Park Rd (east end) Intersection (Site Folder: General)]

Design Year (2045) PM Peak Hour - Build Alt 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: SR 544														
6	T1	1511	3.0	1558	3.0	0.726	13.6	LOS B	7.7	195.9	0.53	0.29	0.53	31.1
16	R2	265	7.0	273	7.0	0.726	13.8	LOS B	7.4	191.4	0.53	0.29	0.53	30.1
Approach		1776	3.6	1831	3.6	0.726	13.6	LOS B	7.7	195.9	0.53	0.29	0.53	31.0
North: Old Lucerne Park Rd (east)														
7	L2	176	7.0	181	7.0	0.338	19.1	LOS C	1.2	30.7	0.82	0.88	1.06	27.4
14	R2	30	7.0	31	7.0	0.338	17.6	LOS C	1.2	30.7	0.81	0.87	1.05	27.3
Approach		206	7.0	212	7.0	0.338	18.9	LOS C	1.2	30.7	0.82	0.88	1.06	27.4
West: SR 544														
5	L2	83	7.0	86	7.0	0.805	19.4	LOS C	20.4	523.7	0.82	0.96	1.45	28.7
2	T1	1682	3.0	1734	3.0	0.805	18.8	LOS C	20.4	523.1	0.81	0.93	1.42	29.0
Approach		1765	3.2	1820	3.2	0.805	18.8	LOS C	20.4	523.7	0.81	0.93	1.42	29.0
All Vehicles		3747	3.6	3863	3.6	0.805	16.4	LOS C	20.4	523.7	0.68	0.63	0.98	29.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Appendix D

SPICE Analysis Summary Sheet

Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool
Results
Summary of crash prediction results for each alternative

Project Information

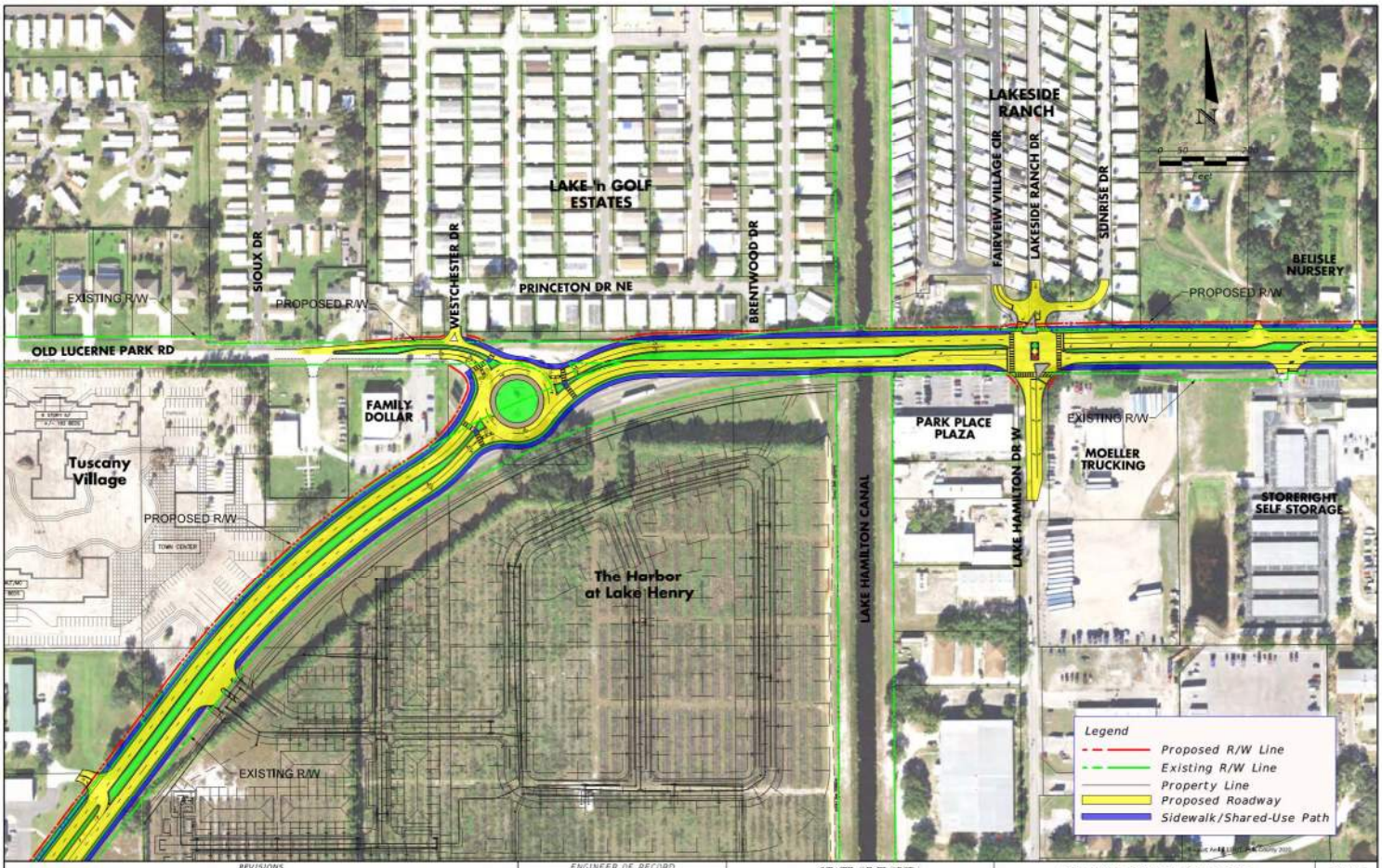
Project Name:	SR 544 PD&E Study from MLK Blvd to SR 17	**Intersection Type**	At-Grade Intersections
Intersection:	SR 544/Old Lucerne Park Road (East End)	**Opening Year**	2025
Agency:	FDOT District One	**Design Year**	2045
Project Reference:	FPID No.: 440273-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Polk County	**Number of Legs**	3-leg
State:	Florida	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	12/19/2022	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	AIM Engineering & Surveying, Inc.	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Traffic Signal	Total	5.59	10.96	173.69	7	Yes	Calibrated SPF	71	52	5
	Fatal & Injury	1.95	3.65	58.89						
Minor Road Stop	Total	2.29	4.30	69.26	2	Yes	Calibrated SPF	49	26	7
	Fatal & Injury	0.74	1.39	22.45						
All Way Stop	Total	2.56	3.98	68.98	1	N/A	N/A	87	78	1
	Fatal & Injury	0.71	1.07	18.80						
2-lane Roundabout	Total	6.59	11.84	192.94	3	No	Uncalibrated SPF	86	75	2
	Fatal & Injury	1.21	2.42	37.83						
Median U-Turn (MUT)	Total	4.76	9.31	147.63	4	N/A	CMF	--	--	--
	Fatal & Injury	1.37	2.56	41.22						
Signalized RCUT	Total	5.95	11.77	186.20	6	Yes	Uncalibrated SPF	77	61	3
	Fatal & Injury	1.86	3.53	56.80						
Unsignalized RCUT	Total	No SPF	No SPF	No SPF	--	Yes	Uncalibrated SPF	69	50	6
	Fatal & Injury	No SPF	No SPF	No SPF						
Continuous Green-T Intersection	Total	5.37	10.52	166.74	5	N/A	CMF	78	61	4
	Fatal & Injury	1.66	3.10	50.05						
Other 1*	Total	No SPF	No SPF	No SPF	--	N/A	CMF	--	--	--
	Fatal & Injury	No SPF	No SPF	No SPF						
Other 2*	Total	No SPF	No SPF	No SPF	--	N/A	CMF	--	--	--
	Fatal & Injury	No SPF	No SPF	No SPF						

Appendix E

Roundabout and Signalized Intersection Preliminary Geometric Concepts



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

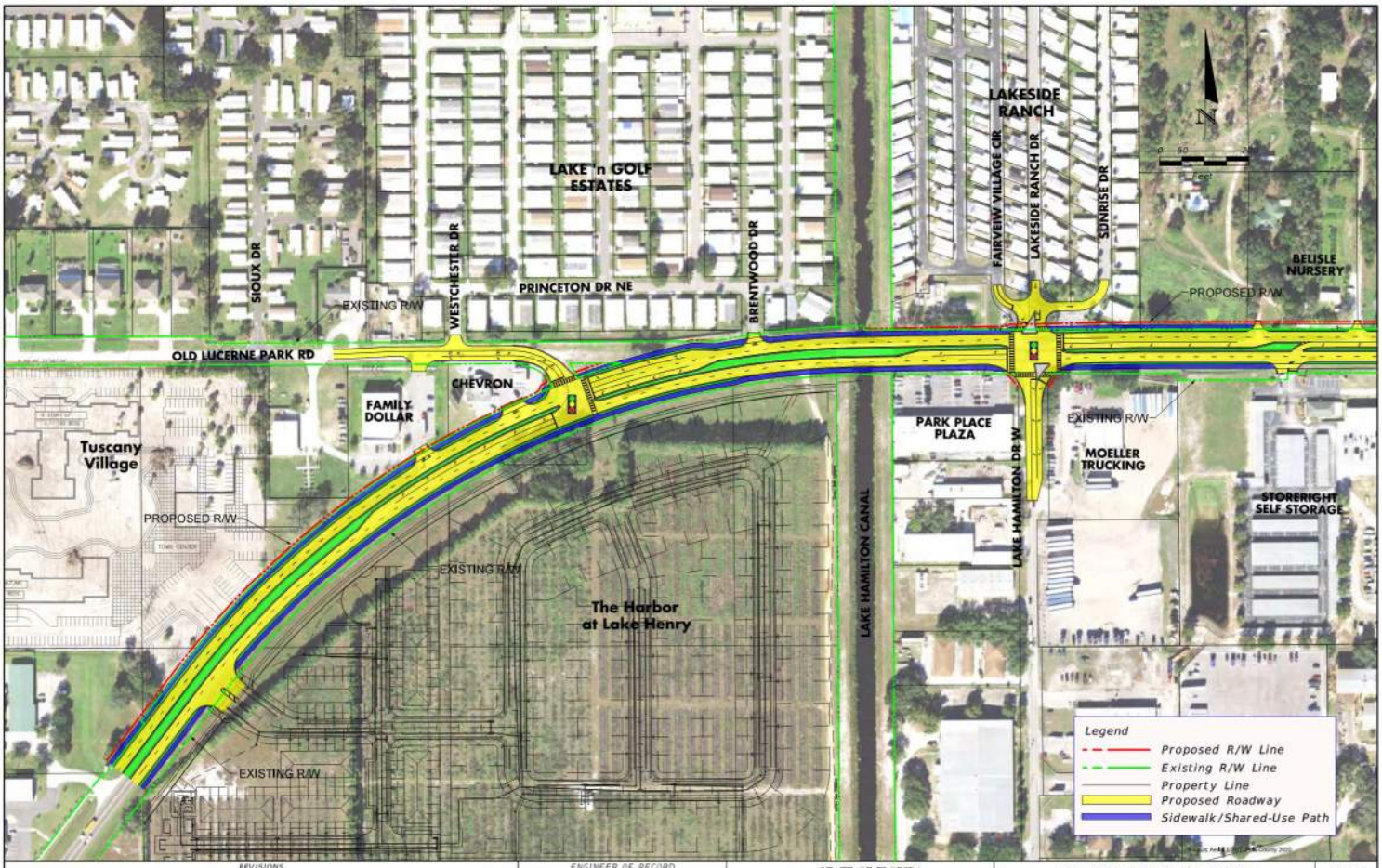
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
OLD LUCERNE PARK ROAD EAST
ROUNDABOUT ALTERNATIVE

SHEET NO. 1

gpanaccione
1/25/2023 11:42:31 AM OLD_LUCERNE_PARK_EAST 200 SCALE
F:\Projects\DT1-022-01\ema\PLANEM02_INTERSECT_OLD_LUCERNE_PARK_EAST.DGN



REVISIONS			
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ENGINEER OF RECORD
Mark D. Hales, PE
PE No. 62430
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SR 544 PD&E STUDY
OLD LUCERNE PARK ROAD EAST
SIGNALIZED ALTERNATIVE

SHEET NO. 1

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Appendix F

Preliminary Cost Estimates

Appendix F1

Preliminary Right-of-Way Cost Estimates

CONCEPTUAL ESTIMATE, ALTERNATES / SEGMENTS: PHASE COSTS SUMMARY

The costs below are not based on an appraisal of values!

**** EXEMPT FROM PUBLIC DISCLOSURE - FS: 337.168 ****

ITEM SEG: , 4402731, COUNTY: , Polk, LIMITS: SR 544, Lucerne Park Rd, MLK to SR 17

COST ESTIMATE NUMBER: 22030 & 23003

FOR: D. Turley, PE, FDOT Project Development

BY: J. Harper, FDOT Right of Way DATE: 1/23/2023

Alternate / Segment: Alternatives at Eastern Terminus of Old Lucerne Park Rd at SR 544; Bulb Out at Hideaway Dr

Description:	Size Acres:	Parcels	Relo.Cnt	Phase: 4B	Phase: 41	Phase: 43	Phase: 45	Total:
Alt. 1 - Old LP East RAB	1.047	7	0	$260,000	$84,000	$7,406,000	$0	$7,750,000
Alt. 2- Old LP East RAB	1.143	10	0	$330,000	$120,000	$5,220,000	$0	$5,670,000
Alt. 3 - Old LP East 180' RAB	0.693	6	0	$220,000	$72,000	$3,933,000	$0	$4,225,000
Alt. 4 - Old LP East Signal	0.076	5	0	$170,000	$60,000	$290,000	$0	$520,000
Lake Hamilton @ Hideaway Bulb Out	0.287	1	0	$75,000	$12,000	$368,000	$0	$455,000
Total All Sheets:	**3.246**	**29**	**0**	**$1,055,000**	**$348,000**	**$17,217,000**	**$0**	**$18,620,000**

S:\ROW\EST\a-Estimates\Polk_16\23004 4402731 SR 544 Lucerne Park, MLK to SR 17 Seg 7\[23004 4402731 SR 544 Old LP Rd East RAB - 180 feet.xlsm]Inflate

Notes

Contiguous PD&E parcels with similar ownerships are considered one parcel for Right of Way estimating.

Parcel 255 - Giant Oil Inc. - Single billboard with four signs, not illuminuted, six poles. 100% impact in Alternatives 1 and 2.

Alternative 1 considers Parcels 252 and 255 as 100% damaged; Alternative 2 considers only 255 as 100% damaged.

Appendix F2

Preliminary Construction Cost Estimates

Date: 10/8/2019 4:43:23 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: TEMPLT-R-00-03 **Letting Date:** 01/2099

Description: Roundabout 2 X 2 (4 Lane - 4 Lane)

District: 09 **County:** 99 DISTRICT/STATE WIDE **Market Area:** 99 **Units:** English
Contract Class: **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.142 MI

Project Manager: Template

Version 1-P Project Grand Total **$1,857,886.62**
Description: Roundabout 2 X 2 (4 Lane - 4 Lane)

Sequence: 1 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI
301 LF

Description: 4-Lane Approach

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.70
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.70	AC	$25,150.58	$17,605.41

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	500.00	CY	$15.94	$7,970.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
120-6	EMBANKMENT	500.00	CY	$19.58	$9,790.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
	Earthwork Component Total				$35,365.41

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$7.36	$16,192.00
	Comment: 4-Lane Leg: 19785 sf/9=2198 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,950.00	SY	$26.69	$52,045.50
	Comment: 4-Lane Leg: measure approx. 1950 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	215.00	TN	$122.10	$26,251.50
	Comment: 2" Superpave Traffic C (1950 X 110 X 2)/2000 = 215 TN				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	108.00	TN	$163.55	$17,663.40
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1950 X 110)/2000 = 107.25 TN use 108 TN				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.20	GM	$1,004.99	$201.00
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.04	GM	$1,343.10	$53.72
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	115.00	LF	$0.75	$86.25
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	30.00	LF	$1.13	$33.90
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	198.00	LF	$1.44	$285.12
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02	GM	$560.34	$11.21
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01	GM	$2,911.00	$29.11
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	2.00	EA	$49.78	$99.56
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	4.00	EA	$29.55	$118.20
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15	GM	$1,010.52	$151.58
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	55.00	LF	$1.14	$62.70

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Roadway Component Total $113,284.75

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-701	OPTIONAL BASE,BASE GROUP 01	154.00	SY	$16.17	$2,490.18
	Comment: 4-Lane Leg: 130 ft X 5.33 ft wide X 2 sides /9 = 154 SY				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	10.00	TN	$163.55	$1,635.50
	Comment: 1" thick FC: (154 SY X 110)/2000 = 8.47 TN use 10 TN				
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00	SY	$47.24	$20,785.60
527-2	DETECTABLE WARNINGS	104.00	SF	$29.23	$3,039.92
570-1-2	PERFORMANCE TURF, SOD	380.00	SY	$3.74	$1,421.20

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	600.00	LF	$1.83	$1,098.00
107-1	LITTER REMOVAL	0.25	AC	$36.96	$9.24
107-2	MOWING	0.25	AC	$60.47	$15.12
	Shoulder Component Total				$30,494.76

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	240.00	LF	$24.31	$5,834.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	350.00	LF	$27.84	$9,744.00
527-2	DETECTABLE WARNINGS	40.00	SF	$29.23	$1,169.20
570-1-2	PERFORMANCE TURF, SOD	120.00	SY	$3.74	$448.80

	Median Component Total	$17,196.40

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00	EA	$5,799.60	$11,599.20
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,321.64	$4,321.64
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00	LF	$97.28	$21,790.72
	Drainage Component Total				$37,711.56

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$351.13	$2,457.91
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$4,616.27	$4,616.27
	Signing Component Total				$7,074.18

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$7.88	$6,304.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$682.87	$2,731.48
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,400.00	LF	$2.22	$5,328.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$584.15	$2,336.60
	Subcomponent Total				$16,700.08

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-511-140	LIGHT POLE COMP,F&I,SGL ARM SM, AL,40'	4.00	EA	$14,382.46	$57,529.84
	Lighting Component Total				$74,229.92

Sequence 1 Total	$315,356.98

Sequence: 2 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI
301 LF

Description: Roundabout Central Island, includes landscaping and irrigation system

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.50
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50	AC	$25,150.58	$12,575.29

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	480.00	CY	$15.94	$7,651.20
	Comment: 26000 ft x 0.5 ft deep / 27 = 481 CY use 480 CY				
120-6	EMBANKMENT	480.00	CY	$19.58	$9,398.40
	Comment: 26000 ft x 0.5 ft deep / 27 = 481 CY use 480 CY				
	Earthwork Component Total				$29,624.89

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$7.36	$16,192.00
	Comment: measure (25578-6175)SF /9 = 2156 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,300.00	SY	$26.69	$34,697.00
	Comment: measure (25578-10477)SF /9 = 1294 SY use 1300 SY				

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	143.00 TN	$122.10	$17,460.30
	Comment: 2" Superpave Traffic C (1300 X 110 X 2)/2000			
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	72.00 TN	$163.55	$11,775.60
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1300 X 110)/2000			
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.05 GM	$1,004.99	$50.25
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.05 GM	$560.34	$28.02
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	8.00 EA	$29.55	$236.40
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.07 GM	$1,010.52	$70.74

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Roadway Component Total $80,510.31

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$2,801.75	$2,801.75
107-1	LITTER REMOVAL	0.25 AC	$36.96	$9.24
107-2	MOWING	0.25 AC	$60.47	$15.12

Shoulder Component Total $2,826.11

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00

Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
350-30-13	CONC PAVEMENT FOR ROUNDABOUT APRON, 12"	480.00	SY	$91.15	$43,752.00
520-2-4	CONCRETE CURB, TYPE D	280.00	LF	$26.72	$7,481.60
520-2-8	CONCRETE CURB, TYPE RA	370.00	LF	$23.95	$8,861.50
570-1-2	PERFORMANCE TURF, SOD	700.00	SY	$3.74	$2,618.00
	Median Component Total				$62,713.10

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$351.13	$1,404.52
	Signing Component Total				$1,404.52

LIGHTING COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$2,779.45	$2,779.45
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$12,834.87	$12,834.87
	Lighting Component Total				$15,614.32

LANDSCAPING COMPONENT

User Input Data

Description	Value
Lump Sum	40,000.00
Cost %	0.00
Component Detail	N

Landscaping Component Total	$40,000.00

Sequence 2 Total	$232,693.25

Sequence: 3 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI
301 LF

Description: 4-Lane Approach

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.70
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.70	AC	$25,150.58	$17,605.41

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	500.00	CY	$15.94	$7,970.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
120-6	EMBANKMENT	500.00	CY	$19.58	$9,790.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
	Earthwork Component Total				$35,365.41

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$7.36	$16,192.00
	Comment: 4-Lane Leg: 19785 sf/9=2198 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,950.00	SY	$26.69	$52,045.50
	Comment: 4-Lane Leg: measure approx. 1950 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	215.00	TN	$122.10	$26,251.50
	Comment: 2" Superpave Traffic C (1950 X 110 X 2)/2000 = 215 TN				

337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	108.00 TN	$163.55	$17,663.40
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1950 X 110)/2000 = 107.25 TN use 108 TN			
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.20 GM	$1,004.99	$201.00
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.04 GM	$1,343.10	$53.72
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	115.00 LF	$0.75	$86.25
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	30.00 LF	$1.13	$33.90
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	198.00 LF	$1.44	$285.12
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02 GM	$560.34	$11.21
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01 GM	$2,911.00	$29.11
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	2.00 EA	$49.78	$99.56
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	4.00 EA	$29.55	$118.20
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15 GM	$1,010.52	$151.58
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	55.00 LF	$1.14	$62.70

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Roadway Component Total $113,284.75

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-701	OPTIONAL BASE,BASE GROUP 01	154.00 SY	$16.17	$2,490.18
	Comment: 4-Lane Leg: 130 ft X 5.33 ft wide X 2 sides /9 = 154 SY			
337-7-82	ASPH CONC FC,TRAFFIC C,FC-	10.00 TN	$163.55	$1,635.50

	9.5,PG 76-22 **Comment:** 1" thick FC: (154 SY X 110)/2000 = 8.47 TN use 10 TN			
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00 SY	$47.24	$20,785.60
527-2	DETECTABLE WARNINGS	104.00 SF	$29.23	$3,039.92
570-1-2	PERFORMANCE TURF, SOD	380.00 SY	$3.74	$1,421.20

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	600.00 LF	$1.83	$1,098.00
107-1	LITTER REMOVAL	0.25 AC	$36.96	$9.24
107-2	MOWING	0.25 AC	$60.47	$15.12
	Shoulder Component Total			$30,494.76

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	240.00 LF	$24.31	$5,834.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	350.00 LF	$27.84	$9,744.00
527-2	DETECTABLE WARNINGS	40.00 SF	$29.23	$1,169.20
570-1-2	PERFORMANCE TURF, SOD	120.00 SY	$3.74	$448.80
	Median Component Total			$17,196.40

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00 EA	$5,799.60	$11,599.20
425-2-41	MANHOLES, P-7, <10'	1.00 EA	$4,321.64	$4,321.64
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00 LF	$97.28	$21,790.72
	Drainage Component Total			$37,711.56

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$351.13	$2,457.91
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$4,616.27	$4,616.27
	Signing Component Total				$7,074.18

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$7.88	$6,304.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$682.87	$2,731.48
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,400.00	LF	$2.22	$5,328.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$584.15	$2,336.60
	Subcomponent Total				$16,700.08

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-511-140	LIGHT POLE COMP,F&I,SGL ARM SM, AL,40'	4.00	EA	$14,382.46	$57,529.84
	Lighting Component Total				$74,229.92

Sequence 3 Total $315,356.98

Sequence: 4 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI
301 LF

Description: 4-Lane Approach

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.70
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.70	AC	$25,150.58	$17,605.41

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	500.00	CY	$15.94	$7,970.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
120-6	EMBANKMENT	500.00	CY	$19.58	$9,790.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
	Earthwork Component Total				$35,365.41

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$7.36	$16,192.00
	Comment: 4-Lane Leg: 19785 sf/9=2198 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,950.00	SY	$26.69	$52,045.50
	Comment: 4-Lane Leg: measure approx. 1950 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	215.00	TN	$122.10	$26,251.50
	Comment: 2" Superpave Traffic C (1950 X 110 X 2)/2000 = 215 TN				

337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	108.00 TN	$163.55	$17,663.40
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1950 X 110)/2000 = 107.25 TN use 108 TN			
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.20 GM	$1,004.99	$201.00
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.04 GM	$1,343.10	$53.72
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	115.00 LF	$0.75	$86.25
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	30.00 LF	$1.13	$33.90
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	198.00 LF	$1.44	$285.12
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02 GM	$560.34	$11.21
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01 GM	$2,911.00	$29.11
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	2.00 EA	$49.78	$99.56
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	4.00 EA	$29.55	$118.20
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15 GM	$1,010.52	$151.58
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	55.00 LF	$1.14	$62.70

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Roadway Component Total $113,284.75

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-701	OPTIONAL BASE,BASE GROUP 01	154.00 SY	$16.17	$2,490.18
	Comment: 4-Lane Leg: 130 ft X 5.33 ft wide X 2 sides /9 = 154 SY			
337-7-82	ASPH CONC FC,TRAFFIC C,FC-	10.00 TN	$163.55	$1,635.50

	9.5,PG 76-22 **Comment:** 1" thick FC: (154 SY X 110)/2000 = 8.47 TN use 10 TN			
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00 SY	$47.24	$20,785.60
527-2	DETECTABLE WARNINGS	104.00 SF	$29.23	$3,039.92
570-1-2	PERFORMANCE TURF, SOD	380.00 SY	$3.74	$1,421.20

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	600.00 LF	$1.83	$1,098.00
107-1	LITTER REMOVAL	0.25 AC	$36.96	$9.24
107-2	MOWING	0.25 AC	$60.47	$15.12
	Shoulder Component Total			$30,494.76

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	240.00 LF	$24.31	$5,834.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	350.00 LF	$27.84	$9,744.00
527-2	DETECTABLE WARNINGS	40.00 SF	$29.23	$1,169.20
570-1-2	PERFORMANCE TURF, SOD	120.00 SY	$3.74	$448.80
	Median Component Total			$17,196.40

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00 EA	$5,799.60	$11,599.20
425-2-41	MANHOLES, P-7, <10'	1.00 EA	$4,321.64	$4,321.64
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00 LF	$97.28	$21,790.72
	Drainage Component Total			$37,711.56

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$351.13	$2,457.91
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$4,616.27	$4,616.27
	Signing Component Total				$7,074.18

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$7.88	$6,304.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$682.87	$2,731.48
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,400.00	LF	$2.22	$5,328.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$584.15	$2,336.60
	Subcomponent Total				$16,700.08

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-511-140	LIGHT POLE COMP,F&I,SGL ARM SM, AL,40'	4.00	EA	$14,382.46	$57,529.84
	Lighting Component Total				$74,229.92

Sequence 4 Total $315,356.98

Sequence: 5 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI
301 LF

Description: 4-Lane Approach

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.70
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.70	AC	$25,150.58	$17,605.41

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	500.00	CY	$15.94	$7,970.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
120-6	EMBANKMENT	500.00	CY	$19.58	$9,790.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
	Earthwork Component Total				$35,365.41

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$7.36	$16,192.00
	Comment: 4-Lane Leg: 19785 sf/9=2198 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,950.00	SY	$26.69	$52,045.50
	Comment: 4-Lane Leg: measure approx. 1950 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	215.00	TN	$122.10	$26,251.50
	Comment: 2" Superpave Traffic C (1950 X 110 X 2)/2000 = 215 TN				

337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	108.00 TN	$163.55	$17,663.40
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1950 X 110)/2000 = 107.25 TN use 108 TN			
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.20 GM	$1,004.99	$201.00
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.04 GM	$1,343.10	$53.72
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	115.00 LF	$0.75	$86.25
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	30.00 LF	$1.13	$33.90
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	198.00 LF	$1.44	$285.12
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02 GM	$560.34	$11.21
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01 GM	$2,911.00	$29.11
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	2.00 EA	$49.78	$99.56
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	4.00 EA	$29.55	$118.20
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15 GM	$1,010.52	$151.58
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	55.00 LF	$1.14	$62.70

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Roadway Component Total $113,284.75

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-701	OPTIONAL BASE,BASE GROUP 01	154.00 SY	$16.17	$2,490.18
	Comment: 4-Lane Leg: 130 ft X 5.33 ft wide X 2 sides /9 = 154 SY			
337-7-82	ASPH CONC FC,TRAFFIC C,FC-	10.00 TN	$163.55	$1,635.50

	9.5,PG 76-22 **Comment:** 1" thick FC: (154 SY X 110)/2000 = 8.47 TN use 10 TN			
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00 SY	$47.24	$20,785.60
527-2	DETECTABLE WARNINGS	104.00 SF	$29.23	$3,039.92
570-1-2	PERFORMANCE TURF, SOD	380.00 SY	$3.74	$1,421.20

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	600.00 LF	$1.83	$1,098.00
107-1	LITTER REMOVAL	0.25 AC	$36.96	$9.24
107-2	MOWING	0.25 AC	$60.47	$15.12
	Shoulder Component Total			$30,494.76

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	240.00 LF	$24.31	$5,834.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	350.00 LF	$27.84	$9,744.00
527-2	DETECTABLE WARNINGS	40.00 SF	$29.23	$1,169.20
570-1-2	PERFORMANCE TURF, SOD	120.00 SY	$3.74	$448.80
	Median Component Total			$17,196.40

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00 EA	$5,799.60	$11,599.20
425-2-41	MANHOLES, P-7, <10'	1.00 EA	$4,321.64	$4,321.64
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00 LF	$97.28	$21,790.72
	Drainage Component Total			$37,711.56

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$351.13	$2,457.91
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$4,616.27	$4,616.27
	Signing Component Total				$7,074.18

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$7.88	$6,304.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$682.87	$2,731.48
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,400.00	LF	$2.22	$5,328.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$584.15	$2,336.60
	Subcomponent Total				$16,700.08

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-511-140	LIGHT POLE COMP,F&I,SGL ARM SM, AL,40'	4.00	EA	$14,382.46	$57,529.84
	Lighting Component Total				$74,229.92

Sequence 5 Total $315,356.98

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FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: TEMPLT-R-00-03 **Letting Date:** 01/2099

Description: Roundabout 2 X 2 (4 Lane - 4 Lane)

District: 09 **County:** 99 DISTRICT/STATE WIDE **Market Area:** 99 **Units:** English

Contract Class: **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.142 MI

Project Manager: Template

Version 1-P Project Grand Total **$1,857,886.62**

Description: Roundabout 2 X 2 (4 Lane - 4 Lane)

Project Sequences Subtotal			**$1,494,121.17**
102-1	Maintenance of Traffic	10.00 %	$149,412.12
101-1	Mobilization	10.00 %	$164,353.33
Project Sequences Total			**$1,807,886.62**
Project Unknowns		0.00 %	$0.00
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$50,000.00	$50,000.00
Project Non-Bid Subtotal					**$50,000.00**
Version 1-P Project Grand Total					**$1,857,886.62**

Segment	Description	Sequence	Version 1	Signalization Component	Version 2
1	MLK to Ave Y (Includes MLK/SR 544 Signal)	1	$ 2,666,232.33		$ 2,903,508.31
	Mini Roundabout (Includes SR 544/Ave Y Signal)	2	$ 676,231.71	$ 394,822.05	$ 683,984.43
	2 Lane Approach	3	$ 285,615.79		$ 302,349.73
	2 Lane Approach	4	$ 241,381.05		$ 261,804.47
2	Ave Y to Lake Conine Canal	5	$ 6,543,751.44		$ 6,691,679.66
3	Lake Conine Canal to OLP West (Includes SR 544/OLP West Signal)	6	$ 10,727,987.27	$ 295,825.99	$ 10,727,987.27
	OLP West Roundabout	7	$ 316,219.29		$ 316,219.29
	2 Lane Approach	8	$ 287,433.84		$ 287,433.84
	2 Lane Approach	9	$ 285,615.79		$ 285,615.79
4	OLP West to Lake Hamilton Canal (Includes both signal alternatives)	10	$ 25,649,732.12	$ 591,651.98	$ 25,649,732.12
	Lucerne Loop Roundabout	11	$ 430,030.50		$ 430,030.50
	(3) 2 Lane Approach	12	$ 431,150.76		$ 431,150.76
	(3) 2 Lane Approach	13	$ 431,150.76		$ 431,150.76
	OLP East Roundabout	14	$ 295,623.36		$ 295,623.36
	2 Lane Approach	15	$ 287,433.84		$ 287,433.84
	2 Lane Approach	16	$ 287,433.84		$ 287,433.84
5	Lake Hamilton Canal to Brenton Manor (Includes both signal alternatives)	17	$ 6,351,297.28	$ 591,651.98	$ 6,351,297.28
	Brenton Manor Roundabout	18	$ 310,766.41		$ 310,766.41
	2 Lane Approach	19	$ 287,433.84		$ 287,433.84
	2 Lane Approach	20	$ 287,433.84		$ 287,433.84
6	Brenton Manor to La Vista Drive (Includes US 27/SR 544 Signal)	21	$ 12,141,700.26	$ 496,052.51	$ 12,141,700.26
	NW Quadrant Roadway (Includes NW Quadrant & US 27 Signal)	22	$ 2,709,083.51		$ 2,709,083.51
	US 27 Frontage Roads (Includes SPUI Signal)	23	$ 4,651,930.98		$ 4,651,930.98
	US 27 Overpass/Bridge (SPUI)	24	$ 16,164,523.65		$ 16,164,523.65
7	La Vista Drive to SR 17 (Includes SR 17/SR 544 Signal)	25	$ 4,376,330.69	$ 295,825.99	$ 4,376,330.69
	SR 17 Roundabout	26	$ 327,398.31		$ 327,398.31
	2 Lane Approach	27	$ 276,086.44		$ 276,086.44
	2 Lane Approach	28	$ 314,902.30		$ 314,902.30

Total	$ 98,041,911.20	Total	$ 98,472,025.48
MOT (10%)	$ 9,804,191.12	MOT (10%)	$ 9,847,202.55
MOB (8%)	$ 8,627,688.19	MOB (8%)	$ 8,665,538.24
Total	$ 116,473,790.51	Total	$ 116,984,766.27
Project Unknowns (5%)	$ 5,823,689.53	Project Unknowns (5%)	$ 5,849,238.31
Initial Contingency	$ 150,000.00	Initial Contingency	$ 150,000.00
Grand Total	$ 122,447,480.03	Grand Total	$ 122,984,004.58

Old Lucerne Park Road (east end) Cost Estimate	
Description	Traffic Signal
Roadway Cost	$ 295,825.99
Maintenance of Traffic (10%)	$ 29,582.60
Mobilization (8%)	$ 26,032.69
Sub Total	$ 351,441.28
Project Unknowns (5%)	$ 17,572.06
Roadway Construction Total	$ 369,013.34
Rounded Value (Nearest 100)	$ 369,000.00

Appendix F3

Preliminary Utility Relocation Cost Estimates

Impacted Utility Facilities for Each SR 544 Alternative

Intersection	Old Lucerne Park Road (east end)											
Alternative	**Roundabout**						**Signalized Intersection**					
Utility	**Non-Reimbursable (in ROW)**	**Unit Price**	**Total**	**Reimbursable (in Easement)**	**Unit Price**	**Total**	**Non-Reimbursable (in ROW)**	**Unit Price**	**Total**	**Reimbursable (in Easement)**	**Unit Price**	**Total**
Winter Haven 12" Water Main	1112	$85	$94,520	0	$85	$0	1112	$85	$94,520	0	$85	$0
Winter Haven 8" Water Main	432	$65	$28,080	0	$65	$0	432	$65	$28,080	0	$65	$0
Winter Haven City Fiber	617	$50	$30,850	75	$50	$3,750	617	$50	$30,850	75	$50	$3,750
Winter Haven Gravity Sewer	175	$130	$22,750	170	$130	$22,100	175	$130	$22,750	0	$130	$0
Winter Haven 8" Force Main	852	$65	$55,380	0	$65	$0	852	$65	$55,380	0	$65	$0
Frontier Buried Fiber Optic Cables	680	$100	$68,000	0	$100	$0	1388	$100	$138,800	0	$100	$0
Dist. Poles	6	$10,000	$60,000	0	$10,000	$0	4	$10,000	$40,000	0	$10,000	$0
Total Relocation Cost			**$359,580**			**$25,850**			**$410,380**			**$3,750**

Appendix G

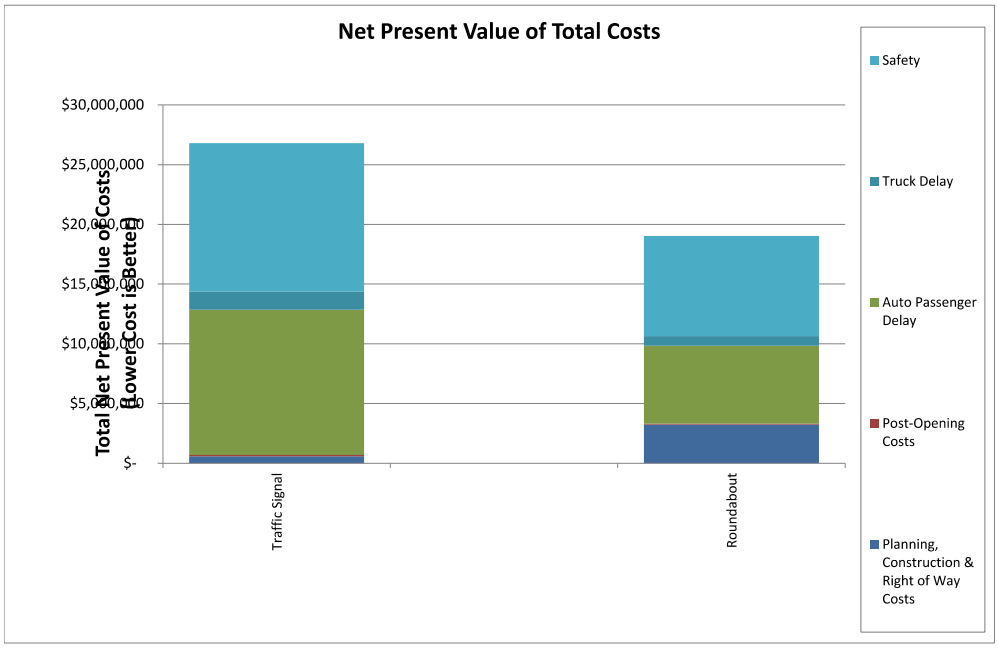
Benefit/Cost and Net Present Costs Summary Sheet

Agency:		FDOT District One
Project Name:		SR 544 PD&E Study
Project Reference:		FPID No. 440273-1-22-01
Intersection:		SR 544 at Old Lucerne Park Road (East End)
City:		Winter Haven
State:		Florida
Performing Department or Organization:		AIM Engineering & Surveying, Inc.
Date:		3/14/2023
Analyst:		GSR
Analysis Type		At-Grade Intersection

Analysis Summary

Cost Categories	Net Present Value of Costs			
	Base Case - Traffic Signal	Traffic Signal		Roundabout
Planning, Construction & Right of Way Costs	$ 589,300	$ 589,300		$ 3,244,400
Post-Opening Costs	$ 98,229	$ 98,229		$ 72,952
Auto Passenger Delay	$ 12,177,590	$ 12,177,590		$ 6,519,554
Truck Delay	$ 1,507,825	$ 1,507,825		$ 807,069
Safety	$ 12,432,928	$ 12,432,928		$ 8,387,633
Total cost	**$26,805,872**	**$26,805,872**		**$19,031,608**

Select Base Case for Benefit-Cost Comparison: (Choose from list)	Traffic Signal			
Benefit Categories	**Net Present Value of Benefits Relative to Base Case**			
		Traffic Signal		**Roundabout**
Auto Passenger Delay				$ 5,658,035
Truck Delay				$ 700,756
Safety				$ 4,045,295
Net Present Value of Benefits				**$ 10,404,087**
Net Present Value of Costs				**$ 2,629,823**
Net Present Value of Improvement				**$ 7,774,263**
Benefit-Cost (B/C) Ratio				**3.96**
Delay B/C				**2.42**
Safety B/C				**1.54**



Appendix B

Preliminary Concept Plans

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

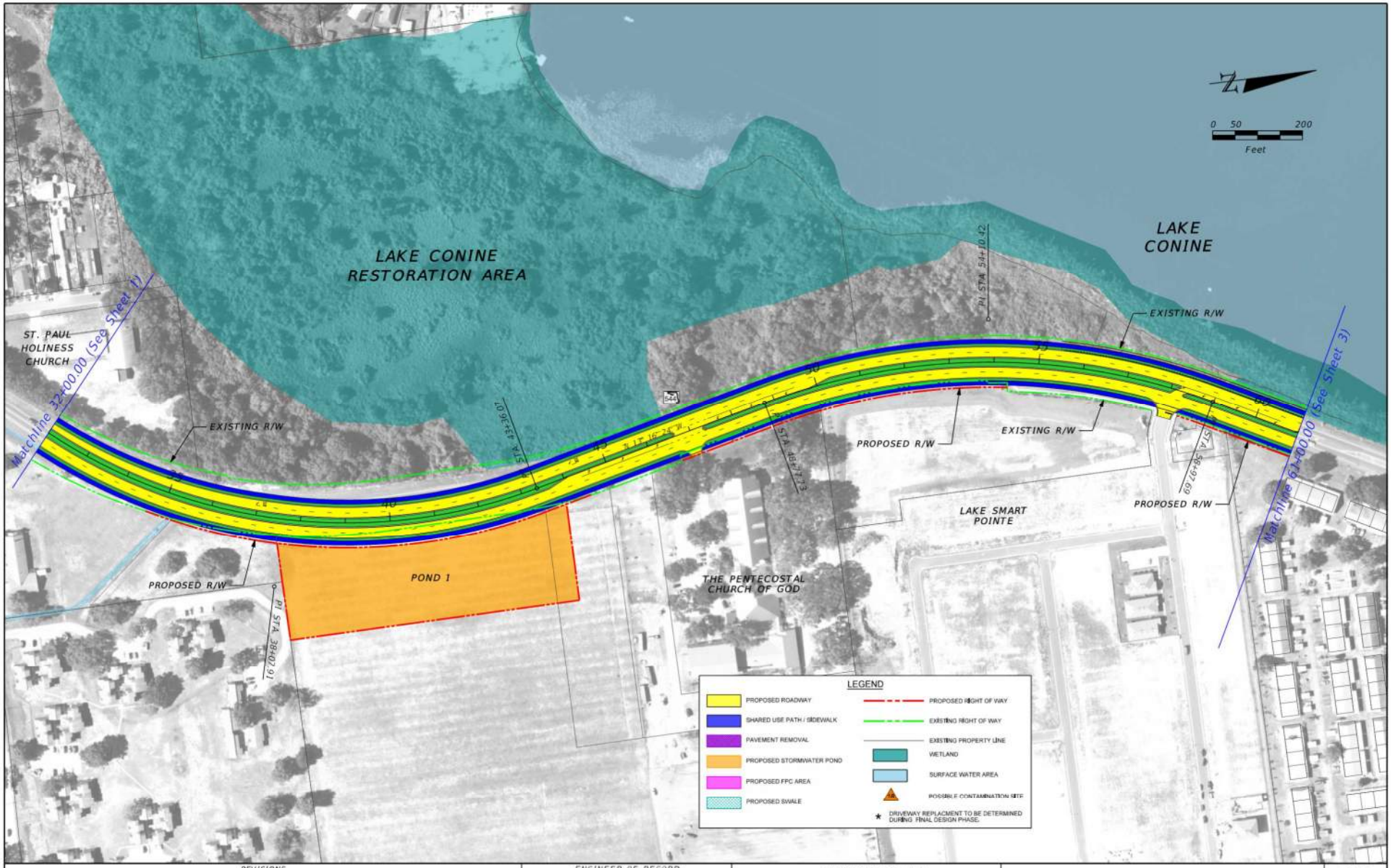
David S. Dangel, PE
PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

SHEET NO. 1



REVISIONS			
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ENGINEER OF RECORD

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Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

SHEET NO. 2

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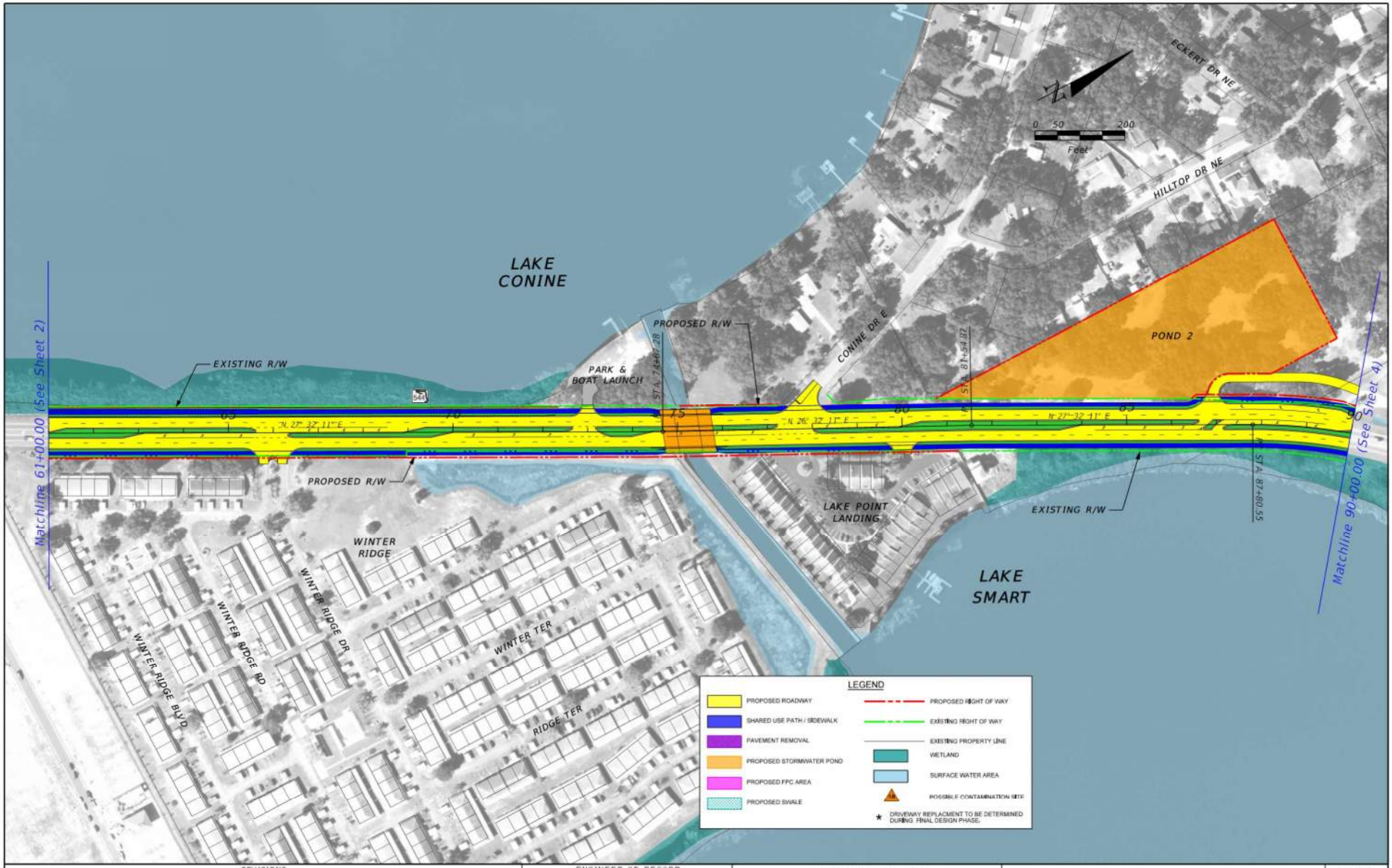

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

David S. Dangel, PE
PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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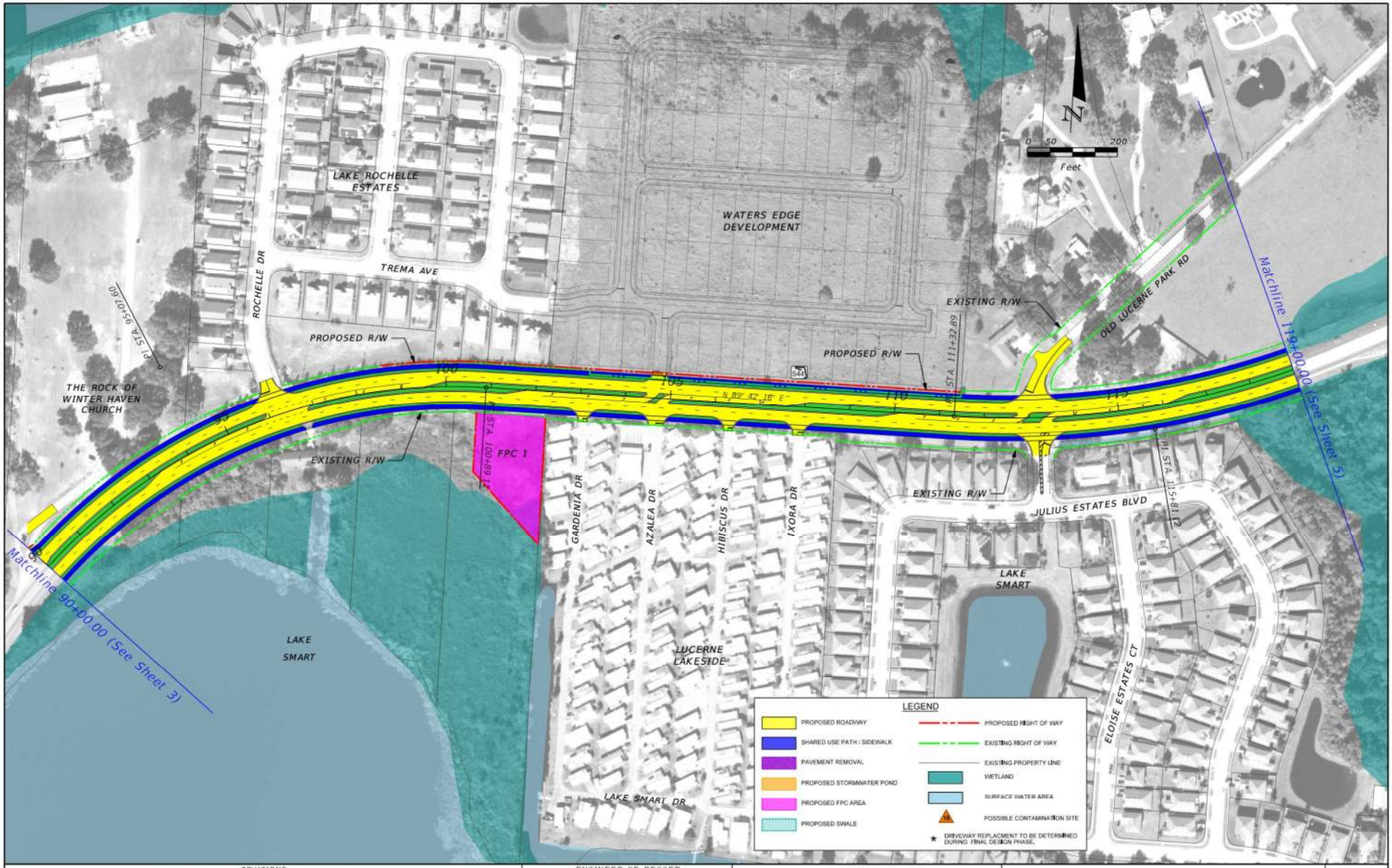

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DATE	DESCRIPTION	DATE	DESCRIPTION	David S. Dangel, PE PE No. 46580 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		4
					SR 544	POLK	440273-1-22-01		

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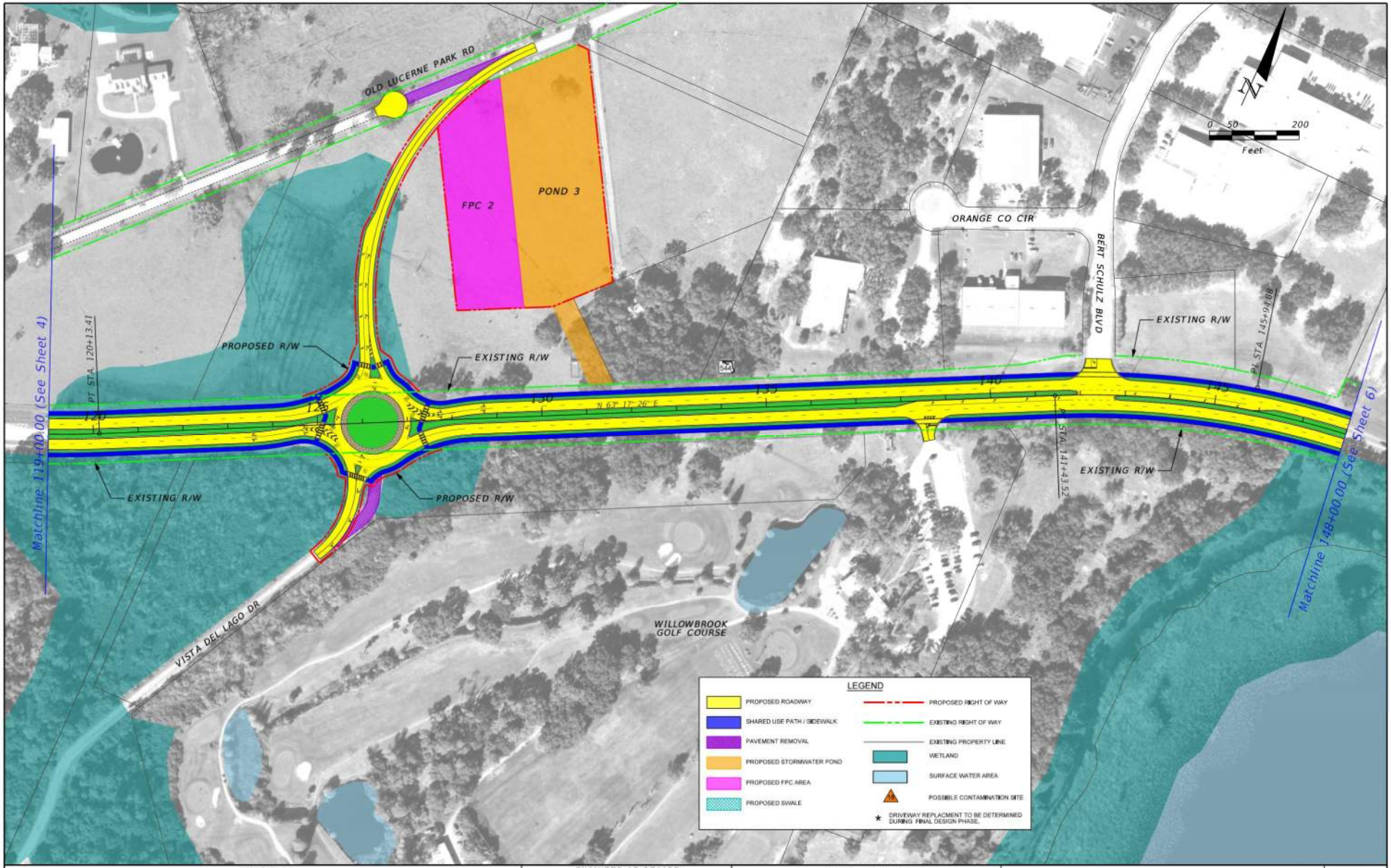

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DATE	DESCRIPTION	DATE	DESCRIPTION

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PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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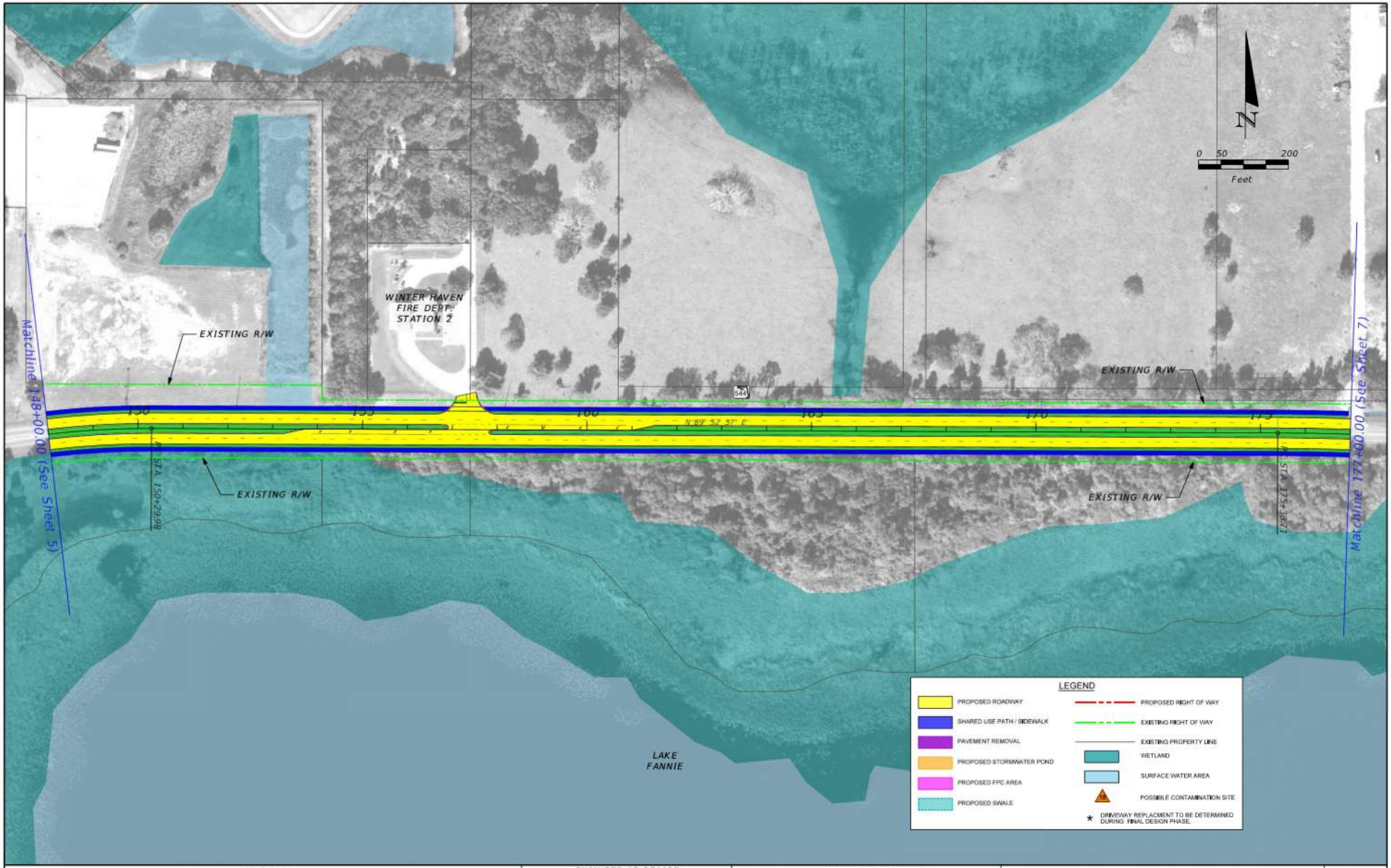

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DATE	DESCRIPTION	DATE	DESCRIPTION

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Inwood Consulting Engineers, Inc.
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Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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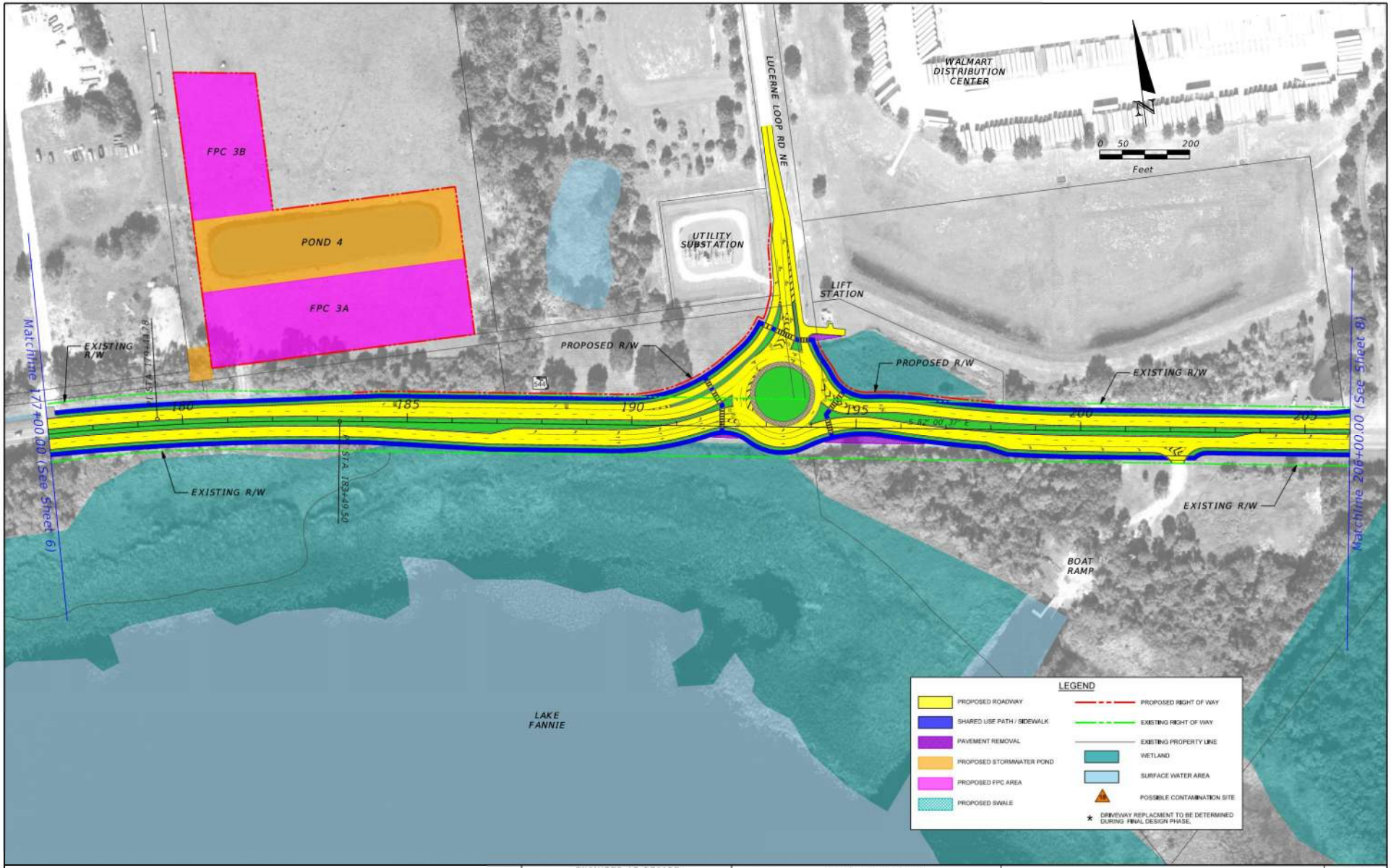

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

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PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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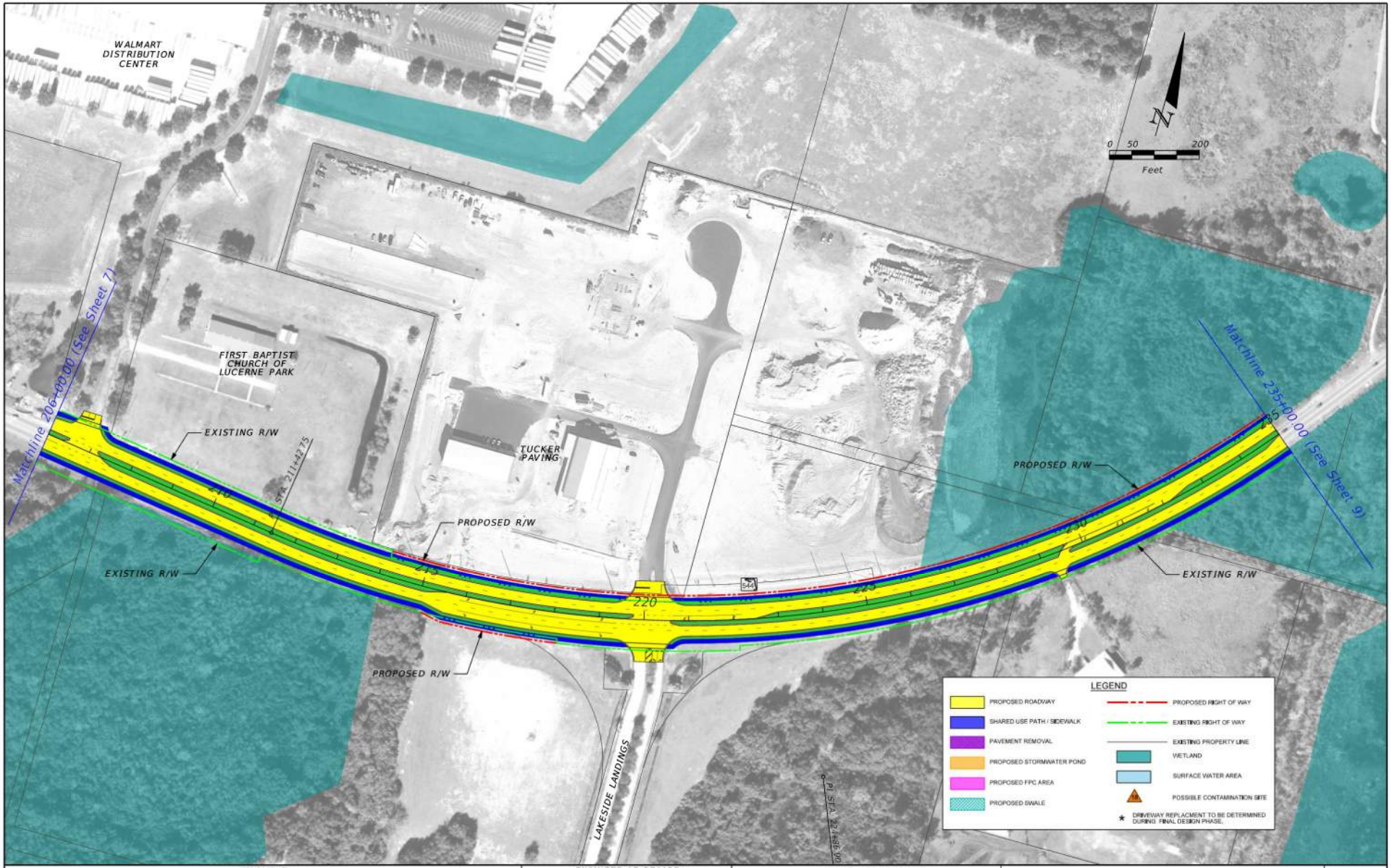


REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

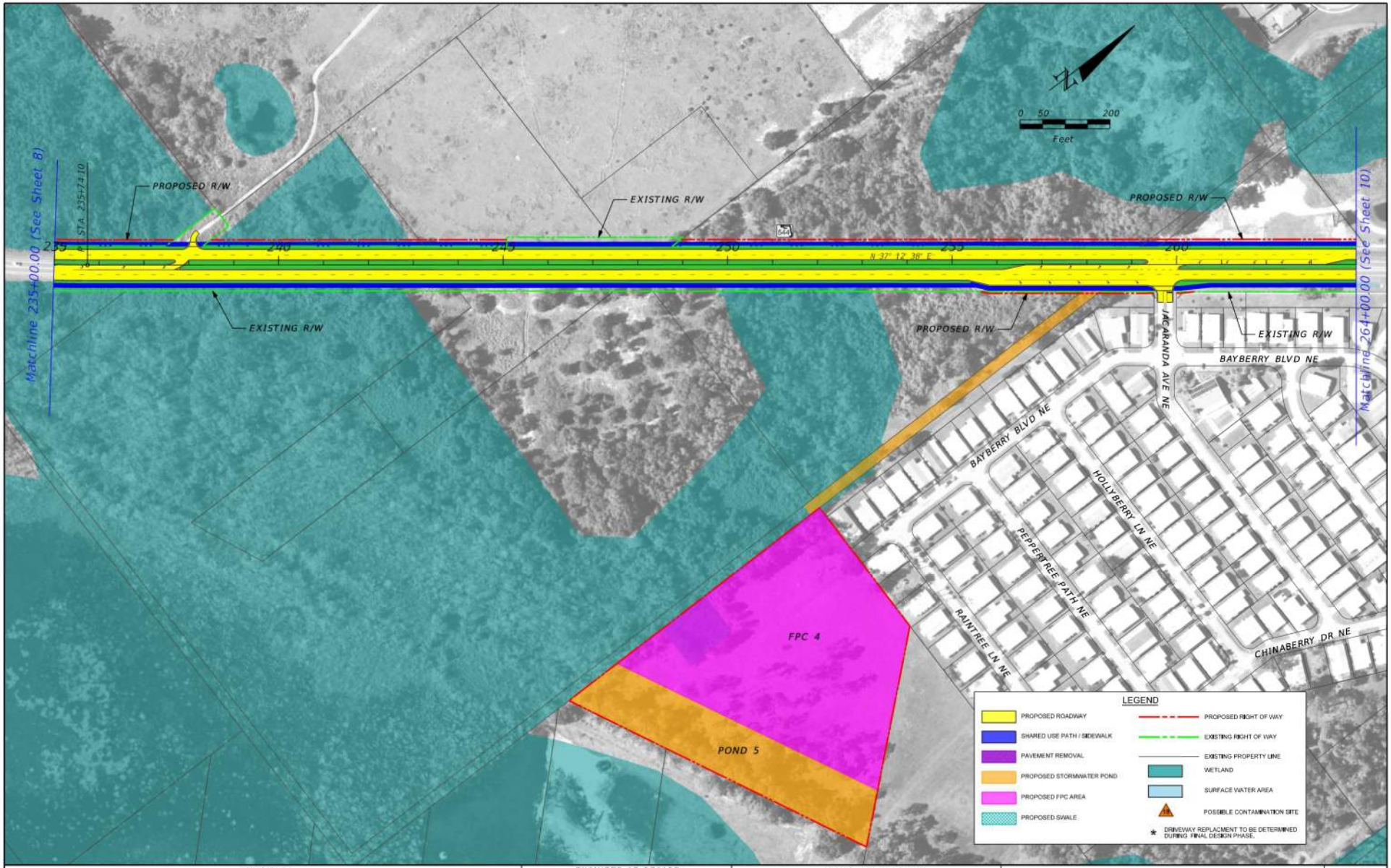
David S. Dangel, PE
PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

SHEET NO. 8



REVISIONS			
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David S. Dangel, PE
PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

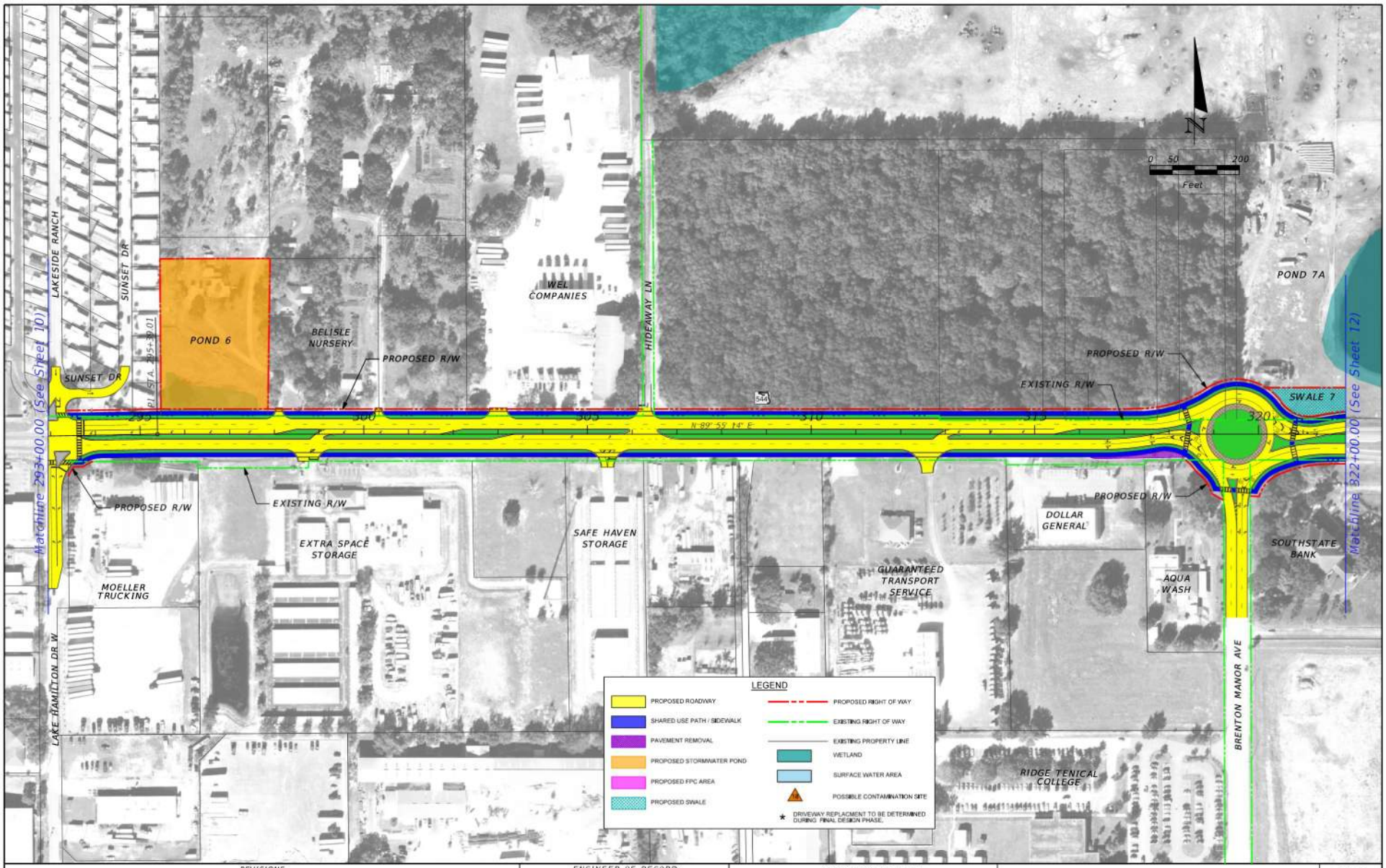
David S. Dangel, PE
PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

SHEET NO. 10



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

David S. Dangel, PE
PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

SHEET NO. 11

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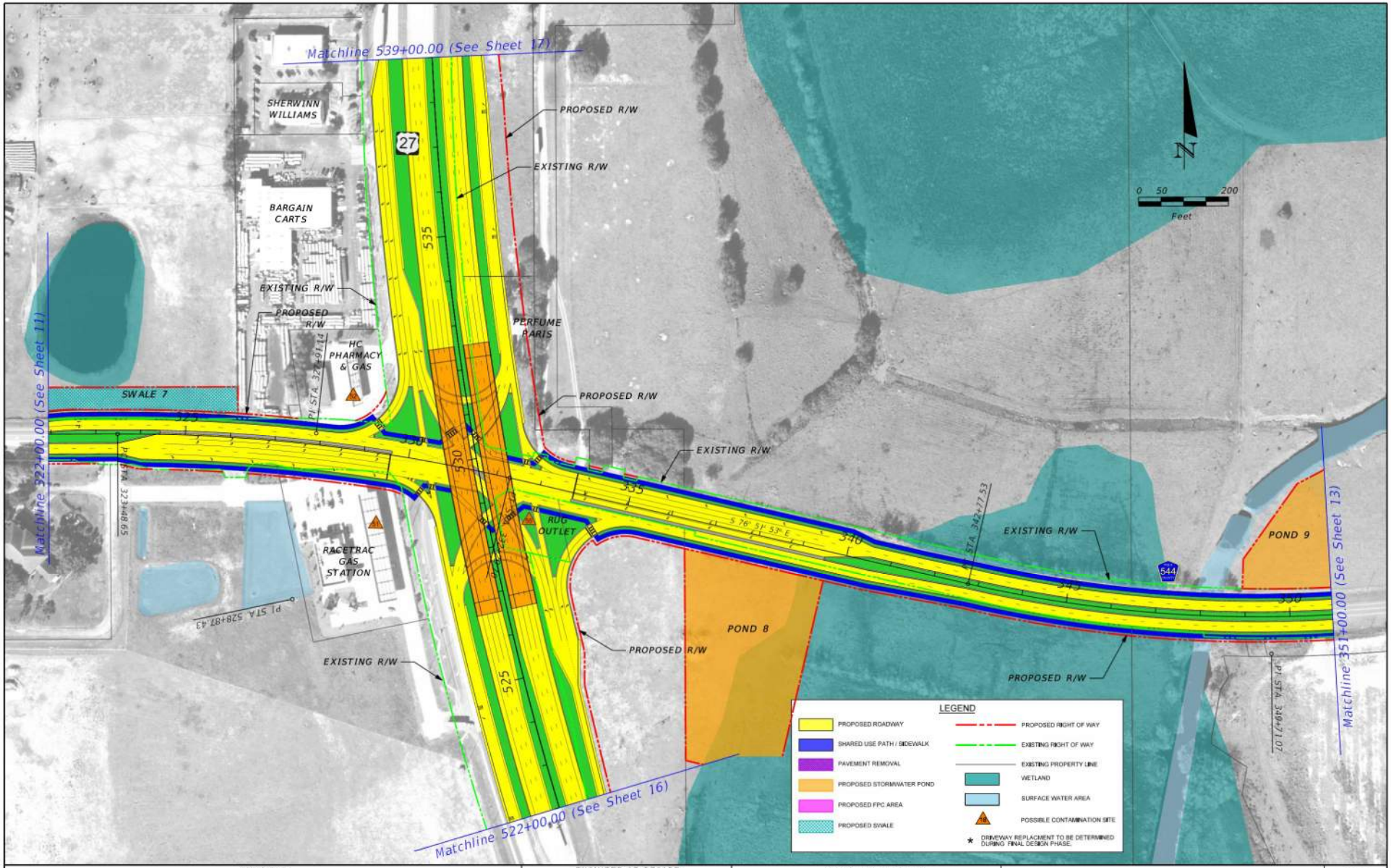

REVISIONS			
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Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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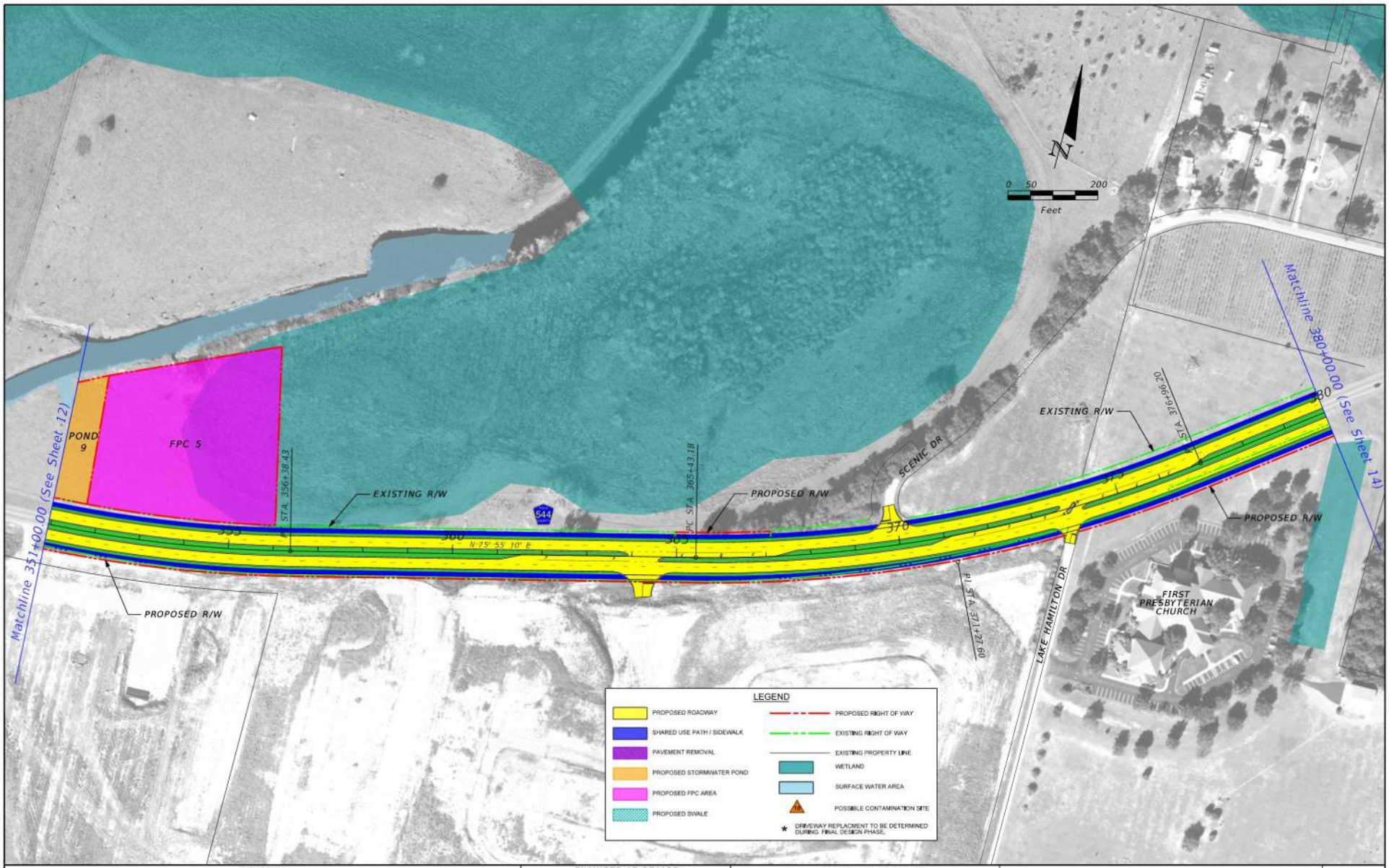

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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Oviedo, Florida 32765

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DEPARTMENT OF TRANSPORTATION

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SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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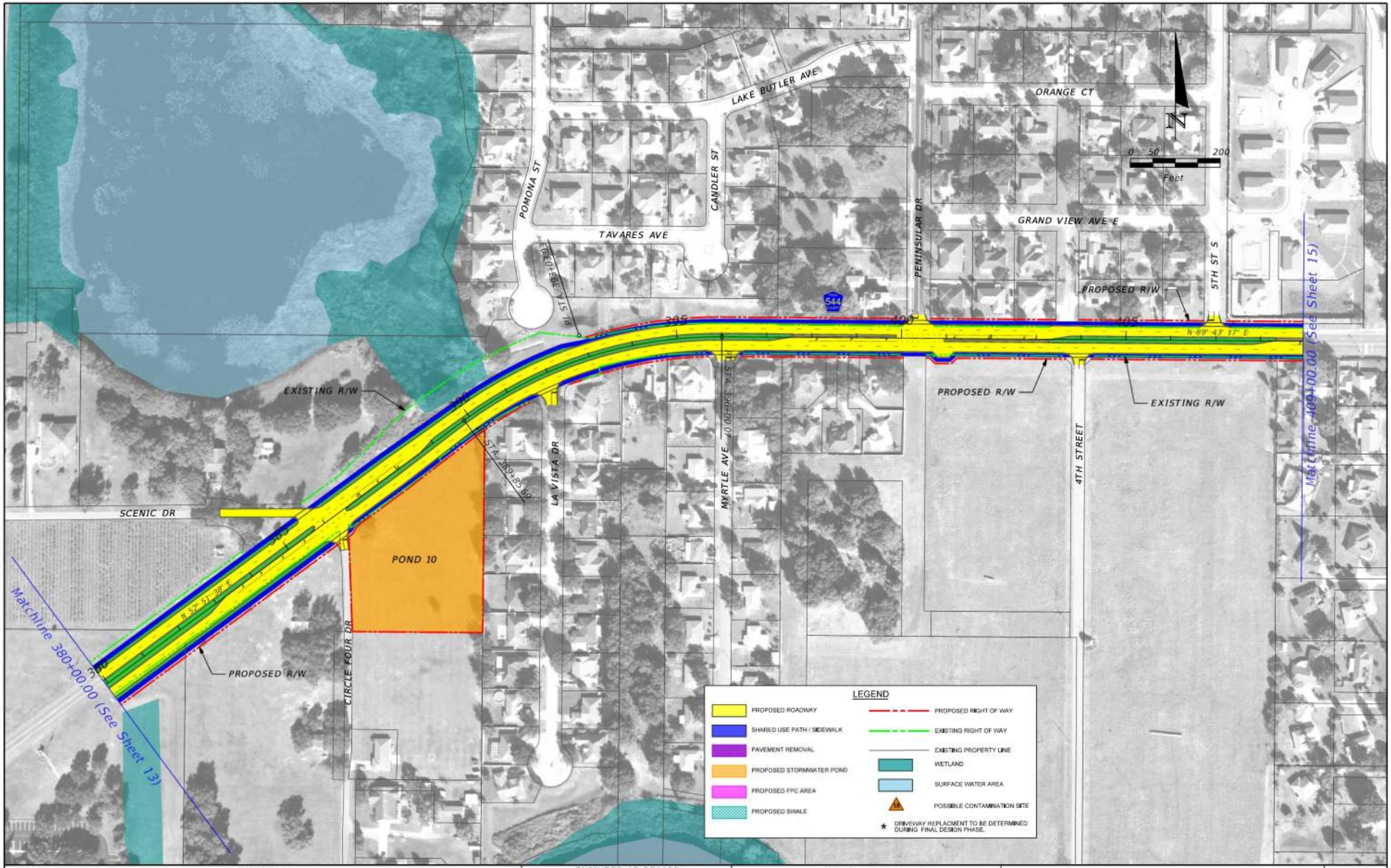

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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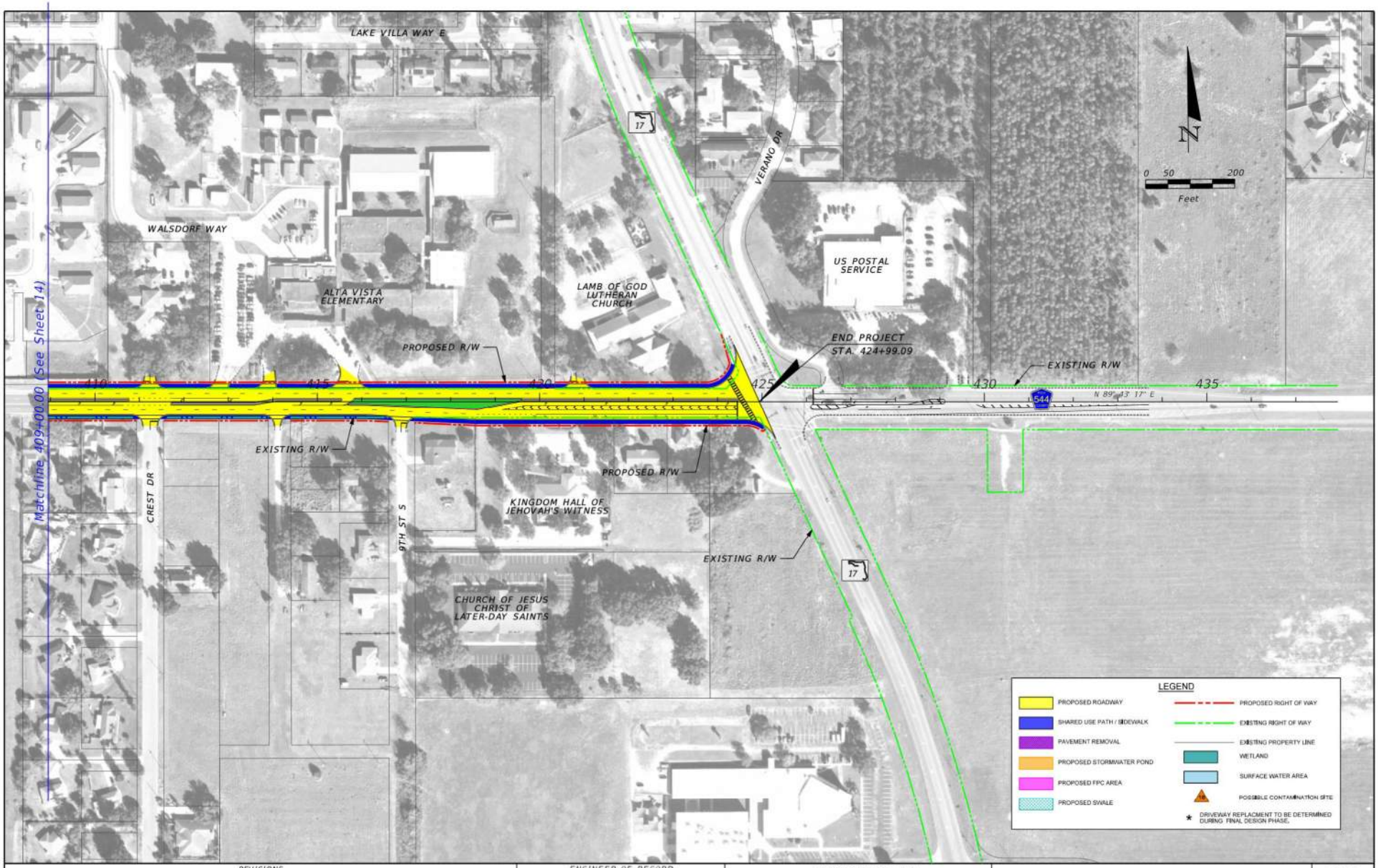

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Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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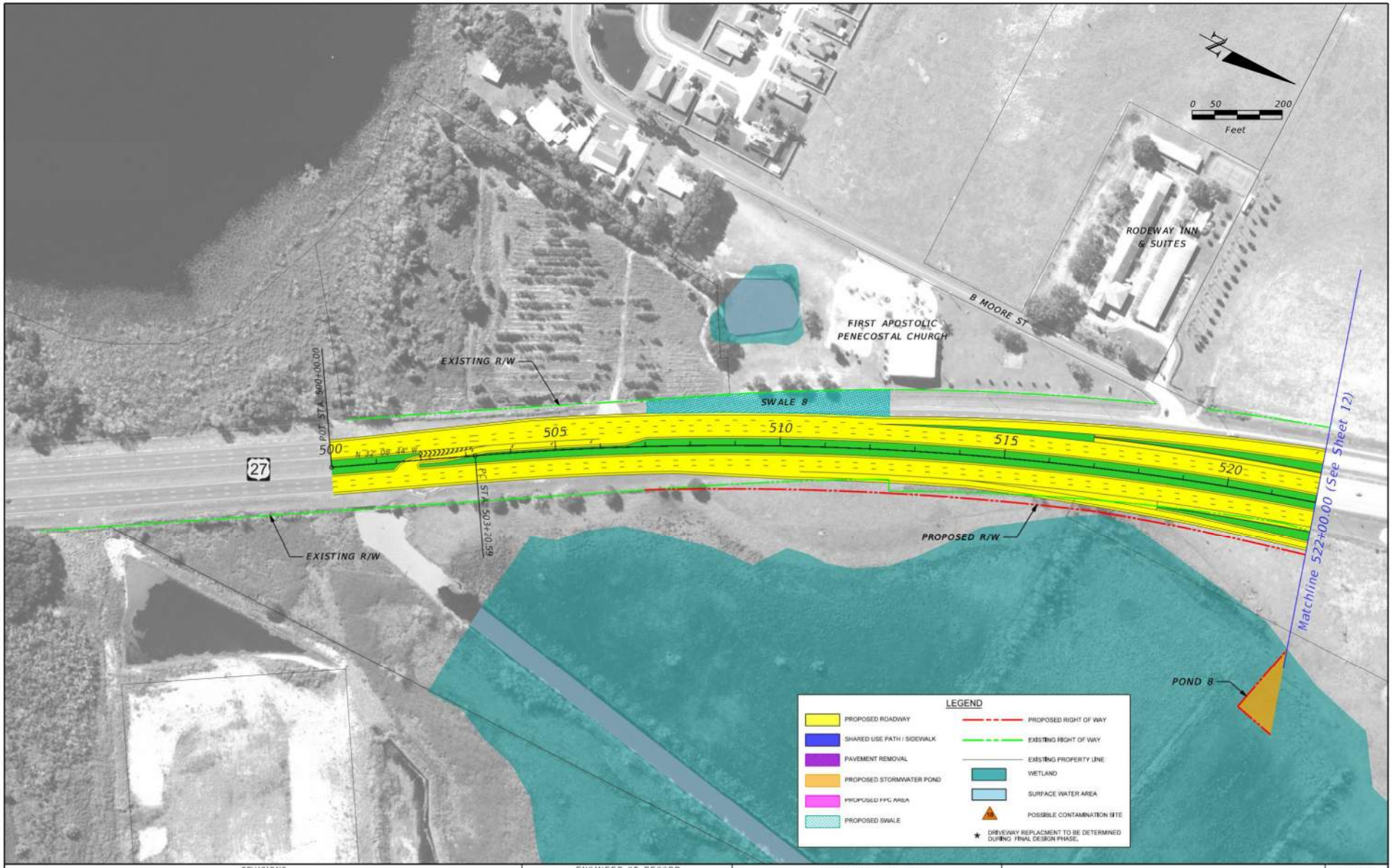

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

David S. Dangel, PE
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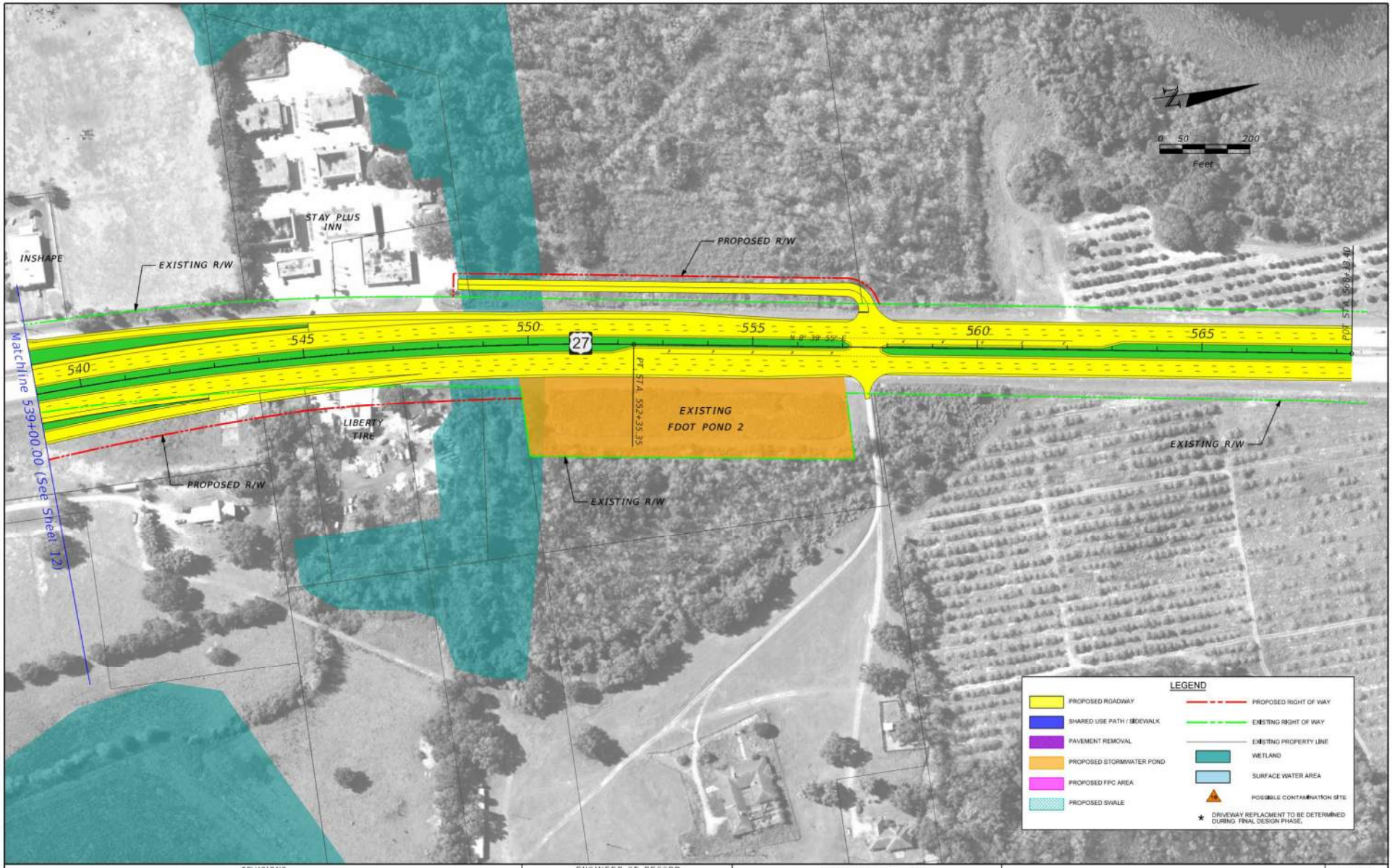
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

SHEET NO. 16



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

David S. Dangel, PE
PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

SHEET NO. 17

Appendix C

Design Variation Memo

Project Design Variation Memorandum Form 122-B

To: Kevin S. Ingle, P.E.
District or Turnpike Design Engineer

Date: 08/31/2023

Financial Project ID: 440273-1-22-01 New Const. ☑ RRR ☐ Other _____ ☐

Federal Aid Number: N/A

Project Name: SR 544 from Martin Luther King Blvd. to SR 17

State Road Number: SR 544 Co./Sec./Sub. Polk (16140)

Begin Project MP: 3.693 End Project MP: 11.647

Request for: Design Variation

	Design Element	MP: Beg-End	Existing	Proposed	Required	Attr. Crashes	Approved	Denied	Addl. Docum.
1.	Bike Lanes	3.693-4.169 11.034-11.647	→ 4' → 0'	0'	7'	☑	☐	☐	☑

Justification:

Mile Post 3.693 to MP 4.169

The existing typical section consists of a two-lane, two-way roadway with 4-foot bike lanes, curb and gutter, and 6-foot back of curb sidewalks. The proposed typical section (Appendix A) is a three-lane typical section with 12-foot travel lanes, a 12-foot bi-directional left turn lane, no bike lanes, curb and gutter, and a wider 8-foot back of curb sidewalk. The existing and proposed speed is 35 mph.

Per FDM criteria 223.2.1.1, the width of the bicycle facility for new construction projects is a standard 7-foot buffered bicycle lane with a double-6-inch white edge line separating the bicycle lane and the adjacent travel lane. Although R/W is being proposed (See concept plan – Appendix B) to accommodate these improvements, consideration was given to not physically impact residences, churches, and businesses within this historic minority neighborhood.

Three bicycle crashes have been identified in the past five years (Appendix C), from MP 3.693 to MP 4.169. The first crash occurred at the conflict point between SR 544 and the Chevron driveway, where bike lanes are not present in the existing condition (HSMV Crash Report # 24049531). The second crash occurred when a bicyclist failed to stop at a stop sign at the intersection of Avenue Y and SR 544 (HSMV Crash Report # 25108522). The third crash also occurred at the Avenue Y and SR 544 intersection when a bicyclist entered the intersection, failing to yield to a vehicle traveling north on SR 544 (HSMV Crash Report # 89841847).

The proposed 8-foot sidewalks on both sides of the roadway, raised median refuge areas at the mid-block crosswalk locations, 'T-ing' up 1st Street NW to SR 544, and the proposed mini-roundabout at Avenue Y will enhance overall safety.

Mile Post 11.034 to MP 11.647

The existing typical section consists of a four-lane, undivided roadway, no bike lanes (See FDM 223.2.1.1), curb and gutter, and intermittent 5-foot sidewalks. The existing posted speed is 45 mph. The proposed typical section (Appendix A) is a four-lane divided roadway with 11-foot travel lanes, a 15.5-foot median, no bike lanes, curb and gutter, and a wider 8-foot back of curb sidewalk. The proposed design speed is 40 mph.

Per FDM criteria 223.2.1.1, the width of the bicycle facility for new construction projects is a standard 7-foot buffered bicycle lane with a double-6-inch white edge line separating the bicycle lane and the adjacent travel lane. Although R/W is being proposed (See concept plan – Appendix B), to accommodate these improvements, consideration was given to not physically impact residences, churches, and businesses along this segment of SR 544.

In the previous five years, no bicycle-related crashes were identified within this segment of SR 544.

The proposed 8-foot sidewalks on both sides of the roadway, raised median, and slower speeds will enhance overall safety.

Design Element	MP: Beg-End	Existing	Proposed	Required	Attr. Crashes	Approved	Denied	Addl. Docum.
2.					☐	☐	☐	☐
3.					☐	☐	☐	☐

Justification: _____

Justification: _____

Appendices: Yes ☑ No ☐

Appendix A (Draft Typical Section)
Appendix B (Concept Plan)
Appendix C (Crash Data - Long Forms)

Recommended by:

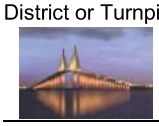
Mark Hales, PE Date 8/31/2023

Name:
Responsible Professional Engineer or Landscape Architect (Landscape-Only Projects) (Seal)

Approvals:

_____ Date _____

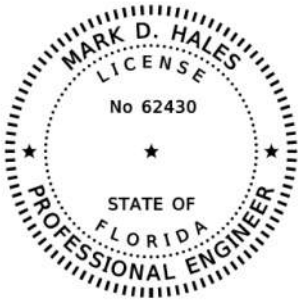
Name:
District or Turnpike Traffic Operations Engineer



Kevin Ingle
2023.09.13
08:20:58-04'00'

Date _____

Name:
District or Turnpike Design Engineer



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

Mark D Hales
2023.09.13
08:38:37-04'00'

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

INWOOD CONSULTING ENGINEERS
3000 DOVERA DRIVE, SUITE 200
OVIEDO, FLORIDA 32765
CERTIFICATE OF AUTHORIZATION: 7074
MARK D. HALES, P.E. No. 62430

Appendix A (Draft Typical Section)

PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
( ) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
(X) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
(X) MINOR ARTERIAL
( ) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
(X) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

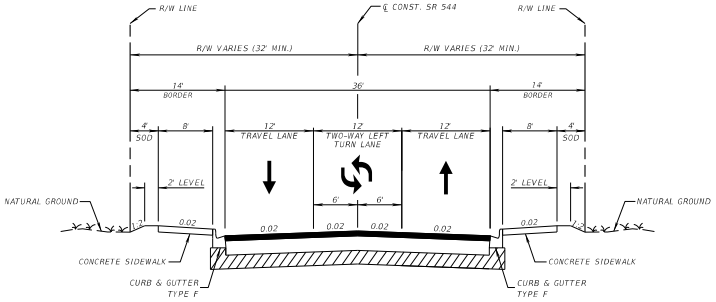
CRITERIA

(X) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

DESIGN VARIATIONS
1. BIKE LANES

TYPICAL SECTION No. 1



SR 544
MP 3.693 TO MP 4.169

NOT TO SCALE

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 20,000
ESTIMATED OPENING YEAR = 2025 AADT = 21,000
ESTIMATED DESIGN YEAR = 2045 AADT = 30,000
K = 9.0% D = 53.0% T = 6.0% (24 HOUR)
DESIGN HOUR T = 4.5%
TARGET SPEED = 35 MPH
DESIGN SPEED = 35 MPH
POSTED SPEED = 35 MPH

FINANCIAL PROJECT ID	SHEET NO.
440273-1-22-01	2

7/10/2023 11:00:17 AM

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

PROJECT CONTROLS

CONTEXT CLASSIFICATION

( )	C1 : NATURAL	( )	C3C : SUBURBAN COMM.
( )	C2 : RURAL	( )	C4 : URBAN GENERAL
( )	C2T : RURAL TOWN	( )	C5 : URBAN CENTER
(X)	C3R : SUBURBAN RES.	( )	C6 : URBAN CORE
( )	N/A : L.A. FACILITY		

FUNCTIONAL CLASSIFICATION

( )	INTERSTATE	( )	MAJOR COLLECTOR
( )	FREEWAY/EXPWY.	( )	MINOR COLLECTOR
( )	PRINCIPAL ARTERIAL	( )	LOCAL
(X)	MINOR ARTERIAL		

HIGHWAY SYSTEM

( )	NATIONAL HIGHWAY SYSTEM
( )	STRATEGIC INTERMODAL SYSTEM
(X)	STATE HIGHWAY SYSTEM
( )	OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( )	1 - FREEWAY
( )	2 - RESTRICTIVE w/Service Roads
( )	3 - RESTRICTIVE w/660 ft. Connection Spacing
( )	4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
(X)	5 - RESTRICTIVE w/440 ft. Connection Spacing
( )	6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( )	7 - BOTH MEDIAN TYPES

CRITERIA

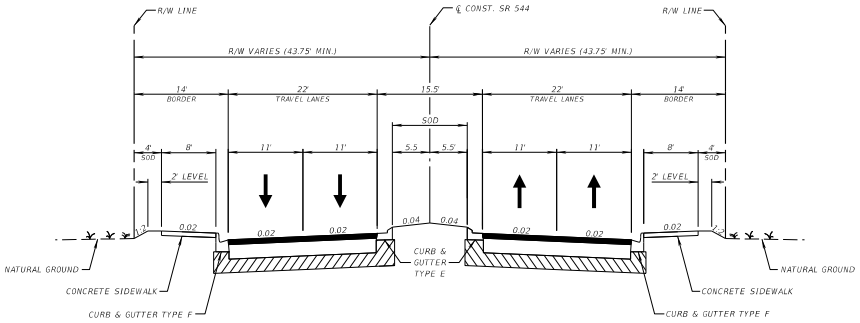
(X)	NEW CONSTRUCTION / RECONSTRUCTION
( )	RESURFACING (LA FACILITIES)
( )	RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

DESIGN VARIATIONS

1. BIKE LANES

TYPICAL SECTION No. 3



SR 544
MP 11.034 TO MP 11.647

NOT TO SCALE

TRAFFIC DATA

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ESTIMATED OPENING YEAR = 2025 AADT = 14,000
ESTIMATED DESIGN YEAR = 2045 AADT = 29,000
K = 9.0% D = 53.0% T = 10.8% (24 HOUR)
DESIGN HOUR T = 8.1%
TARGET SPEED = 40 MPH
DESIGN SPEED = 40 MPH
POSTED SPEED = 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
440273-1-22-01	4

7/10/2023 11:00:18 AM

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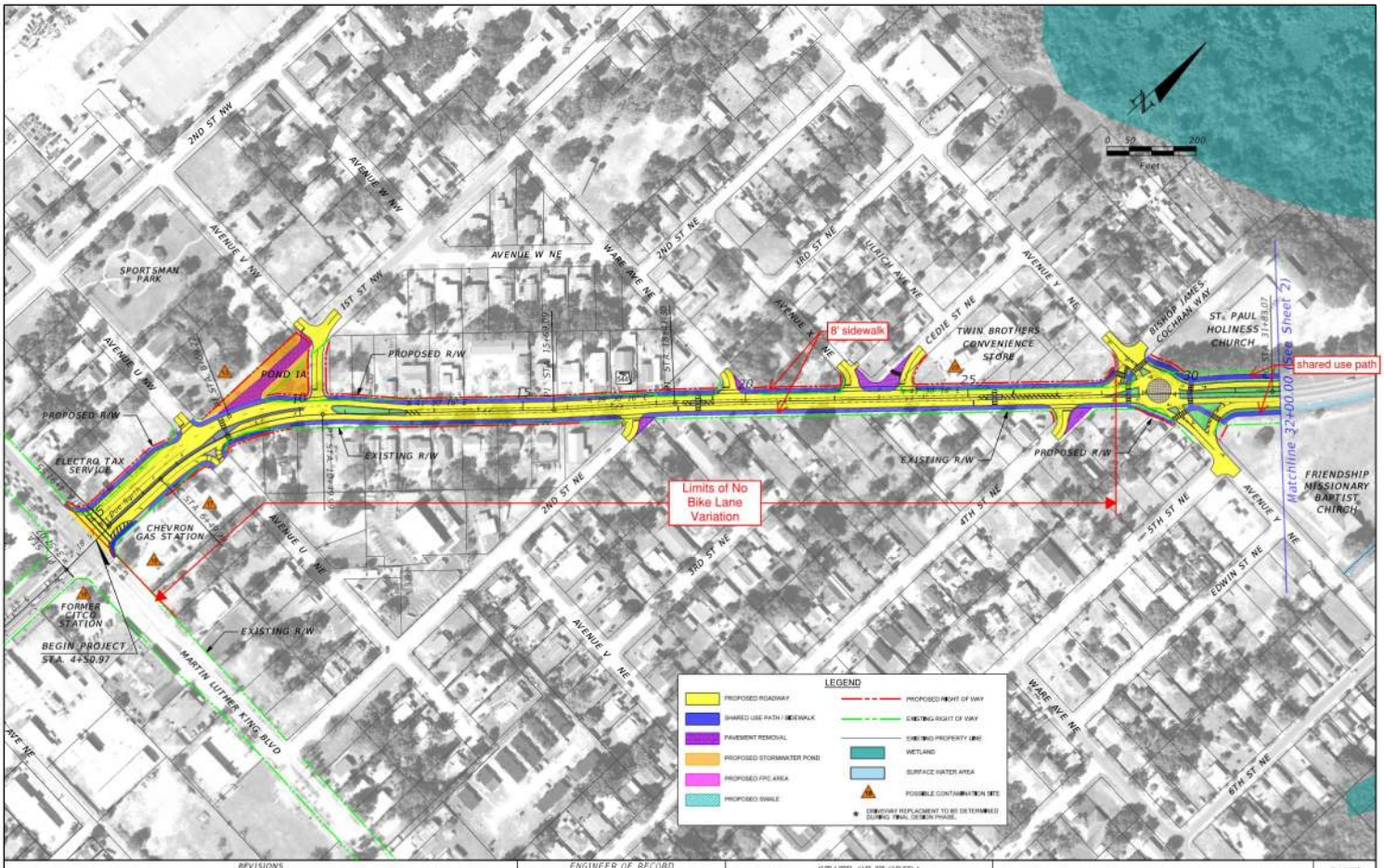
Appendix B (Concept Plan)



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

David S. Daingel, PE
PE No. 46580
Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200
Oviedo, Florida 32765

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

SHEET NO. 1

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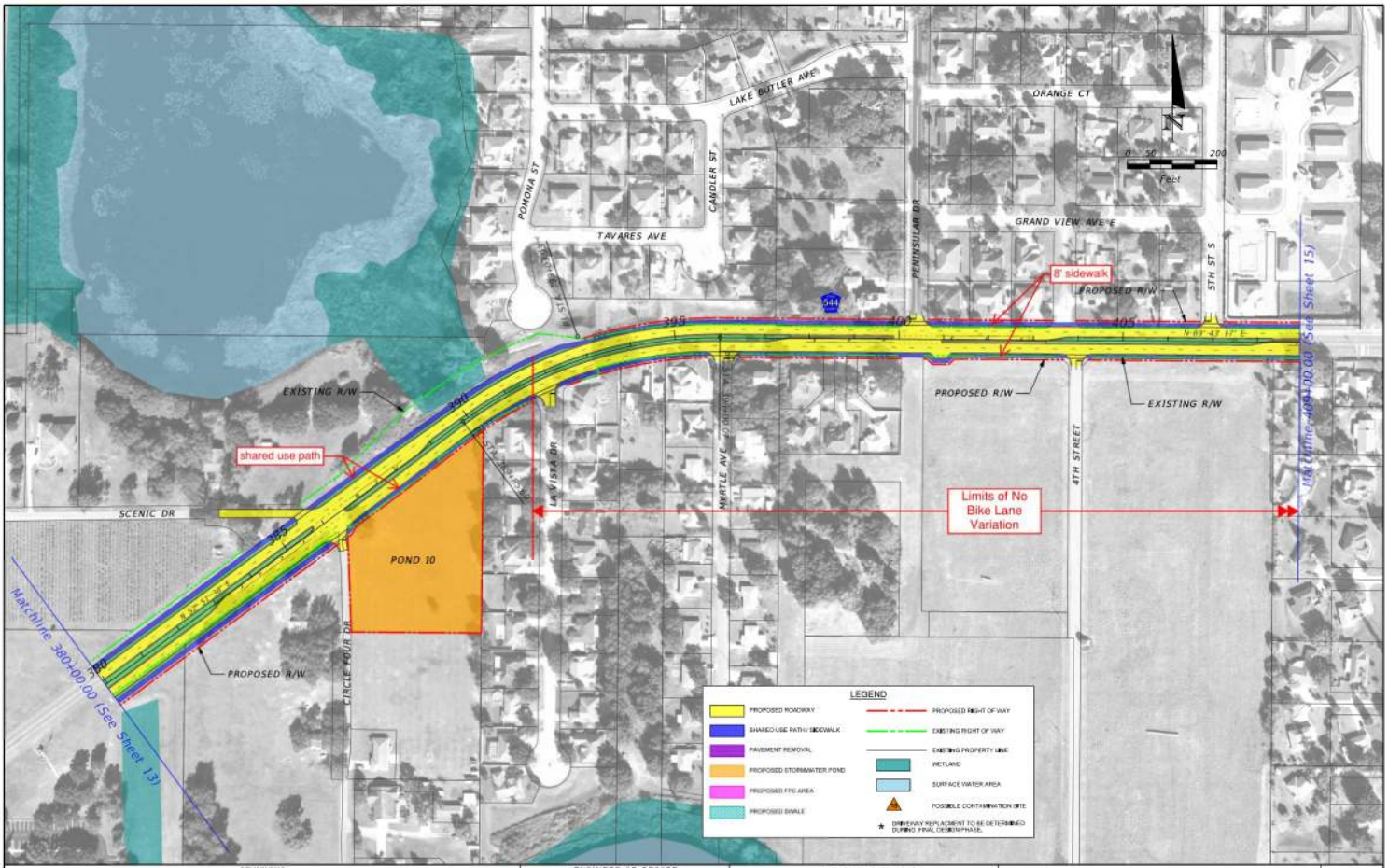

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SR 544	POLK	440273-1-22-01

SR SR 544 PD&E STUDY
PREFERRED ALTERNATIVE

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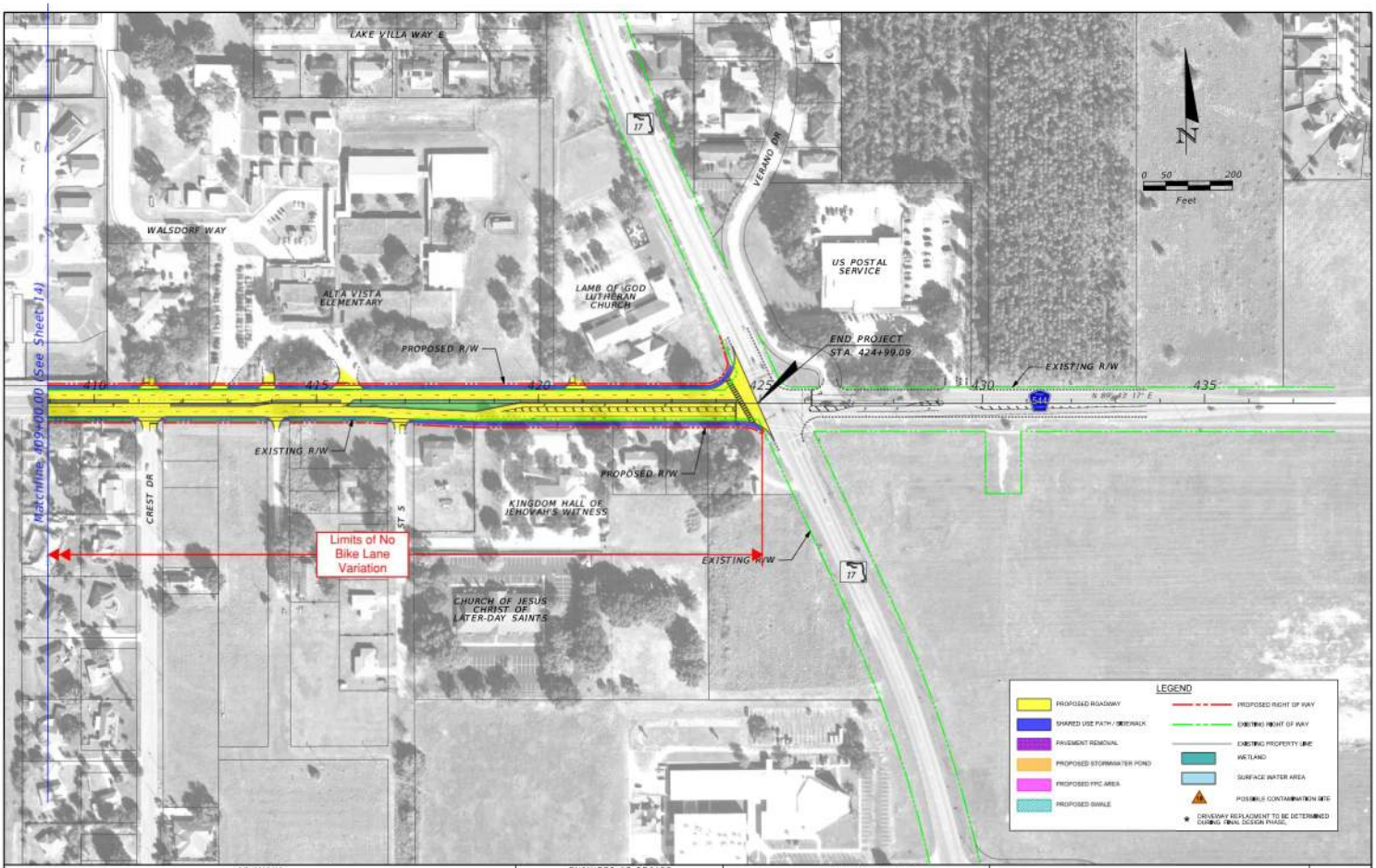

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SR SR 544 PD&E STUDY
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SHEET NO. 15

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Appendix C (Crash Data - Long Forms)

FLORIDA TRAFFIC CRASH REPORT

LONG FORM [X] SHORT FORM [ ] UPDATE [ ]

(Electronic Version)

HIGHWAY SAFETY & MOTOR VEHICLES,
TRAFFIC CRASH RECORDS
NEIL KIRKMAN BUILDING, TALLAHASSEE, FL 32399-0537

Date of Crash	Time of Crash	Date of Report	Invest. Agency Report Number	HSMV Crash Report Number
14/Jul/2020 10:13 AM	14/Jul/2020 10:13 AM	14/Jul/2020 12:00 AM	2020-03496	24049531

CRASH IDENTIFIERS

County Code	City Code	County of Crash	Place or City of Crash	Within City Limits	Time Reported	Time Dispatched
05	62	POLK	WINTER HAVEN	Yes	14/Jul/2020 10:14 AM	14/Jul/2020 10:16 AM

Time on Scene	Time Cleared Scene	Completed	Reason (if Investigation NOT Completed)	Notified By
14/Jul/2020 10:23 AM	14/Jul/2020 11:08 AM	Yes		Law Enforcement

ROADWAY INFORMATION

Crash Occured On Street, Road, Highway	At Street Address#	At Lattitude and Longitude
1ST STREET N		

At Feet	Or Miles	Direction	From Intersection With Street, Road, Highway	Or From Milepost #
105		North	MLK BLVD NE	

Road System Identifier	Type Of Shoulder	Type Of Intersection
5 Local	1 Paved	1 Not at Intersection

CRASH INFORMATION (Check if Pictures Taken) [ ]

light Condition	Weather Condition	Roadway Surface Condition	School Bus Related	Manner Of Collision
1 Daylight	1 Clear	1 Dry	1 No	77 Other, Explain in Narrative

First Harmful Event Type	First Harmful Event	First Harmful Event Location	Within Interchange	First Harmful Event Relation to Junction
	10	1 On Roadway	No	1 Non.Junction

Contributing Circumstances: Road	Contributing Circumstances: Road	Contributing Circumstances: Road
1 None		

Contributing Circumstances: Environment	Contributing Circumstances: Environment	Contributing Circumstances: Environment
1 None		

Work Zone Related	Crash In Work Zone	Type Of Work Zone	Workers In Work Zone	Law Enforcement In Work Zone
1 No				

VEHICLE (Check if Commercial) [ ]

Vehicle	Motor Vehicle Type	Hit and Run	Veh License Number	State	Reg. Expires	Permanent Reg.	VIN
1	1 Vehicle in Transport	1 No	ZI05C	FL	22/Jan/2021		1B7HF16Y5TJ118774

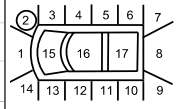
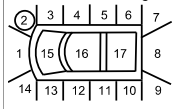
Year	Make	Model	Style	Color	Extent of Damage	Est. Damage	Towed Due To Damage	Vehicle Removed By	Rotation
1996	DODG	LARAMIE	PK	MAR	Minor	250	No	DRIVER	Driver

Insurance Company	Insurance Policy Number
INFINITY INDEMNITY	109911024694001

Name of Vehicle Owner (Check Box If Business) [ ]	Current Address (Number and Street)	City and State	Zip Code
JOHN WILLIAM LOWE JR	613 WEST BLVD N	DAVENPORT FL	33837

	License Number	State	Reg. Expires	Permanent Reg.	VIN	Year	Make	Length	Axles
Trailer One:									
Trailer Two:									

Vehicle Traveling:	Direction	On Street, Road, Highway	At Est. Speed	Posted Speed	Total Lanes
	North	1ST STREET N			1

CMV Configuration	Cargo Body Type	Area of Initial Impact	Most Damaged Area
		 18. Undercarriage 19. Overturn 20. Windshield 21. Trailer	 18. Undercarriage 19. Overturn 20. Windshield 21. Trailer

Comm GVWR/GCWR	Trailer Type (trailer one)	Trailer Type (trailer two)

Haz. Mat. Release	Haz Mat. Placard	Number	Class

Motor Carrier Name	US DOT Number

Motor Carrier Address	City and State	Zip Code	Phone Number

Comm/Non-Commercial	Vehicle Body Type	Vehicle Defects (one)	Vehicle Defects (two)	Emergency Vehicle Use	Special Function of MV
	3 Pickup	1 None		1 No	1 No Special Function

Vehicle Maneuver Action	Trafficway	Roadway Grade	Roadway Alignment	Most Harmful Event	Most Harmful Event Detail
5 Turning Right	4 Two-Way, Divided, Positive Median Barrier	1 Level	1 Straight	2 Collision with Non-Fixed Object	10 Pedestrian

Traffic Control Device For This Vehicle	First (1) Sequence of Events	Second (2) Sequence of Events	Third (3) Sequence of Events	Fourth (4) Sequence of Events
1 No Controls	2 Collision with Non-Fixed Object 10 Pedestrian			

PERSON RECORD

Person#	Description	Vehicle #	Name	Date of Birth	Sex	Phone Number	Re-Exam
1	1 Driver	1	JOHN W LOWE J	22/Jan/1967	1 Male	8639683830	

Address	City	State	Zip Code
613 WEST BLVD N	DAVENPORT	FL	33837

Driver License Number	State	Expires	DL Type	Req. End.	Injury Severity	Ejection
L000479670220	FL	22/Jan/2022	5 E/Operator	2 No	1 None	1 Not Ejected

Restraint System	Air Bag Deployed	Helmet Use	Eye Protection	Seating Location Seat	Seating Location Row	Seating Location Other
3 Shoulder and Lap Belt Used	2 Not Deployed			1 Left	1 Front	1 Not Applicable

Drivers Actions at Time of Crash (first)	Drivers Actions at Time of Crash (second)	Driver Distracted By	Vision Obstruction
77 Other Contributing Action		1 Not Distracted	1 Vision Not Obscured

Drivers Actions at Time of Crash (third)	Drivers Actions at Time of Crash (fourth)	Drivers Condition at Time of Crash
		1 Apparently Normal

Suspected Alcohol Use	Alcohol Tested	Alcohol Test Type	Alcohol Test Result	BAC	Suspected Drug Use	Drug Tested	Drug Test Type	Drug Test Result
1 No					1 No			

Source of Transport to Medical Facility	EMS Agency Name or ID	EMS Run Number	Medical Facility Transported To
1 Not Transported			

PERSON RECORD

Person#	Description	Name	Date of Birth	Sex	Injury Severity	Phone Number
2	2 Non-Motorist	JOSEPH J SAINT ELOI	01/Nov/1944	1 Male	4 Incapacitating	

Address	City	State	Zip Code
3RD ST NE	WINTER HAVEN		33881

Non-Motorist Description Detail	Non-Motorist Action Prior to Crash	Non-Motorist Location at Time of Crash
3 Bicyclist	4 Walking/Cycling Along Roadway Against Traffic (in or adjacent to travel lane)	77 Other, Explain in Narrative

Non-Motorist Actions/Circumstance (First)	Non-Motorist Actions/Circumstance (Second)	Non-Motorist Safety Equipment (One)	Non-Motorist Safety Equipment (Two)
2 Dart/Dash	12 Wrong-Way Riding or Walking	1 None	

Date of Crash	Date of Report	Invest. Agency Report Number	HSMV Crash Report Number
14/Jul/2020 10:13 AM	14/Jul/2020 12:00 AM	2020-03496	24049531

Suspected Alcohol Use	Alcohol Tested	Alcohol Test Type	Alcohol Test Result	BAC	Suspected Drug Use	Drug Tested	Drug Test Type	Drug Test Result
1 No					1 No			

Source of Transport to Medical Facility	EMS Agency Name or ID	EMS Run Number	Medical Facility Transported To
2 EMS	POLK COUNTY FIRE RESCUE	MD329	LAKELAND REGIONAL MEDICAL CENTER

WITNESSES

Name	Address	City	State	Zip Code
AMY VELAZQUEZ	929 GLOUCESTER CT	KISSIMMEE	FL	34758

NARRATIVE

On 07/14/2020 at approximately 1016 hours I responded to the area of 1st Street N/MLK Blvd NE in Winter Haven, Polk County, Florida in reference to a report of a traffic crash. PCSO Dispatch advised that it involved a truck versus a pedestrian (bicyclist) and occurred right in front of the Chevron located at 2100 1st Street N, Winter Haven, FL. Upon arrival, I made contact with the driver of the vehicle while EMS tended to the bicyclist.

The driver of the 1996 Dodge Laramie advised that he was exiting the Chevron turning right onto 1st Street N. He advised that he edged out as he looked both ways multiple times to ensure he was clear to turn. He advised that upon seeing a clearing in traffic he turned right and as he was turning he heard a thump. He advised that he immediately reversed his vehicle some so he could exit his vehicle and check what he had struck. He advised that upon exiting his vehicle to check what it was he saw the cyclist on the ground. He advised that he never saw anyone on the sidewalk or in the roadway as he was turning.

I then made contact with a witness, Amy Velazquez, who advised that she did not observe what happened leading up to the incident. She advised that she was pumping gas at Pump 3 at the Chevron when she heard someone scream. She advised she immediately looked over and observed a truck turning out of the gas station run over a cyclist and then reverse back over the cyclist. She advised that it appeared as if the driver of the vehicle did not initially realize they had struck something.

I collected photographs of the scene of the crash. I then obtained video footage from Chevron. Upon reviewing footage, I observed the truck edging out from the Chevron to make a right hand turn onto 1st Street N. For a short period of time, I observed the truck stopped in the way of the sidewalk with the front end slightly in the roadway waiting to make the turn. I observed the bicyclist coming southbound on the sidewalk against the direction of traffic at a steady speed. As the truck goes to make the right hand turn, I observed the cyclist exit the sidewalk onto the roadway in front of the truck still heading southbound against traffic as if to quickly go around the truck. At this point, I observe the front passenger side of the truck collide with the rear wheel of the bicycle. The bicycle and cyclist then go under the front passenger wheel of the truck and are dragged momentarily.The truck is then observed reversing back over the bicycle and cyclist before it comes to a stop.

I was unable to speak with the bicyclist as he was transported to Lakeland Regional Medical Center (LRMC) and upon my arrival later at LRMC he was intubated. I spoke with the trauma surgeon, Doctor Sontchi, who advised that the bicyclist incurred a broken pelvis and one broken rib on the right side from the accident along with multiple abrasions. Dr. Sontchi further advised that the bicyclist had an internal bleed occurring either in his belly or near where his pelvis was broken. At this time, his condition was considered guarded meaning that he was not stable but was not critical. The bicyclist was relocated to room C2264 in TICU prior to my departure.

The bicyclist's phone rang multiple times while at LRMC in which I obtained several phone numbers from in hopes to reach a family member. I was able to make contact via landline with his daughter, Afania Saint Eloi, and notified her that her father was currently in the TICU at LRMC due to an accident he was involved in.

This crash report is complete however there is further investigation to be completed regarding the condition of the bicyclist and needing to conduct an interview with him.

****

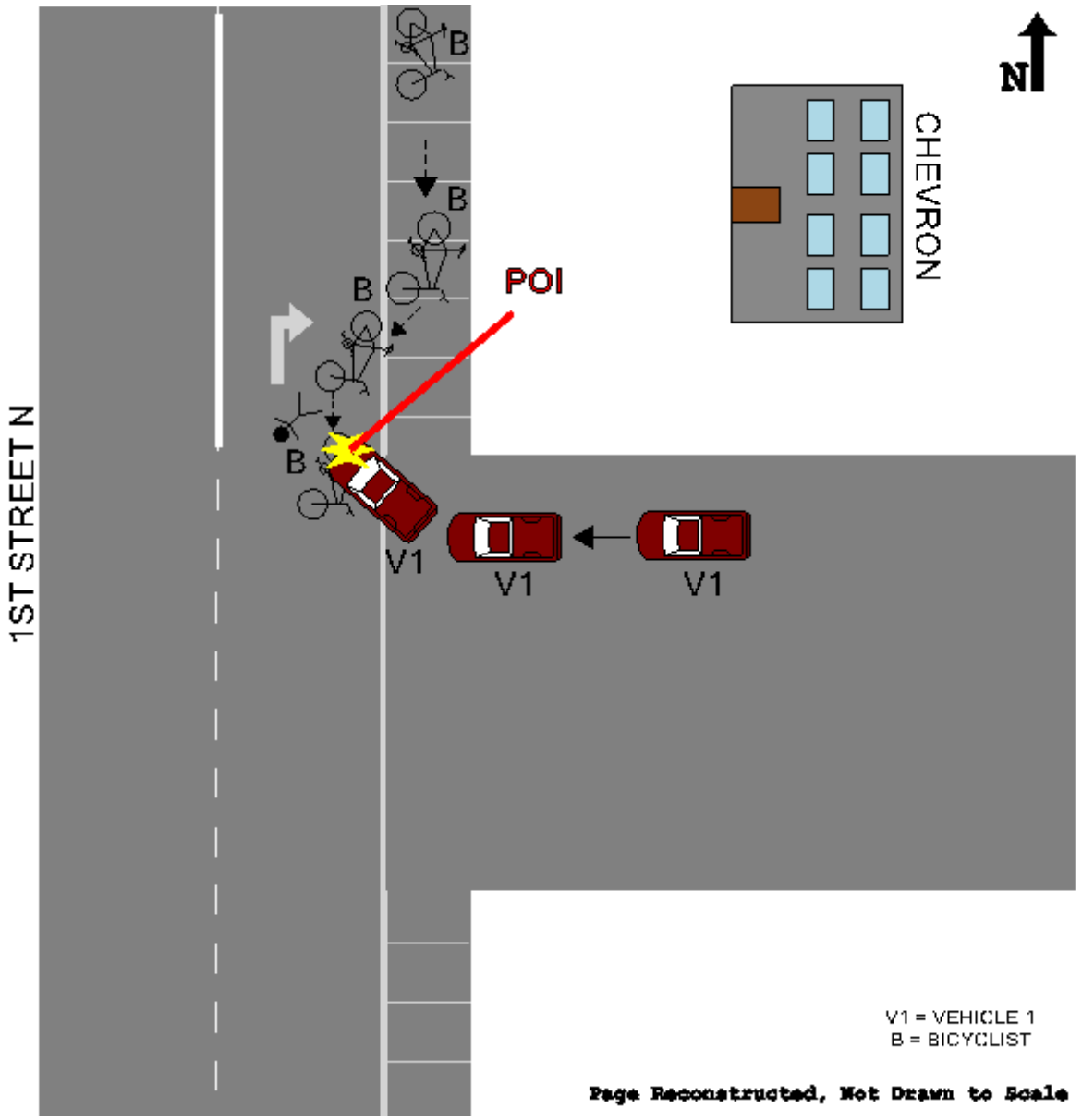
On Thursday, July 23, 2020, at approximately 1039 hours I responded to Lakeland Regional Medical Center in an attempt to conduct an interview with the bicyclist (Joseph Saint Eloi). I had been advised that Saint Eloi had been transferred to a regular room at the hospital (room C3222).

Upon arrival, Saint Eloi was sitting in a chair in the room groaning in pain. I made contact with Saint Eloi's assigned registered nurse, Melissa Rothman, who advised that some days he is completely alert and can hold a conversation while other days he is in a lot of pain. Due to the amount of pain Saint Eloi was in, the nurse administered him pain medication which rendered him unable to be interviewed. It is unknown at this time when Saint Eloi will be discharged from the hospital. His current injuries are still consistent with what was originally reported.

REPORTING OFFICER

ID/Badge #	Rank and Name	Department	Type of Department
W645	Off. Austynn Clark	Winter Haven Police Dept	PD

Date of Crash	Date of Report	Invest. Agency Report Number	HSMV Crash Report Number
14/Jul/2020 10:13 AM	**14/Jul/2020 12:00 AM**	**2020-03496**	**24049531**



FLORIDA TRAFFIC CRASH REPORT

LONG FORM [X] SHORT FORM [ ] UPDATE [ ]

(Electronic Version)

HIGHWAY SAFETY & MOTOR VEHICLES,
TRAFFIC CRASH RECORDS
NEIL KIRKMAN BUILDING, TALLAHASSEE, FL 32399-0537

Date of Crash	Time of Crash	Date of Report	Invest. Agency Report Number	HSMV Crash Report Number
04/Mar/2022 06:02 PM	04/Mar/2022 06:02 PM	04/Mar/2022 12:00 AM	2022-009123	25108522

CRASH IDENTIFIERS

County Code	City Code	County of Crash	Place or City of Crash	Within City Limits	Time Reported	Time Dispatched
05	0	POLK	UNINCORPORATED	No	04/Mar/2022 06:02 PM	04/Mar/2022 06:04 PM

Time on Scene	Time Cleared Scene	Completed	Reason (if Investigation NOT Completed)	Notified By
04/Mar/2022 06:07 PM	04/Mar/2022 07:27 PM	Yes		Law Enforcement

ROADWAY INFORMATION

Crash Occured On Street, Road, Highway	At Street Address#	At Lattitude and Longitude
LUCERNE PARK RD		

At Feet	Or Miles	Direction	From Intersection With Street, Road, Highway	Or From Milepost #
0			AVE Y NE	

Road System Identifier	Type Of Shoulder	Type Of Intersection
5 Local	1 Paved	2 Four-Way Intersection

CRASH INFORMATION (Check if Pictures Taken) [X]

light Condition	Weather Condition	Roadway Surface Condition	School Bus Related	Manner Of Collision
1 Daylight	1 Clear	1 Dry	1 No	77 Other, Explain in Narrative

First Harmful Event Type	First Harmful Event	First Harmful Event Location	Within Interchange	First Harmful Event Relation to Junction
	10	1 On Roadway	No	2 Intersection

Contributing Circumstances: Road	Contributing Circumstances: Road	Contributing Circumstances: Road
1 None		

Contributing Circumstances: Environment	Contributing Circumstances: Environment	Contributing Circumstances: Environment
1 None		

Work Zone Related	Crash In Work Zone	Type Of Work Zone	Workers In Work Zone	Law Enforcement In Work Zone
1 No				

VEHICLE (Check if Commercial) [ ]

Vehicle	Motor Vehicle Type	Hit and Run	Veh License Number	State	Reg. Expires	Permanent Reg.	VIN
1	1 Vehicle in Transport	1 No	36CAAE	FL	13/Jan/2024		1FTFX1ET0DFD54893

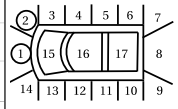
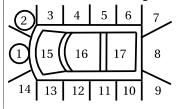
Year	Make	Model	Style	Color	Extent of Damage	Est. Damage	Towed Due To Damage	Vehicle Removed By	Rotation
2013	FORD	F150	4D	WHI	Minor	500	No	ANDREW SPICER	Driver

Insurance Company	Insurance Policy Number
STATE FARM MUTUAL AUTOMOBILE INSURANCE C	D355198594

Name of Vehicle Owner (Check Box If Business)	Current Address (Number and Street)	City and State	Zip Code
ANDREW DANE SPICER [ ]	2302 DOVEWOOD ESTATES CT	VALRICO FL	33594

	License Number	State	Reg. Expires	Permanent Reg.	VIN	Year	Make	Length	Axles
Trailer One:									
Trailer Two:									

Vehicle Traveling:	Direction	On Street, Road, Highway	At Est. Speed	Posted Speed	Total Lanes
	West	Ave Y NE			2

CMV Configuration	Cargo Body Type	Area of Initial Impact	Most Damaged Area
		 18. Undercarriage 19. Overturn 20. Windshield 21. Trailer	 18. Undercarriage 19. Overturn 20. Windshield 21. Trailer

Comm GVWR/GCWR	Trailer Type (trailer one)	Trailer Type (trailer two)

Haz. Mat. Release	Haz Mat. Placard	Number	Class

Motor Carrier Name	US DOT Number

Motor Carrier Address	City and State	Zip Code	Phone Number

Comm/Non-Commercial	Vehicle Body Type	Vehicle Defects (one)	Vehicle Defects (two)	Emergency Vehicle Use	Special Function of MV
	3 Pickup	1 None		1 No	1 No Special Function

Vehicle Maneuver Action	Trafficway	Roadway Grade	Roadway Alignment	Most Harmful Event	Most Harmful Event Detail
3 Turning Left	1 Two-Way, Not Divided	1 Level	1 Straight	2 Collision with Non-Fixed Object	10 Pedestrian

Traffic Control Device For This Vehicle	First (1) Sequence of Events	Second (2) Sequence of Events	Third (3) Sequence of Events	Fourth (4) Sequence of Events
6 Stop Sign	2 Collision with Non-Fixed Object 14 Motor Vehicle in Transport	10 Pedestrian		

PERSON RECORD

Person#	Description	Vehicle #	Name	Date of Birth	Sex	Phone Number	Re-Exam
1	1 Driver	1	ANDREW D SPICER	13/Jan/1998	1 Male		

Address	City	State	Zip Code
2302 DOVEWOOD ESTATES CT	VALRICO	FL	33594

Driver License Number	State	Expires	DL Type	Req. End.	Injury Severity	Ejection
S126004980130	FL	13/Jan/2030	5 E/Operator	3 No Req Endorsement	1 None	1 Not Ejected

Restraint System	Air Bag Deployed	Helmet Use	Eye Protection	Seating Location Seat	Seating Location Row	Seating Location Other
3 Shoulder and Lap Belt Used	2 Not Deployed	3 No Helmet	3 Not Applicable	1 Left	1 Front	1 Not Applicable

Drivers Actions at Time of Crash (first)	Drivers Actions at Time of Crash (second)	Driver Distracted By	Vision Obstruction
1 No Contributing Action		1 Not Distracted	1 Vision Not Obscured

Drivers Actions at Time of Crash (third)	Drivers Actions at Time of Crash (fourth)	Drivers Condition at Time of Crash
		1 Apparently Normal

Suspected Alcohol Use	Alcohol Tested	Alcohol Test Type	Alcohol Test Result	BAC	Suspected Drug Use	Drug Tested	Drug Test Type	Drug Test Result
1 No					1 No			

Source of Transport to Medical Facility	EMS Agency Name or ID	EMS Run Number	Medical Facility Transported To
1 Not Transported			

PERSON RECORD

Person#	Description	Vehicle #	Name	Date of Birth	Sex	Injury Severity	Ejection
2	3 Passenger	1	CARSON WALLACE	13/Aug/1998	1 Male	1 None	1 Not Ejected

Address	City	State	Zip Code
127 PRADO PL	LAKELAND	FL	33803

Restraint System	Air Bag Deployed	Helmet Use	Eye Protection	Seating Location Seat	Seating Location Row	Seating Location Other
3 Shoulder and Lap Belt Used	2 Not Deployed	3 No Helmet	3 Not Applicable	3	1	1

Date of Crash	Date of Report	Invest. Agency Report Number	HSMV Crash Report Number
04/Mar/2022 06:02 PM	04/Mar/2022 12:00 AM	2022-009123	25108522

Source of Transport to Medical Facility	EMS Agency Name or ID	EMS Run Number	Medical Facility Transported To
1 Not Transported			

PERSON RECORD

Person#	Description	Name	Date of Birth	Sex	Injury Severity	Phone Number
3	2 Non-Motorist	TODD DAVIS	06/Jan/1966	1 Male	2 Possible	8638778769

Address	City	State	Zip Code
2414 1ST ST NE	WINTER HAVEN		33881

Non-Motorist Description Detail	Non-Motorist Action Prior to Crash	Non-Motorist Location at Time of Crash
3 Bicyclist	3 Walking/Cycling Along Roadway with Traffic (in or adjacent to travel lane)	2 Intersection - Unmarked Crosswalk

Non-Motorist Actions/Circumstance (First)	Non-Motorist Actions/Circumstance (Second)	Non-Motorist Safety Equipment (One)	Non-Motorist Safety Equipment (Two)
3 Failure to Yield Right-of-Way	4 Failure to Obey Traffic Signs, Signals, or Officer	1 None	

Suspected Alcohol Use	Alcohol Tested	Alcohol Test Type	Alcohol Test Result	BAC	Suspected Drug Use	Drug Tested	Drug Test Type	Drug Test Result
1 No					1 No			

Source of Transport to Medical Facility	EMS Agency Name or ID	EMS Run Number	Medical Facility Transported To
2 EMS	POLK COUNTY EMS	FS220021159	WINTER HAVEN HOSPITAL

WITNESSES

Name	Address	City	State	Zip Code
ANDRESEA ALLEN	510 AVE K NW APT 4	WINTER HAVEN	FL	33881

NARRATIVE

On 03/02/2022 at approximately 1802 hours, I responded to Lucerne Park Rd/Avenue Y NE, Winter Haven, in reference to a vehicle crash.

Andrew Spicer (D1) is the driver of a white 2013 Ford F150 tag #36CAAE (V1). V1 was carrying boat #FL5704MM trailer tag #0398QZ.

Todd Davis (P3) is the bicyclist.

Prior to my arrival EMS was on scene assisting P3 with his back pain.

V1 was at a complete stop at the intersection of Ave Y NE. V1 proceeded to make a left turn traveling southbound on Lucerne Park Rd when P3 failed to stop at the stop sign and proceeded to travel eastbound on Ave Y NE. V1 attempted to avoid striking the bicycle, but there was another vehicle in the northbound land. V1 struck the bicycle in the rear tire, causing P3 to fly off the bike approximately 10 feet from where the incident occurred.

I made contact with witness Andresea Allen. She advised V1 made a complete stop at the intersection, attempting to make a left turn southbound on Lucerne Park Rd. Allen stated the bicyclist traveling eastbound on Ave Y NE never stopped at the stop sign. Allen provided a sworn written statement.

EMS transported P3 to the Winter Haven Hospital with minor injuries.

A check was conducted through the Crime Information Center (CIC) of V1, D1, and P3 for any wants/warrants. All searches resulted in negative. D1 had a valid driver's license.

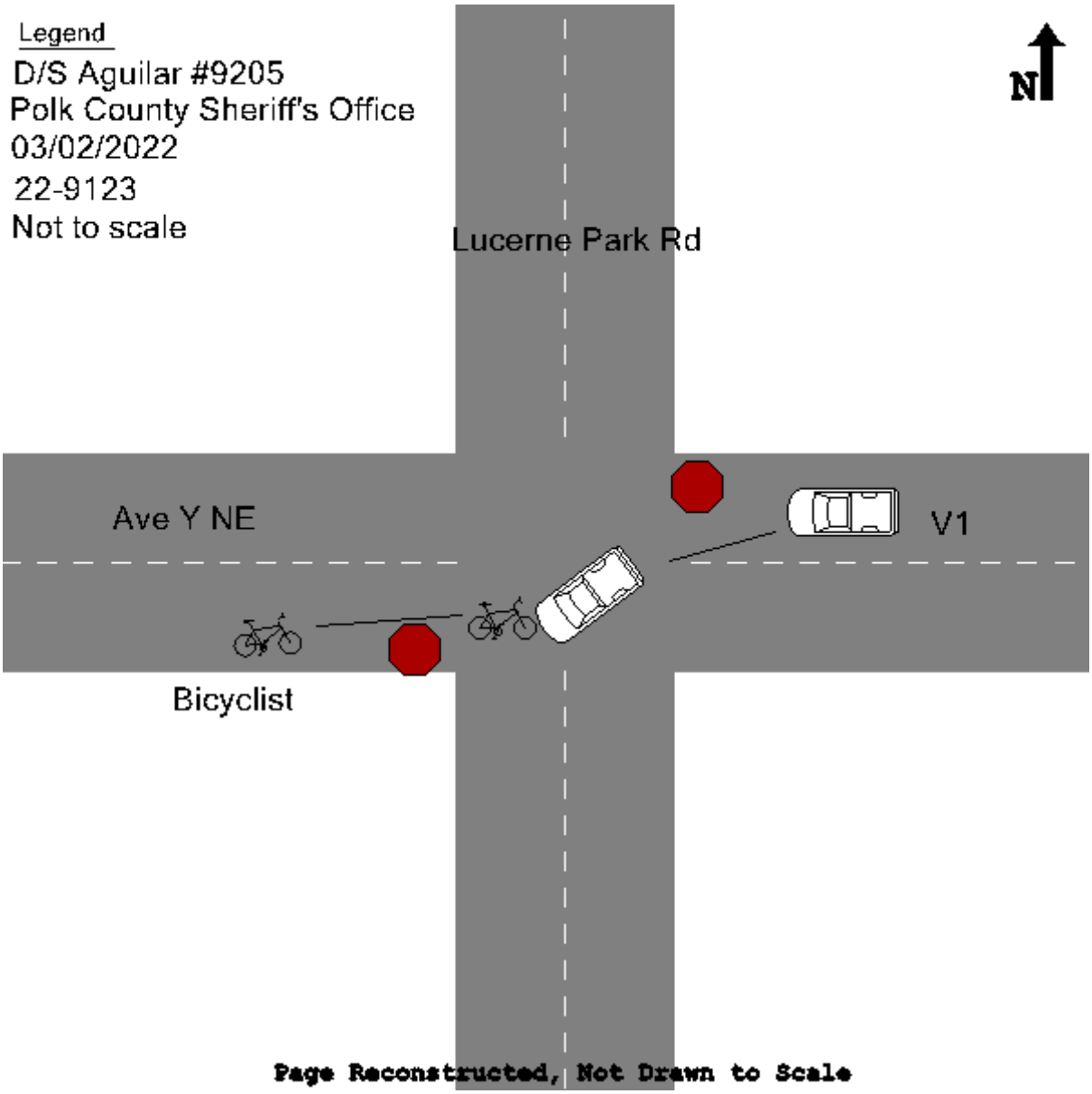
Nine photos were taken of the incident and uploaded to photo lab.

P3 is at fault.

REPORTING OFFICER

ID/Badge #	Rank and Name	Department	Type of Department
9205	Kimberly Aguilar	Polk County SO	SO

Date of Crash	Date of Report	Invest. Agency Report Number	HSMV Crash Report Number
04/Mar/2022 06:02 PM	04/Mar/2022 12:00 AM	2022-009123	25108522



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FLORIDA TRAFFIC CRASH REPORT

LONG FORM [X] SHORT FORM [ ] UPDATE [ ]

(Electronic Version)

HIGHWAY SAFETY & MOTOR VEHICLES,
TRAFFIC CRASH RECORDS
NEIL KIRKMAN BUILDING, TALLAHASSEE, FL 32399-0537

Date of Crash	Time of Crash	Date of Report	Invest. Agency Report Number	HSMV Crash Report Number
04/Mar/2020 06:35 PM	04/Mar/2020 06:35 PM	04/Mar/2020 12:00 AM	2020-011225	89841847

CRASH IDENTIFIERS

County Code	City Code	County of Crash	Place or City of Crash	Within City Limits	Time Reported	Time Dispatched
05	0	POLK	UNINCORPORATED (WINTER HAVEN)	No	04/Mar/2020 06:42 PM	04/Mar/2020 06:48 PM

Time on Scene	Time Cleared Scene	Completed	Reason (if Investigation NOT Completed)	Notified By
04/Mar/2020 07:05 PM	04/Mar/2020 07:48 PM	Yes		Law Enforcement

ROADWAY INFORMATION

Crash Occured On Street, Road, Highway	At Street Address#	At Lattitude and Longitude
SR 544 (LUCERNE PARK RD)		

At Feet	Or Miles	Direction	From Intersection With Street, Road, Highway	Or From Milepost #
0			AVENUE Y NE	

Road System Identifier	Type Of Shoulder	Type Of Intersection
3 State	1 Paved	2 Four-Way Intersection

CRASH INFORMATION (Check if Pictures Taken) [X]

light Condition	Weather Condition	Roadway Surface Condition	School Bus Related	Manner Of Collision
2 Dusk	1 Clear	1 Dry	1 No	77 Other, Explain in Narrative

First Harmful Event Type	First Harmful Event	First Harmful Event Location	Within Interchange	First Harmful Event Relation to Junction
	11	1 On Roadway	No	2 Intersection

Contributing Circumstances: Road	Contributing Circumstances: Road	Contributing Circumstances: Road
1 None		

Contributing Circumstances: Environment	Contributing Circumstances: Environment	Contributing Circumstances: Environment
1 None		

Work Zone Related	Crash In Work Zone	Type Of Work Zone	Workers In Work Zone	Law Enforcement In Work Zone
1 No				

VEHICLE (Check if Commercial) [ ]

Vehicle	Motor Vehicle Type	Hit and Run	Veh License Number	State	Reg. Expires	Permanent Reg.	VIN
2	1 Vehicle in Transport	2 Yes	Z019VL	FL	02/Nov/2020		3FAFP07Z16R170750

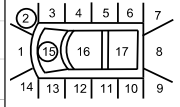
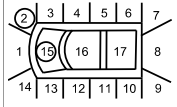
Year	Make	Model	Style	Color	Extent of Damage	Est. Damage	Towed Due To Damage	Vehicle Removed By	Rotation
2006	FORD	FUS	4D	MAR	Functional	1000	No	DRIVER	Driver

Insurance Company	Insurance Policy Number
ACCEPTANCE INSURANCE	ABFL-26236

Name of Vehicle Owner (Check Box If Business)	Current Address (Number and Street)	City and State	Zip Code
MIKAYLA SIERRA KEELAN [ ]	2220 4TH ST NE	WINTER HAVEN FL	33881

	License Number	State	Reg. Expires	Permanent Reg.	VIN	Year	Make	Length	Axles
Trailer One:									
Trailer Two:									

Vehicle Traveling:	Direction	On Street, Road, Highway	At Est. Speed	Posted Speed	Total Lanes
	North	SR 544 (Lucerne Park Rd).		45	2

CMV Configuration	Cargo Body Type	Area of Initial Impact	Most Damaged Area
			

Comm GVWR/GCWR	Trailer Type (trailer one)	Trailer Type (trailer two)

Haz. Mat. Release	Haz Mat. Placard	Number	Class

Motor Carrier Name	US DOT Number

Motor Carrier Address	City and State	Zip Code	Phone Number

Comm/Non-Commercial	Vehicle Body Type	Vehicle Defects (one)	Vehicle Defects (two)	Emergency Vehicle Use	Special Function of MV
	1 Passenger Car	1 None		1 No	

Vehicle Maneuver Action	Trafficway	Roadway Grade	Roadway Alignment	Most Harmful Event	Most Harmful Event Detail
1 Straight Ahead	1 Two-Way, Not Divided	1 Level	1 Straight	2 Collision with Non-Fixed Object	11 Pedalcycle

Traffic Control Device For This Vehicle	First (1) Sequence of Events	Second (2) Sequence of Events	Third (3) Sequence of Events	Fourth (4) Sequence of Events
1 No Controls	2 Collision with Non-Fixed Object 11 Pedalcycle			

PERSON RECORD

Person#	Description	Vehicle #	Name	Date of Birth	Sex	Phone Number	Re-Exam
2	1 Driver	2	MIKAYLA S KEELAN	02/Nov/1998	2 Female	8138302561	

Address	City	State	Zip Code
2220 4TH ST NE	WINTER HAVEN	FL	33881

Driver License Number	State	Expires	DL Type	Req. End.	Injury Severity	Ejection
K450557989020	FL	02/Nov/2023	5 E/Operator	3 No Req Endorsement	1 None	1 Not Ejected

Restraint System	Air Bag Deployed	Helmet Use	Eye Protection	Seating Location Seat	Seating Location Row	Seating Location Other
3 Shoulder and Lap Belt Used	2 Not Deployed	3 No Helmet	3 Not Applicable	1 Left	1 Front	1 Not Applicable

Drivers Actions at Time of Crash (first)	Drivers Actions at Time of Crash (second)	Driver Distracted By	Vision Obstruction
1 No Contributing Action		1 Not Distracted	1 Vision Not Obscured

Drivers Actions at Time of Crash (third)	Drivers Actions at Time of Crash (fourth)	Drivers Condition at Time of Crash
		1 Apparently Normal

Suspected Alcohol Use	Alcohol Tested	Alcohol Test Type	Alcohol Test Result	BAC	Suspected Drug Use	Drug Tested	Drug Test Type	Drug Test Result
1 No					1 No			

Source of Transport to Medical Facility	EMS Agency Name or ID	EMS Run Number	Medical Facility Transported To
1 Not Transported			

PERSON RECORD

Person#	Description	Name	Date of Birth	Sex	Injury Severity	Phone Number
1	2 Non-Motorist	UNKNOWN UNKNOWN		1 Male	1 None	

Address	City	State	Zip Code
UNKNOWN	UK		

Non-Motorist Description Detail	Non-Motorist Action Prior to Crash	Non-Motorist Location at Time of Crash
3 Bicyclist	1 Crossing Roadway	3 Intersection - Other

Non-Motorist Actions/Circumstance (First)	Non-Motorist Actions/Circumstance (Second)	Non-Motorist Safety Equipment (One)	Non-Motorist Safety Equipment (Two)
3 Failure to Yield Right-of-Way		1 None	

Date of Crash	Date of Report	Invest. Agency Report Number	HSMV Crash Report Number
04/Mar/2020 06:35 PM	**04/Mar/2020 12:00 AM**	**2020-011225**	**89841847**

Suspected Alcohol Use	Alcohol Tested	Alcohol Test Type	Alcohol Test Result	BAC	Suspected Drug Use	Drug Tested	Drug Test Type	Drug Test Result
1 No					**1 No**			

Source of Transport to Medical Facility	EMS Agency Name or ID	EMS Run Number	Medical Facility Transported To
1 Not Transported			

WITNESSES

Name	Address	City	State	Zip Code
ROBERT WHITCHARD	**1107 3RD ST SW STE #5**	**WINTER HAVEN**	**FL**	**33880**

NARRATIVE

Vehicle 2 was traveling north on State Road 544 (Lucerne Park Road). Person/bicyclist 1 was traveling westbound on Avenue Y NE., Winter Haven, FL 33881. Person 1 then entered the intersection of State Road 544 (Lucerne Park Road) and Avenue Y, NE Winter Haven, FL 33881.

Person 1 struck vehicle 2 on the front passenger fender causing damage to the windshield of vehicle 2. Vehicle 2 immediately stopped to attempt to render aid to person 1. Person 1 stated he was fine and left the scene. Person 1 was described as a young black male, approximately 12 to 16 years of age, unknown clothing.

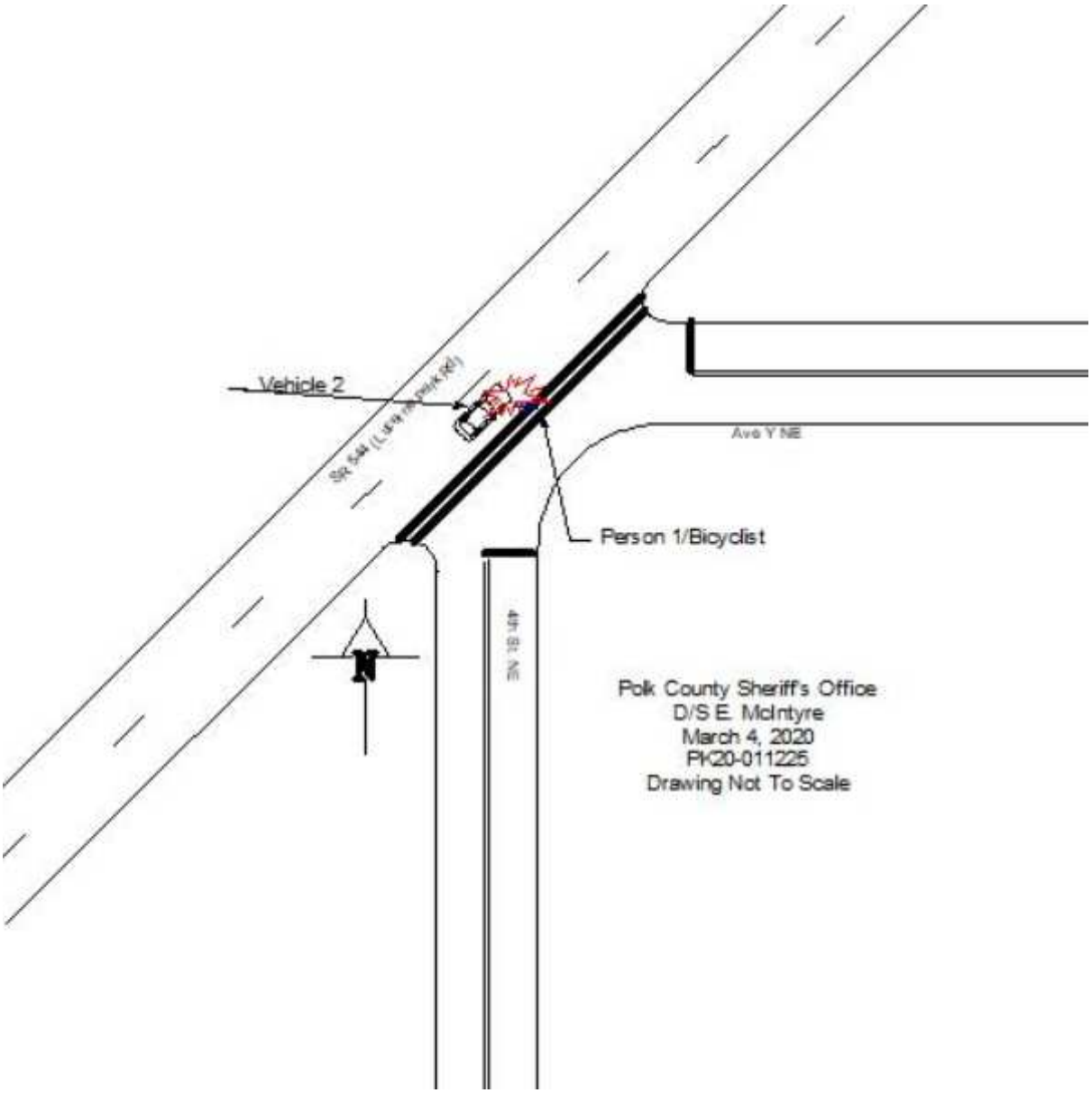
A witness observed the incident. The witness attempted to catch up to person 1, but was unsuccessful and stated he lost sight of person 1 on Avenue Y, NE. Polk County EMS responded to the scene and assisted in the search for person 1.The search was conducted with negative results. Local hospitals were contacted in an attempt to locate person 1. Local hospitals advised there were no persons fitting this description of at their facilities.

Person 1/Bicyclist was the violator in this crash but could not be located.

REPORTING OFFICER

ID/Badge #	Rank and Name	Department	Type of Department
6364	**Dep. ELBERT MCINTYRE**	**Polk County SO**	**SO**

Date of Crash	Date of Report	Invest. Agency Report Number	HSMV Crash Report Number
04/Mar/2020 06:35 PM	**04/Mar/2020 12:00 AM**	**2020-011225**	**89841847**



Appendix D

FDOT Long Range Estimates

Date: 4/1/2024 7:06:05 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-4-52-01 **Letting Date:** 07/2027

Description: SR 544 (LUCERNE PARK) FROM MLK BLVD TO AVENUE Y

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English
Contract Class: 1 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.619 MI

Project Manager: NEM-KSJ-JLF

Version 5 Project Grand Total **$13,309,808.01**
Description: March 2024 Unit Cost Updates from Version 4P - 3/5/24

Sequence: 1 NDU - New Construction, Divided, Urban **Net Length:** 0.104 MI / 550 LF

Description: MLK Intersection to 1st St.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	69.00 / 32.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.104
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.27	AC	$56,512.73	$71,771.17
120-6	EMBANKMENT	3,291.47	CY	$15.04	$49,503.71
	Earthwork Component Total				$121,274.88

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	55.00 / 24.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,460.19	SY	$15.74	$85,943.39
285-709	OPTIONAL BASE,BASE GROUP 09	4,829.32	SY	$23.27	$112,378.28

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	664.03 TN	$192.26	$127,666.41
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	398.42 TN	$208.69	$83,146.27

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	70.00	EA	$4.35	$304.50
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.42	GM	$1,261.74	$529.93
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.42	GM	$544.18	$228.56
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.42	GM	$5,295.89	$2,224.27
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.42	GM	$1,568.63	$658.82
	Roadway Component Total				$413,080.43

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	14.25 / 14.25
Total Outside Shoulder Perf. Turf Width L/R	4.00 / 4.00
Sidewalk Width L/R	8.00 / 8.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	550.18	LF	$46.28	$25,462.33
520-1-10	CONCRETE CURB & GUTTER, TYPE F	550.18	LF	$46.28	$25,462.33
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	978.09	SY	$71.53	$69,962.78
570-1-1	PERFORMANCE TURF	489.05	SY	$4.80	$2,347.44

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,100.35	LF	$2.70	$2,970.94
104-11	FLOATING TURBIDITY BARRIER	26.05	LF	$12.79	$333.18
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	26.05	LF	$6.43	$167.50
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	6.00	EA	$123.06	$738.36
107-1	LITTER REMOVAL	2.65	AC	$50.09	$132.74

107-2	MOWING	2.65 AC	$83.03	$220.03
	Shoulder Component Total			$130,486.70

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	1,100.35	LF	$38.76	$42,649.57
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	550.00	LF	$88.18	$48,499.00
	Median Component Total				$91,148.57

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	4.00	EA	$7,474.89	$29,899.56
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$11,817.04	$23,634.08
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$7,391.69	$7,391.69
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,130.30	$6,130.30
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	280.00	LF	$189.12	$52,953.60
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00	LF	$306.37	$7,352.88
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	528.00	LF	$318.06	$167,935.68
570-1-1	PERFORMANCE TURF	31.68	SY	$4.80	$152.06
	Drainage Component Total				$295,449.85

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$449.95	$1,349.85
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,607.97	$1,607.97
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$7,587.77	$7,587.77
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	1.00	AS	$16,710.53	$16,710.53
	Signing Component Total				$27,256.12

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value

Type	4 Lane Mast Arm
Multiplier	1
Description	MLK and 544

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00	LF	$19.30	$14,475.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00	LF	$36.03	$9,007.50
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$10,834.31	$10,834.31
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00	EA	$1,363.63	$21,818.08
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,860.30	$3,860.30
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$9.92	$595.20
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	4.00	EA	$81,339.84	$325,359.36
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00	AS	$1,499.43	$17,993.16
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$770.15	$6,161.20
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00	EA	$639.54	$7,674.48
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00	AS	$1,368.89	$16,426.68
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$239.20	$1,913.60
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$51,964.94	$51,964.94
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$299.79	$1,199.16
	Signalizations Component Total				$489,282.97

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	550.18	LF	$19.30	$10,618.47
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	109.20	LF	$36.03	$3,934.48
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$1,363.63	$5,454.52
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,009.39	LF	$3.77	$7,575.40
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	4.00	EA	$8,402.83	$33,611.32
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$768.21	$3,072.84
	Subcomponent Total				$64,267.03
	Lighting Component Total				$64,267.03

Sequence 1 Total $1,632,246.55

Sequence: 2 NUU - New Construction, Undivided, Urban

Net Length: 0.339 MI
1,790 LF

Description: 1st St. to Ave. Y

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	32.00 / 32.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.339
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.63	AC	$56,512.73	$148,628.48
120-6	EMBANKMENT	6,475.53	CY	$15.04	$97,391.97
	Earthwork Component Total				$246,020.45

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	18.00 / 18.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,185.90	SY	$15.74	$128,846.07
285-709	OPTIONAL BASE,BASE GROUP 09	7,159.68	SY	$23.27	$166,605.75
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	984.46	TN	$192.26	$189,272.28
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	590.67	TN	$208.69	$123,266.92

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	183.00	EA	$4.35	$796.05

710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.36 GM	$1,261.74	$1,715.97
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.68 GM	$544.18	$370.04
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.36 GM	$5,295.89	$7,202.41
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.68 GM	$1,568.63	$1,066.67
	Roadway Component Total			$619,142.16

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	14.25 / 14.25
Total Outside Shoulder Perf. Turf Width L/R	4.00 / 4.00
Sidewalk Width L/R	8.00 / 8.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,789.92	LF	$46.28	$82,837.50
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,789.92	LF	$46.28	$82,837.50
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	3,182.08	SY	$71.53	$227,614.18
570-1-1	PERFORMANCE TURF	1,591.04	SY	$4.80	$7,636.99

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,579.84	LF	$2.70	$9,665.57
104-11	FLOATING TURBIDITY BARRIER	84.75	LF	$12.79	$1,083.95
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	84.75	LF	$6.43	$544.94
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	18.00	EA	$123.06	$2,215.08
107-1	LITTER REMOVAL	4.11	AC	$50.09	$205.87
107-2	MOWING	4.11	AC	$83.03	$341.25
	Shoulder Component Total				$417,671.89

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	13.00	EA	$7,474.89	$97,173.57
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$11,817.04	$47,268.16
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$7,391.69	$14,783.38
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,130.30	$12,260.60
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	792.00	LF	$189.12	$149,783.04
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	72.00	LF	$306.37	$22,058.64

430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,696.00 LF	$318.06	$539,429.76

Retention Basin 1

Description	Value
Size	.5 AC
Multiplier	1
Depth	3.50
Description	Pond 1A

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50	AC	$56,512.73	$28,256.36
120-1	REGULAR EXCAVATION	2,823.33	CY	$18.27	$51,582.24
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$7,689.71	$7,689.71
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$355.79	$19,924.24
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$715.27	$143,054.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	600.00	LF	$33.16	$19,896.00
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,668.52	$4,668.52
570-1-1	PERFORMANCE TURF	2,420.00	SY	$4.80	$11,616.00
	Drainage Component Total				$1,175,909.27

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$449.95	$3,149.65
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,607.97	$1,607.97
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$7,587.77	$7,587.77
	Signing Component Total				$12,345.39

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,789.92	LF	$19.30	$34,545.46
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	355.27	LF	$36.03	$12,800.38
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	$1,363.63	$16,363.56
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,537.28	LF	$3.77	$24,645.55
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	12.00	EA	$8,402.83	$100,833.96

715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	12.00 EA	$768.21	$9,218.52
	Subcomponent Total			$198,407.42
	Lighting Component Total			$198,407.43
Sequence 2 Total				$2,669,496.59

Sequence: 3 NDU - New Construction, Divided, Urban

Net Length: 0.036 MI
190 LF

Description: Mini-Roundabout at Avenue Y

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	68.00 / 68.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.036
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	2.00 % / 2.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.59	AC	$56,512.73	$33,342.51
120-6	EMBANKMENT	819.74	CY	$15.04	$12,328.89

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	320.00	CY	$18.27	$5,846.40
	Earthwork Component Total				$51,517.80

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	724.84	SY	$15.74	$11,408.98
285-709	OPTIONAL BASE,BASE GROUP 09	506.88	SY	$23.27	$11,795.10
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	69.70	TN	$192.26	$13,400.52
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	41.82	TN	$208.69	$8,727.42

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	960.00	SY	$15.74	$15,110.40
285-709	OPTIONAL BASE,BASE GROUP 09	680.00	SY	$23.27	$15,823.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	75.00	TN	$192.26	$14,419.50

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	38.00 TN	$208.69	$7,930.22
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.07 GM	$1,299.67	$90.98

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	5.00	EA	$4.35	$21.75
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.14	GM	$1,261.74	$176.64
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.14	GM	$5,999.99	$840.00
	Roadway Component Total				$99,745.11

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	19.25 / 19.25
Total Outside Shoulder Perf. Turf Width L/R	9.00 / 9.00
Sidewalk Width L/R	8.00 / 8.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	190.08	LF	$46.28	$8,796.90
520-1-10	CONCRETE CURB & GUTTER, TYPE F	190.08	LF	$46.28	$8,796.90
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	337.92	SY	$71.53	$24,171.42
570-1-1	PERFORMANCE TURF	380.16	SY	$4.80	$1,824.77

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	380.16	LF	$2.70	$1,026.43
104-11	FLOATING TURBIDITY BARRIER	9.00	LF	$12.79	$115.11
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	9.00	LF	$6.43	$57.87
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	2.00	EA	$123.06	$246.12
107-1	LITTER REMOVAL	0.92	AC	$50.09	$46.08
107-2	MOWING	0.92	AC	$83.03	$76.39
	Shoulder Component Total				$47,847.05

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
350-30-13	CONC PAVEMENT FOR ROUNDABOUT APRON, 12"	270.00	SY	$316.70	$85,509.00
	Median Component Total				$85,509.00

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	2.00	EA	$7,474.89	$14,949.78
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00	EA	$11,817.04	$11,817.04
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$7,391.69	$7,391.69
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,130.30	$6,130.30
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	96.00	LF	$189.12	$18,155.52
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$306.37	$4,901.92
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	184.00	LF	$318.06	$58,523.04
570-1-1	PERFORMANCE TURF	10.94	SY	$4.80	$52.51
	Drainage Component Total				$121,921.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$449.95	$1,799.80
	Signing Component Total				$1,799.80

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,860.30	$3,860.30
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$17,701.36	$17,701.36
	Lighting Component Total				$21,561.66

LANDSCAPING COMPONENT

User Input Data

Description	Value
Lump Sum	40,000.00
Cost %	0.00
Component Detail	N

Landscaping Component Total	$40,000.00

Sequence 3 Total	$469,902.22

Sequence: 4 NUR - New Construction, Undivided, Rural

Net Length: 0.026 MI
137 LF

Description: 2-Lane Approach (Ave. Y)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.50
Alignment Number	1
Distance	0.026
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50	AC	$56,512.73	$28,256.36
120-6	EMBANKMENT	256.76	CY	$15.04	$3,861.67
	Earthwork Component Total				$32,118.04

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	671.15	SY	$15.74	$10,563.90
285-709	OPTIONAL BASE,BASE GROUP 09	376.15	SY	$23.27	$8,753.01
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	50.34	TN	$192.26	$9,678.37
337-7-81	ASPH CONC FC,TRAFFIC B,FC-12.5,PG 76-22	30.20	TN	$789.82	$23,852.56

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.15	GM	$1,261.74	$189.26
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	60.00	LF	$1.07	$64.20
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	90.00	LF	$2.01	$180.90
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02	GM	$693.88	$13.88
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01	GM	$1,175.81	$11.76

710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	1.00 EA	$59.36	$59.36
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15 GM	$1,299.67	$194.95
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	50.00 LF	$1.66	$83.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	4.00	EA	$4.35	$17.40
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.05	GM	$1,261.74	$63.09
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.03	GM	$560.16	$16.80
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.05	GM	$5,295.89	$264.79
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.03	GM	$1,890.90	$56.73
	Roadway Component Total				$54,063.96

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	275
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	162.60	SY	$64.97	$10,564.12
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	20.97	TN	$192.26	$4,031.69
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	12.58	TN	$1,326.97	$16,693.28
570-1-1	PERFORMANCE TURF	81.45	SY	$4.80	$390.96

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	375.00	LF	$46.28	$17,355.00
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00	SY	$71.53	$31,473.20
527-2	DETECTABLE WARNINGS	104.00	SF	$35.35	$3,676.40

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	356.93	LF	$2.70	$963.71
104-11	FLOATING TURBIDITY BARRIER	6.50	LF	$12.79	$83.14
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	6.50	LF	$6.43	$41.80
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
107-1	LITTER REMOVAL	0.32	AC	$50.09	$16.03
107-2	MOWING	0.32	AC	$83.03	$26.57
	Shoulder Component Total				$88,004.96

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	24.00	LF	$487.61	$11,702.64
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	8.00	LF	$306.37	$2,450.96
570-1-1	PERFORMANCE TURF	18.30	SY	$4.80	$87.84

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00	EA	$9,440.85	$18,881.70
	Drainage Component Total				$33,123.14

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$449.95	$449.95
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,607.97	$1,607.97
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,718.61	$5,718.61
	Signing Component Total				$7,776.53

Sequence 4 Total $215,086.63

Sequence: 5 NUR - New Construction, Undivided, Rural

Net Length: 0.026 MI
137 LF

Description: 2-Lane Approach (Ave. Y)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.50
Alignment Number	1
Distance	0.026
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50	AC	$56,512.73	$28,256.36
120-6	EMBANKMENT	256.76	CY	$15.04	$3,861.67
	Earthwork Component Total				$32,118.04

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	671.15	SY	$15.74	$10,563.90
285-709	OPTIONAL BASE,BASE GROUP 09	376.15	SY	$23.27	$8,753.01
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	50.34	TN	$192.26	$9,678.37
337-7-81	ASPH CONC FC,TRAFFIC B,FC-12.5,PG 76-22	30.20	TN	$789.82	$23,852.56

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.15	GM	$1,261.74	$189.26
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	60.00	LF	$1.07	$64.20
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	90.00	LF	$2.01	$180.90
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02	GM	$693.88	$13.88
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01	GM	$1,175.81	$11.76

710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	1.00 EA	$59.36	$59.36
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15 GM	$1,299.67	$194.95
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	50.00 LF	$1.66	$83.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	4.00	EA	$4.35	$17.40
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.05	GM	$1,261.74	$63.09
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.03	GM	$560.16	$16.80
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.05	GM	$5,295.89	$264.79
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.03	GM	$1,890.90	$56.73
	Roadway Component Total				$54,063.96

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	275
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	162.60	SY	$64.97	$10,564.12
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	20.97	TN	$192.26	$4,031.69
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	12.58	TN	$1,326.97	$16,693.28
570-1-1	PERFORMANCE TURF	81.45	SY	$4.80	$390.96

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	375.00	LF	$46.28	$17,355.00
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00	SY	$71.53	$31,473.20
527-2	DETECTABLE WARNINGS	104.00	SF	$35.35	$3,676.40

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	356.93	LF	$2.70	$963.71
104-11	FLOATING TURBIDITY BARRIER	6.50	LF	$12.79	$83.14
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	6.50	LF	$6.43	$41.80
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
107-1	LITTER REMOVAL	0.32	AC	$50.09	$16.03
107-2	MOWING	0.32	AC	$83.03	$26.57
	Shoulder Component Total				$88,004.96

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	24.00	LF	$487.61	$11,702.64
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	8.00	LF	$306.37	$2,450.96
570-1-1	PERFORMANCE TURF	18.30	SY	$4.80	$87.84

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00	EA	$9,440.85	$18,881.70
	Drainage Component Total				$33,123.14

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$449.95	$449.95
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,607.97	$1,607.97
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,718.61	$5,718.61
	Signing Component Total				$7,776.53

Sequence 5 Total $215,086.63

Sequence: 6 NDU - New Construction, Divided, Urban **Net Length:** 0.383 MI 2,022 LF

Description: 4 Lane Approach (SR 544) to N. of Ave Y (Pentecostal Church)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.383
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	5.20	AC	$56,512.73	$293,866.20
120-6	EMBANKMENT	14,366.89	CY	$15.04	$216,078.03
	Earthwork Component Total				$509,944.23

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	23.00 / 23.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	12,654.73	SY	$15.74	$199,185.45
285-709	OPTIONAL BASE,BASE GROUP 09	10,335.89	SY	$23.27	$240,516.16
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,421.19	TN	$192.26	$273,237.99
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	852.71	TN	$208.69	$177,952.05

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

706-1-3	RAISED PAVMT MARK, TYPE B	155.00	EA	$4.35	$674.25
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.53	GM	$1,261.74	$1,930.46
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.77	GM	$544.18	$419.02
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.53	GM	$5,295.89	$8,102.71
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.77	GM	$1,568.63	$1,207.85
	Roadway Component Total				$903,225.94

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 22.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	10.00 / 10.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,022.24	LF	$46.28	$93,589.27
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,022.24	LF	$46.28	$93,589.27
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	4,493.87	SY	$71.53	$321,446.52
570-1-1	PERFORMANCE TURF	4,493.87	SY	$4.80	$21,570.58

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,044.48	LF	$2.70	$10,920.10
104-11	FLOATING TURBIDITY BARRIER	95.75	LF	$12.79	$1,224.64
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	95.75	LF	$6.43	$615.67
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	20.00	EA	$123.06	$2,461.20
107-1	LITTER REMOVAL	9.75	AC	$50.09	$488.38
107-2	MOWING	9.75	AC	$83.03	$809.54
	Shoulder Component Total				$549,404.23

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	4,044.48	LF	$38.76	$156,764.04
570-1-1	PERFORMANCE TURF	3,932.13	SY	$4.80	$18,874.22

	Median Component Total	$175,638.26

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	14.00	EA	$7,474.89	$104,648.46
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$11,817.04	$47,268.16
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$7,391.69	$14,783.38
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,130.30	$12,260.60
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,016.00	LF	$189.12	$192,145.92
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	96.00	LF	$306.37	$29,411.52
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,920.00	LF	$318.06	$610,675.20
570-1-1	PERFORMANCE TURF	116.43	SY	$4.80	$558.86

Retention Basin 1

Description	Value
Size	1 AC
Multiplier	3
Depth	5.00
Description	Pond 1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.00	AC	$56,512.73	$169,538.19
120-1	REGULAR EXCAVATION	24,200.01	CY	$18.27	$442,134.18
425-1-541	INLETS, DT BOT, TYPE D, <10'	3.00	EA	$6,465.04	$19,395.12
425-2-71	MANHOLES, J-7, <10'	3.00	EA	$7,689.71	$23,069.13
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	168.00	LF	$355.79	$59,772.72
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	600.00	LF	$715.27	$429,162.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	2,520.00	LF	$33.16	$83,563.20
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	3.00	EA	$4,668.52	$14,005.56
570-1-1	PERFORMANCE TURF	14,520.00	SY	$4.80	$69,696.00

	Drainage Component Total	$2,322,088.20

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	10.00	AS	$449.95	$4,499.50
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,607.97	$1,607.97
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$7,587.77	$7,587.77
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	1.00	AS	$16,710.53	$16,710.53

Signing Component Total	$30,405.77

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	**Value**
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,022.24	LF	$19.30	$39,029.23
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	401.38	LF	$36.03	$14,461.72
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	14.00	EA	$1,363.63	$19,090.82
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	7,385.77	LF	$3.77	$27,844.35
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	14.00	EA	$8,402.83	$117,639.62
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	14.00	EA	$768.21	$10,754.94
	Subcomponent Total				$228,820.69

Lighting Component Total	$228,820.68
Sequence 6 Total	$4,719,527.31

Date: 4/1/2024 7:06:06 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-4-52-01 **Letting Date:** 07/2027

Description: SR 544 (LUCERNE PARK) FROM MLK BLVD TO AVENUE Y

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 1 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.619 MI

Project Manager: NEM-KSJ-JLF

Version 5 Project Grand Total **$13,309,808.01**

Description: March 2024 Unit Cost Updates from Version 4P - 3/5/24

Project Sequences Subtotal **$9,921,345.93**

102-1	Maintenance of Traffic	15.00 %	$1,488,201.89
101-1	Mobilization	10.00 %	$1,140,954.78

Project Sequences Total **$12,550,502.60**

Project Unknowns	5.00 %	$627,525.13
Design/Build	0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$131,780.28	$131,780.28

Project Non-Bid Subtotal **$131,780.28**

Version 5 Project Grand Total **$13,309,808.01**

Date: 8/1/2024 11:33:02 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 33 Project Grand Total **$9,457,953.58**

Description: Segment 2-N. of Ave. Y to east side of Lake Conine Canal (including the Lake Conine Canal Bridge) - June 2024 Unit Cost Updates from Version 32 - 6/3/24

Sequence: 5 NDU - New Construction, Divided, Urban **Net Length:** 0.598 MI 3,157 LF

Description: Segment 2-N. of Ave. Y to east side of Lake Conine Canal (including the Lake Conine Canal Bridge)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.598
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	8.12	AC	$56,017.69	$454,863.64
120-6	EMBANKMENT	22,431.86	CY	$24.69	$553,842.62

Earthwork Component Total	$1,008,706.26

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	23.00 / 23.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	19,755.25	SY	$10.73	$211,973.83
285-709	OPTIONAL BASE,BASE GROUP 09	16,135.33	SY	$20.06	$323,674.72
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,218.61	TN	$193.64	$429,611.64
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,331.16	TN	$207.93	$276,788.10

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	50.00	TN	$433.49	$21,674.50
455-133-3	SHEET PILING STEEL, F&I PERMANENT	10,000.00	SF	$65.80	$658,000.00
515-2-111	PED/BICYCLE RAILING,NS, 42" TYPE 1	1,500.00	LF	$110.70	$166,050.00
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	1,500.00	LF	$27.96	$41,940.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	242.00	EA	$4.36	$1,055.12

710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.39 GM	$1,259.68	$3,010.64
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.20 GM	$546.91	$656.29
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	2.39 GM	$5,558.07	$13,283.79
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.20 GM	$1,616.01	$1,939.21
	Roadway Component Total			$2,149,657.84

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 22.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	10.00 / 10.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	3,156.91	LF	$46.67	$147,332.99
520-1-10	CONCRETE CURB & GUTTER, TYPE F	3,156.91	LF	$46.67	$147,332.99
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	7,015.36	SY	$65.70	$460,909.15
570-1-1	PERFORMANCE TURF	7,015.36	SY	$4.62	$32,410.96

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	6,313.82	LF	$2.71	$17,110.45
104-11	FLOATING TURBIDITY BARRIER	149.48	LF	$15.46	$2,310.96
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	149.48	LF	$6.67	$997.03
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	31.00	EA	$123.06	$3,814.86
107-1	LITTER REMOVAL	15.22	AC	$48.53	$738.63
107-2	MOWING	15.22	AC	$84.04	$1,279.09
	Shoulder Component Total				$816,926.17

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	6,313.82	LF	$41.59	$262,591.77
570-1-1	PERFORMANCE TURF	6,138.44	SY	$4.62	$28,359.59
	Median Component Total				$290,951.36

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	22.00	EA	$7,474.89	$164,447.58
425-1-451	INLETS, CURB, TYPE J-5, <10'	6.00	EA	$14,168.32	$85,009.92
425-1-521	INLETS, DT BOT, TYPE C, <10'	3.00	EA	$6,847.68	$20,543.04
425-2-41	MANHOLES, P-7, <10'	3.00	EA	$6,130.30	$18,390.90
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,584.00	LF	$156.39	$247,721.76
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	144.00	LF	$237.81	$34,244.64
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	2,992.00	LF	$299.07	$894,817.44
570-1-1	PERFORMANCE TURF	181.76	SY	$4.62	$839.73
	Drainage Component Total				$1,466,015.01

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	15.00	AS	$462.47	$6,937.05
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,578.08	$3,156.16

700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$7,692.26	$15,384.52
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	2.00	AS	$15,571.98	$31,143.96
	Signing Component Total				$56,621.69

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	3,156.91	LF	$19.26	$60,802.09
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	626.60	LF	$36.22	$22,695.45
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	21.00	EA	$1,374.06	$28,855.26
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	11,529.90	LF	$3.77	$43,467.72
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	21.00	EA	$8,402.83	$176,459.43
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	21.00	EA	$768.21	$16,132.41
	Subcomponent Total				$348,412.36
	Lighting Component Total				$348,412.36

BRIDGES COMPONENT

Bridge 1

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	52.00
Width (LF)	98.58
Type	Low Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	$114.00
Factored Cost per SF	$142.50
Final Cost per SF	**$178.07**
Basic Bridge Cost	**$730,477.80**

Description

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	219.07 CY	$597.85	$130,971.00
415-1-9	REINF STEEL- APPROACH SLABS	38,337.25 LB	$1.34	$51,371.92
	Bridge 1 Total			$912,820.72
	Bridges Component Total			$912,820.72

Sequence 5 Total $7,050,111.41

Date: 8/1/2024 11:33:02 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 33 Project Grand Total **$9,457,953.58**

Description: Segment 2-N. of Ave. Y to east side of Lake Conine Canal (including the Lake Conine Canal Bridge) - June 2024 Unit Cost Updates from Version 32 - 6/3/24

Project Sequences Subtotal			**$7,050,111.41**
102-1	Maintenance of Traffic	15.00 %	$1,057,516.71
101-1	Mobilization	10.00 %	$810,762.81
Project Sequences Total			**$8,918,390.93**
Project Unknowns		5.00 %	$445,919.55
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$93,643.10	$93,643.10
Project Non-Bid Subtotal					**$93,643.10**
Version 33 Project Grand Total					**$9,457,953.58**

Date: 8/1/2024 11:34:23 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 34 Project Grand Total **$11,654,541.34**

Description: Segment 3-East side of Lake Conine Canal to east of Old Lucerne Park Rd. (west end) - June 2024 Unit Cost Updates from Version 26 - 6/3/24

Sequence: 6 NDU - New Construction, Divided, Urban **Net Length:** 0.730 MI 3,854 LF

Description: Segment 3-East side of Lake Conine Canal to east of Old Lucerne Park Rd. (west end)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.730
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	9.91	AC	$56,017.69	$555,135.31
120-6	EMBANKMENT	27,383.37	CY	$24.69	$676,095.41

	Earthwork Component Total	$1,231,230.72

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	23.00 / 23.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	24,119.98	SY	$10.73	$258,807.39
285-709	OPTIONAL BASE,BASE GROUP 09	19,700.27	SY	$20.06	$395,187.42
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,708.79	TN	$193.64	$524,530.10
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,625.27	TN	$207.93	$337,942.39

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	296.00	EA	$4.36	$1,290.56
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.92	GM	$1,259.68	$3,678.27
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.46	GM	$546.91	$798.49
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	2.92	GM	$5,558.07	$16,229.56
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.46	GM	$1,616.01	$2,359.37

	Roadway Component Total	$1,540,823.55

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 22.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	10.00 / 10.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	3,854.40	LF	$46.67	$179,884.85
520-1-10	CONCRETE CURB & GUTTER, TYPE F	3,854.40	LF	$46.67	$179,884.85
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	8,565.33	SY	$65.70	$562,742.18
570-1-1	PERFORMANCE TURF	8,565.33	SY	$3.85	$32,976.52

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	7,708.80	LF	$2.71	$20,890.85
104-11	FLOATING TURBIDITY BARRIER	182.50	LF	$15.46	$2,821.45
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	182.50	LF	$6.67	$1,217.28
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	38.00	EA	$123.06	$4,676.28
107-1	LITTER REMOVAL	18.58	AC	$48.53	$901.69
107-2	MOWING	18.58	AC	$84.04	$1,561.46
	Shoulder Component Total				$990,246.47

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

520-1-7	CONCRETE CURB & GUTTER, TYPE E	7,708.80	LF	$41.59	$320,608.99
570-1-1	PERFORMANCE TURF	7,494.67	SY	$3.85	$28,854.48
	Median Component Total				$349,463.47

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	27.00	EA	$7,474.89	$201,822.03
425-1-451	INLETS, CURB, TYPE J-5, <10'	8.00	EA	$14,168.32	$113,346.56
425-1-521	INLETS, DT BOT, TYPE C, <10'	4.00	EA	$6,847.68	$27,390.72
425-2-41	MANHOLES, P-7, <10'	4.00	EA	$6,130.30	$24,521.20
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,936.00	LF	$156.39	$302,771.04
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	176.00	LF	$237.81	$41,854.56
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	3,656.00	LF	$299.07	$1,093,399.92
570-1-1	PERFORMANCE TURF	221.92	SY	$3.85	$854.39

Retention Basin 1

Description	Value
Size	5 AC
Multiplier	1
Depth	9.00
Description	Pond 2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	5.00	AC	$56,017.69	$280,088.45
120-1	REGULAR EXCAVATION	72,600.00	CY	$15.28	$1,109,328.00
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	2.00	EA	$14,177.00	$28,354.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	400.00	LF	$660.28	$264,112.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,860.00	LF	$34.73	$64,597.80
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	2.00	EA	$4,525.31	$9,050.62

570-1-1	PERFORMANCE TURF	24,200.00	SY	$3.85	$93,170.00

Retention Basin 2

Description	Value
Size	1 AC
Multiplier	1
Depth	1.90
Description	Floodplain Compensation Pond (FPC1)

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.00	AC	$56,017.69	$56,017.69
120-1	REGULAR EXCAVATION	3,065.33	CY	$15.28	$46,838.24
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	840.00	LF	$34.73	$29,173.20
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	4,840.00	SY	$3.85	$18,634.00
	Drainage Component Total				$4,008,004.49

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	18.00	AS	$462.47	$8,324.46
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,578.08	$3,156.16
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$7,692.26	$15,384.52
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	2.00	AS	$15,571.98	$31,143.96
	Signing Component Total				$58,009.10

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	**Value**
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	3,854.40	LF	$19.26	$74,235.74
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	765.04	LF	$36.22	$27,709.75
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	26.00	EA	$1,374.06	$35,725.56
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	14,077.32	LF	$3.77	$53,071.50
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	26.00	EA	$768.21	$19,973.46

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-61-321	LIGHT POLE CMPLT,STD,F&I, 40'MH,10'ARM L	26.00	EA	$11,499.60	$298,989.60
	Subcomponent Total				$509,705.61

Lighting Component Total $509,705.61

Sequence 6 Total $8,687,483.41

Date: 8/1/2024 11:34:24 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 34 Project Grand Total **$11,654,541.34**

Description: Segment 3-East side of Lake Conine Canal to east of Old Lucerne Park Rd. (west end) - June 2024 Unit Cost Updates from Version 26 - 6/3/24

Project Sequences Subtotal			**$8,687,483.41**
102-1	Maintenance of Traffic	15.00 %	$1,303,122.51
101-1	Mobilization	10.00 %	$999,060.59
Project Sequences Total			**$10,989,666.51**
Project Unknowns		5.00 %	$549,483.33
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$115,391.50	$115,391.50
Project Non-Bid Subtotal					**$115,391.50**
Version 34 Project Grand Total					**$11,654,541.34**

Date: 8/1/2024 11:35:04 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 35 Project Grand Total **$25,034,954.97**

Description: Segment 4-East of Old Lucerne Park Rd (west end) to East of Lucerne Loop Rd. - June 2024 Unit Cost Updates from Version 27 - 6/3/24

Sequence: 10 NDU - New Construction, Divided, Urban **Net Length:** 1.630 MI 8,606 LF

Description: Segment 4-East of Old Lucerne Park Rd (west end) to East of Lucerne Loop Rd.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.630
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	22.13	AC	$46,017.69	$1,018,371.48
120-6	EMBANKMENT	61,143.69	CY	$17.66	$1,079,797.57

Earthwork Component Total	$2,098,169.05

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	23.00 / 23.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	53,856.94	SY	$8.44	$454,552.57
285-709	OPTIONAL BASE,BASE GROUP 09	43,988.27	SY	$20.06	$882,404.70
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	6,048.39	TN	$180.14	$1,089,556.97
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	3,629.03	TN	$207.93	$754,584.21

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	660.00	EA	$4.36	$2,877.60
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	6.52	GM	$1,259.68	$8,213.11
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	3.26	GM	$546.91	$1,782.93
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	6.52	GM	$5,558.07	$36,238.62
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	3.26	GM	$1,616.01	$5,268.19

Roadway Component Total	$3,235,478.90

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 22.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	10.00 / 10.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	8,606.40	LF	$46.67	$401,660.69
520-1-10	CONCRETE CURB & GUTTER, TYPE F	8,606.40	LF	$46.67	$401,660.69
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	19,125.33	SY	$65.70	$1,256,534.18
570-1-1	PERFORMANCE TURF	19,125.33	SY	$3.85	$73,632.52

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	17,212.80	LF	$2.59	$44,581.15
104-11	FLOATING TURBIDITY BARRIER	407.50	LF	$15.46	$6,299.95
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	407.50	LF	$6.67	$2,718.02
104-15	SOIL TRACKING PREVENTION DEVICE	2.00	EA	$2,689.06	$5,378.12
104-18	INLET PROTECTION SYSTEM	84.00	EA	$123.06	$10,337.04
107-1	LITTER REMOVAL	41.48	AC	$48.53	$2,013.02
107-2	MOWING	41.48	AC	$84.04	$3,485.98
	Shoulder Component Total				$2,208,301.37

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

520-1-7	CONCRETE CURB & GUTTER, TYPE E	17,212.80	LF	$41.59	$715,880.35
570-1-1	PERFORMANCE TURF	16,734.67	SY	$3.85	$64,428.48
	Median Component Total				$780,308.83

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	59.00	EA	$7,474.89	$441,018.51
425-1-451	INLETS, CURB, TYPE J-5, <10'	17.00	EA	$14,168.32	$240,861.44
425-1-521	INLETS, DT BOT, TYPE C, <10'	9.00	EA	$6,847.68	$61,629.12
425-2-41	MANHOLES, P-7, <10'	9.00	EA	$6,130.30	$55,172.70
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	4,312.00	LF	$156.39	$674,353.68
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	384.00	LF	$237.81	$91,319.04
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	8,152.00	LF	$299.07	$2,438,018.64
570-1-1	PERFORMANCE TURF	495.52	SY	$3.85	$1,907.75

Retention Basin 1

Description	Value
Size	2.5 AC
Multiplier	1
Depth	9.50
Description	Pond 3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.50	AC	$46,017.69	$115,044.22
120-1	REGULAR EXCAVATION	38,316.67	CY	$15.28	$585,478.72
425-1-361	INLETS, CURB, TYPE P-6, <10'	1.00	EA	$11,175.07	$11,175.07
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,335.00	LF	$34.73	$46,364.55
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31

570-1-1	PERFORMANCE TURF	12,100.00	SY	$3.85	$46,585.00

Retention Basin 2

Description	Value
Size	2.5 AC
Multiplier	1
Depth	10.00
Description	Pond 4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.50	AC	$46,017.69	$115,044.22
120-1	REGULAR EXCAVATION	40,333.33	CY	$15.28	$616,293.28
425-1-361	INLETS, CURB, TYPE P-6, <10'	1.00	EA	$11,175.07	$11,175.07
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,335.00	LF	$34.73	$46,364.55
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	12,100.00	SY	$3.85	$46,585.00

Retention Basin 4

Description	Value
Size	2 AC
Multiplier	1
Depth	3.10
Description	FPC 2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.00	AC	$46,017.69	$92,035.38
120-1	REGULAR EXCAVATION	10,002.67	CY	$15.28	$152,840.80
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00

550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,180.00	LF	$34.73	$40,981.40
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	9,680.00	SY	$3.85	$37,268.00

Retention Basin 5

Description	Value
Size	2.5 AC
Multiplier	1
Depth	3.70
Description	FPC 3A

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.50	AC	$46,017.69	$115,044.22
120-1	REGULAR EXCAVATION	14,923.33	CY	$15.28	$228,028.48
425-1-361	INLETS, CURB, TYPE P-6, <10'	1.00	EA	$11,175.07	$11,175.07
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,335.00	LF	$34.73	$46,364.55
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	12,100.00	SY	$3.85	$46,585.00

Retention Basin 6

Description	Value
Size	1.5 AC
Multiplier	1
Depth	3.70
Description	FPC 3B

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.50	AC	$46,017.69	$69,026.54
120-1	REGULAR EXCAVATION	8,954.00	CY	$15.28	$136,817.12
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00

430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,025.00	LF	$34.73	$35,598.25
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	7,260.00	SY	$3.85	$27,951.00
	Drainage Component Total				$7,548,307.23

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	40.00	AS	$462.47	$18,498.80
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	4.00	AS	$1,578.08	$6,312.32
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	4.00	AS	$7,692.26	$30,769.04
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	4.00	AS	$15,571.98	$62,287.92
	Signing Component Total				$117,868.08

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	8,606.40	LF	$19.26	$165,759.26
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,708.24	LF	$36.22	$61,872.45
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	58.00	EA	$1,374.06	$79,695.48
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	31,432.92	LF	$3.77	$118,502.11
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	58.00	EA	$768.21	$44,556.18

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-61-321	LIGHT POLE CMPLT,STD,F&I, 40'MH,10'ARM L	58.00	EA	$11,499.60	$666,976.80
	Subcomponent Total				$1,137,362.29
	Lighting Component Total				$1,137,362.28
Sequence 10 Total					$17,125,795.74

Sequence: 11 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI 301 LF

Description: Old Lucerne (West) 4-Lane Approach 1

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.70
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.70	AC	$46,017.69	$32,212.38

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	500.00	CY	$15.28	$7,640.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
120-6	EMBANKMENT	500.00	CY	$17.66	$8,830.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
	Earthwork Component Total				$48,682.38

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$8.44	$18,568.00
	Comment: 4-Lane Leg: 19785 sf/9=2198 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,950.00	SY	$20.06	$39,117.00
	Comment: 4-Lane Leg: measure approx. 1950 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	215.00	TN	$180.14	$38,730.10
	Comment: 2" Superpave Traffic C (1950 X 110 X 2)/2000 = 215 TN				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	108.00	TN	$218.00	$23,544.00
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1950 X 110)/2000 = 107.25 TN use 108 TN				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.20	GM	$1,259.68	$251.94
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.04	GM	$1,716.71	$68.67
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	115.00	LF	$1.07	$123.05
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	30.00	LF	$1.44	$43.20
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	198.00	LF	$1.92	$380.16
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02	GM	$707.41	$14.15
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01	GM	$1,262.94	$12.63
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	2.00	EA	$63.83	$127.66
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	4.00	EA	$35.35	$141.40
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15	GM	$1,345.62	$201.84
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	55.00	LF	$1.73	$95.15

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2

Skip Stripe No. of Stripes	0

Roadway Component Total $121,418.95

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-701	OPTIONAL BASE,BASE GROUP 01	154.00	SY	$30.81	$4,744.74
	Comment: 4-Lane Leg: 130 ft X 5.33 ft wide X 2 sides /9 = 154 SY				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	10.00	TN	$218.00	$2,180.00
	Comment: 1" thick FC: (154 SY X 110)/2000 = 8.47 TN use 10 TN				
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00	SY	$65.70	$28,908.00
527-2	DETECTABLE WARNINGS	104.00	SF	$35.46	$3,687.84
570-1-2	PERFORMANCE TURF, SOD	380.00	SY	$5.40	$2,052.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	600.00	LF	$2.59	$1,554.00
107-1	LITTER REMOVAL	0.25	AC	$48.53	$12.13
107-2	MOWING	0.25	AC	$84.04	$21.01

Shoulder Component Total $43,159.72

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	240.00	LF	$41.59	$9,981.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	350.00	LF	$46.67	$16,334.50
527-2	DETECTABLE WARNINGS	40.00	SF	$35.46	$1,418.40
570-1-2	PERFORMANCE TURF, SOD	120.00	SY	$5.40	$648.00
	Median Component Total				$28,382.50

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00	EA	$11,175.07	$22,350.14
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,130.30	$6,130.30
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00	LF	$156.39	$35,031.36
	Drainage Component Total				$63,511.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$462.47	$3,237.29
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,727.04	$5,727.04
	Signing Component Total				$8,964.33

Sequence 11 Total	$314,119.68

Sequence: 12 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI 301 LF

Description: Old Lucerne (West) 4-Lane Approach 2

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.70
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.70	AC	$46,017.69	$32,212.38

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	500.00	CY	$15.28	$7,640.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
120-6	EMBANKMENT	500.00	CY	$17.66	$8,830.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
	Earthwork Component Total				$48,682.38

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$8.44	$18,568.00
	Comment: 4-Lane Leg: 19785 sf/9=2198 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,950.00	SY	$20.06	$39,117.00
	Comment: 4-Lane Leg: measure approx. 1950 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	215.00	TN	$180.14	$38,730.10
	Comment: 2" Superpave Traffic C (1950 X 110 X 2)/2000 = 215 TN				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	108.00	TN	$218.00	$23,544.00
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1950 X 110)/2000 = 107.25 TN use 108 TN				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.20	GM	$1,259.68	$251.94
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.04	GM	$1,716.71	$68.67
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	115.00	LF	$1.07	$123.05
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	30.00	LF	$1.44	$43.20
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	198.00	LF	$1.92	$380.16
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02	GM	$707.41	$14.15
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01	GM	$1,262.94	$12.63
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	2.00	EA	$63.83	$127.66
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	4.00	EA	$35.35	$141.40
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15	GM	$1,345.62	$201.84
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	55.00	LF	$1.73	$95.15

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2

Skip Stripe No. of Stripes	0

Roadway Component Total $121,418.95

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-701	OPTIONAL BASE,BASE GROUP 01	154.00	SY	$30.81	$4,744.74
	Comment: 4-Lane Leg: 130 ft X 5.33 ft wide X 2 sides /9 = 154 SY				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	10.00	TN	$218.00	$2,180.00
	Comment: 1" thick FC: (154 SY X 110)/2000 = 8.47 TN use 10 TN				
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00	SY	$65.70	$28,908.00
527-2	DETECTABLE WARNINGS	104.00	SF	$35.46	$3,687.84
570-1-2	PERFORMANCE TURF, SOD	380.00	SY	$5.40	$2,052.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	600.00	LF	$2.59	$1,554.00
107-1	LITTER REMOVAL	0.25	AC	$48.53	$12.13
107-2	MOWING	0.25	AC	$84.04	$21.01

Shoulder Component Total $43,159.72

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	240.00	LF	$41.59	$9,981.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	350.00	LF	$46.67	$16,334.50
527-2	DETECTABLE WARNINGS	40.00	SF	$35.46	$1,418.40
570-1-2	PERFORMANCE TURF, SOD	120.00	SY	$5.40	$648.00
	Median Component Total				$28,382.50

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00	EA	$11,175.07	$22,350.14
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,130.30	$6,130.30
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00	LF	$156.39	$35,031.36
	Drainage Component Total				$63,511.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$462.47	$3,237.29
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,727.04	$5,727.04
	Signing Component Total				$8,964.33

Sequence 12 Total	$314,119.68

Sequence: 13 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI 301 LF

Description: Old Lucerne (West) Roundabout Central Island

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.50
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50	AC	$46,017.69	$23,008.84

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	480.00	CY	$15.28	$7,334.40
	Comment: 26000 ft x 0.5 ft deep / 27 = 481 CY use 480 CY				
120-6	EMBANKMENT	480.00	CY	$17.66	$8,476.80
	Comment: 26000 ft x 0.5 ft deep / 27 = 481 CY use 480 CY				
	Earthwork Component Total				$38,820.05

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00

Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$8.44	$18,568.00
	Comment: measure (25578-6175)SF /9 = 2156 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,300.00	SY	$20.06	$26,078.00
	Comment: measure (25578-10477)SF /9 = 1294 SY use 1300 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	143.00	TN	$180.14	$25,760.02
	Comment: 2" Superpave Traffic C (1300 X 110 X 2)/2000				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	72.00	TN	$218.00	$15,696.00
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1300 X 110)/2000				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.05	GM	$1,259.68	$62.98
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.05	GM	$707.41	$35.37
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	8.00	EA	$35.35	$282.80
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.07	GM	$1,345.62	$94.19

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Roadway Component Total $86,577.36

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67

Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
107-1	LITTER REMOVAL	0.25	AC	$48.53	$12.13
107-2	MOWING	0.25	AC	$84.04	$21.01
	Shoulder Component Total				$2,722.20

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
350-30-13	CONC PAVEMENT FOR ROUNDABOUT APRON, 12"	480.00	SY	$335.92	$161,241.60
520-2-4	CONCRETE CURB, TYPE D	280.00	LF	$47.14	$13,199.20
520-2-8	CONCRETE CURB, TYPE RA	370.00	LF	$68.39	$25,304.30
570-1-2	PERFORMANCE TURF, SOD	700.00	SY	$5.40	$3,780.00
	Median Component Total				$203,525.10

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$462.47	$1,849.88
	Signing Component Total				$1,849.88

Sequence 13 Total $333,494.59

Sequence: 14 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI 301 LF

Description: Lucerne Loop 4-Lane Approach 1

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.70
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.70	AC	$46,017.69	$32,212.38

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	500.00	CY	$15.28	$7,640.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
120-6	EMBANKMENT	500.00	CY	$17.66	$8,830.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
	Earthwork Component Total				$48,682.38

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$8.44	$18,568.00
	Comment: 4-Lane Leg: 19785 sf/9=2198 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,950.00	SY	$20.06	$39,117.00
	Comment: 4-Lane Leg: measure approx. 1950 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	215.00	TN	$180.14	$38,730.10
	Comment: 2" Superpave Traffic C (1950 X 110 X 2)/2000 = 215 TN				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	108.00	TN	$218.00	$23,544.00
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1950 X 110)/2000 = 107.25 TN use 108 TN				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.20	GM	$1,259.68	$251.94
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.04	GM	$1,716.71	$68.67
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	115.00	LF	$1.07	$123.05
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	30.00	LF	$1.44	$43.20
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	198.00	LF	$1.92	$380.16
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02	GM	$707.41	$14.15
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01	GM	$1,262.94	$12.63
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	2.00	EA	$63.83	$127.66
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	4.00	EA	$35.35	$141.40
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15	GM	$1,345.62	$201.84
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	55.00	LF	$1.73	$95.15

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2

Skip Stripe No. of Stripes	0

Roadway Component Total $121,418.95

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-701	OPTIONAL BASE,BASE GROUP 01	154.00	SY	$30.81	$4,744.74
	Comment: 4-Lane Leg: 130 ft X 5.33 ft wide X 2 sides /9 = 154 SY				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	10.00	TN	$218.00	$2,180.00
	Comment: 1" thick FC: (154 SY X 110)/2000 = 8.47 TN use 10 TN				
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00	SY	$65.70	$28,908.00
527-2	DETECTABLE WARNINGS	104.00	SF	$35.46	$3,687.84
570-1-2	PERFORMANCE TURF, SOD	380.00	SY	$5.40	$2,052.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	600.00	LF	$2.59	$1,554.00
107-1	LITTER REMOVAL	0.25	AC	$48.53	$12.13
107-2	MOWING	0.25	AC	$84.04	$21.01

Shoulder Component Total $43,159.72

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	240.00	LF	$41.59	$9,981.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	350.00	LF	$46.67	$16,334.50
527-2	DETECTABLE WARNINGS	40.00	SF	$35.46	$1,418.40
570-1-2	PERFORMANCE TURF, SOD	120.00	SY	$5.40	$648.00
	Median Component Total				$28,382.50

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00	EA	$11,175.07	$22,350.14
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,130.30	$6,130.30
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00	LF	$156.39	$35,031.36
	Drainage Component Total				$63,511.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$462.47	$3,237.29
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,727.04	$5,727.04
	Signing Component Total				$8,964.33

Sequence 14 Total	$314,119.68

Sequence: 16 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI 301 LF

Description: Lucerne Loop Roundabout Central Island

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.50
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50	AC	$46,017.69	$23,008.84

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	480.00	CY	$15.28	$7,334.40
	Comment: 26000 ft x 0.5 ft deep / 27 = 481 CY use 480 CY				
120-6	EMBANKMENT	480.00	CY	$17.66	$8,476.80
	Comment: 26000 ft x 0.5 ft deep / 27 = 481 CY use 480 CY				
	Earthwork Component Total				$38,820.05

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00

Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$8.44	$18,568.00
	Comment: measure (25578-6175)SF /9 = 2156 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,300.00	SY	$20.06	$26,078.00
	Comment: measure (25578-10477)SF /9 = 1294 SY use 1300 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	143.00	TN	$180.14	$25,760.02
	Comment: 2" Superpave Traffic C (1300 X 110 X 2)/2000				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	72.00	TN	$218.00	$15,696.00
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1300 X 110)/2000				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.05	GM	$1,259.68	$62.98
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.05	GM	$707.41	$35.37
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	8.00	EA	$35.35	$282.80
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.07	GM	$1,345.62	$94.19

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Roadway Component Total $86,577.36

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67

Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
107-1	LITTER REMOVAL	0.25	AC	$48.53	$12.13
107-2	MOWING	0.25	AC	$84.04	$21.01
	Shoulder Component Total				$2,722.20

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
350-30-13	CONC PAVEMENT FOR ROUNDABOUT APRON, 12"	480.00	SY	$335.92	$161,241.60
520-2-4	CONCRETE CURB, TYPE D	280.00	LF	$47.14	$13,199.20
520-2-8	CONCRETE CURB, TYPE RA	370.00	LF	$68.39	$25,304.30
570-1-2	PERFORMANCE TURF, SOD	700.00	SY	$5.40	$3,780.00
	Median Component Total				$203,525.10

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$462.47	$1,849.88
	Signing Component Total				$1,849.88

Sequence 16 Total $333,494.59

Date: 8/1/2024 11:35:05 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 35 Project Grand Total **$25,034,954.97**

Description: Segment 4-East of Old Lucerne Park Rd (west end) to East of Lucerne Loop Rd. - June 2024 Unit Cost Updates from Version 27 - 6/3/24

Project Sequences Subtotal			**$18,735,143.96**
102-1	Maintenance of Traffic	15.00 %	$2,810,271.59
101-1	Mobilization	10.00 %	$2,154,541.56
Project Sequences Total			**$23,699,957.11**
Project Unknowns		5.00 %	$1,184,997.86
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					**$150,000.00**
Version 35 Project Grand Total					**$25,034,954.97**

Date: 8/1/2024 11:35:46 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 36 Project Grand Total **$19,040,795.90**

Description: Segment 5-East of Lucernce Loop Rd. to West of Lk. Hamilton Canal - June 2024 Unit Cost Updates from Version 28 - 6/3/24

Sequence: 10 NDU - New Construction, Divided, Urban **Net Length:** 1.450 MI / 7,656 LF

Description: Segment 5-East of Lucernce Loop Rd. to West of Lk. Hamilton Canal

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EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.450
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	19.68	AC	$46,017.69	$905,628.14
120-6	EMBANKMENT	54,391.63	CY	$17.66	$960,556.19

Earthwork Component Total	$1,866,184.33

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	23.00 / 23.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	47,909.55	SY	$8.44	$404,356.60
285-709	OPTIONAL BASE,BASE GROUP 09	39,130.67	SY	$20.06	$784,961.24
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	5,380.47	TN	$180.14	$969,237.87
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	3,228.28	TN	$207.93	$671,256.26

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	587.00	EA	$4.36	$2,559.32
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	5.80	GM	$1,259.68	$7,306.14
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	2.90	GM	$546.91	$1,586.04
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	5.80	GM	$5,558.07	$32,236.81
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	2.90	GM	$1,616.01	$4,686.43

Roadway Component Total	$2,878,186.71

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 22.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	10.00 / 10.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	7,656.00	LF	$46.67	$357,305.52
520-1-10	CONCRETE CURB & GUTTER, TYPE F	7,656.00	LF	$46.67	$357,305.52
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	17,013.33	SY	$65.70	$1,117,775.78
570-1-1	PERFORMANCE TURF	17,013.33	SY	$3.85	$65,501.32

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	15,312.00	LF	$2.71	$41,495.52
104-11	FLOATING TURBIDITY BARRIER	362.50	LF	$15.46	$5,604.25
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	362.50	LF	$6.67	$2,417.88
104-15	SOIL TRACKING PREVENTION DEVICE	2.00	EA	$2,689.06	$5,378.12
104-18	INLET PROTECTION SYSTEM	74.00	EA	$123.06	$9,106.44
107-1	LITTER REMOVAL	36.90	AC	$48.53	$1,790.76
107-2	MOWING	36.90	AC	$84.04	$3,101.08
	Shoulder Component Total				$1,966,782.19

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

520-1-7	CONCRETE CURB & GUTTER, TYPE E	15,312.00	LF	$41.59	$636,826.08
570-1-1	PERFORMANCE TURF	14,886.67	SY	$3.85	$57,313.68
	Median Component Total				$694,139.76

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	53.00	EA	$7,474.89	$396,169.17
425-1-451	INLETS, CURB, TYPE J-5, <10'	15.00	EA	$14,168.32	$212,524.80
425-1-521	INLETS, DT BOT, TYPE C, <10'	8.00	EA	$6,847.68	$54,781.44
425-2-41	MANHOLES, P-7, <10'	8.00	EA	$6,130.30	$49,042.40
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	3,840.00	LF	$156.39	$600,537.60
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	344.00	LF	$237.81	$81,806.64
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	7,256.00	LF	$299.07	$2,170,051.92
570-1-1	PERFORMANCE TURF	440.80	SY	$3.85	$1,697.08

Retention Basin 3

Description	Value
Size	2 AC
Multiplier	1
Depth	9.00
Description	Pond 5

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.00	AC	$46,017.69	$92,035.38
120-1	REGULAR EXCAVATION	29,040.00	CY	$15.28	$443,731.20
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,180.00	LF	$34.73	$40,981.40
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31

570-1-1	PERFORMANCE TURF	9,680.00	SY	$3.85	$37,268.00

Retention Basin 7

Description	Value
Size	5 AC
Multiplier	1
Depth	1.30
Description	FPC 4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	5.00	AC	$46,017.69	$230,088.45
120-1	REGULAR EXCAVATION	10,486.67	CY	$15.28	$160,236.32
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	2.00	EA	$14,177.00	$28,354.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	400.00	LF	$660.28	$264,112.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,860.00	LF	$34.73	$64,597.80
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	2.00	EA	$4,525.31	$9,050.62
570-1-1	PERFORMANCE TURF	24,200.00	SY	$3.85	$93,170.00
	Drainage Component Total				$5,232,916.29

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	35.00	AS	$462.47	$16,186.45
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	3.00	AS	$1,578.08	$4,734.24
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	3.00	AS	$7,692.26	$23,076.78
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	3.00	AS	$15,571.98	$46,715.94
	Signing Component Total				$90,713.41

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	7,656.00	LF	$19.26	$147,454.56
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,519.60	LF	$36.22	$55,039.91
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	51.00	EA	$1,374.06	$70,077.06
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	27,961.80	LF	$3.77	$105,415.99
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	51.00	EA	$8,402.83	$428,544.33
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	51.00	EA	$768.21	$39,178.71
	Subcomponent Total				$845,710.56

Lighting Component Total $845,710.56

Sequence 10 Total $13,574,633.25

Sequence: 11 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI 301 LF

Description: Old Lucerne (East) 4-Lane Approach

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.70
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.70	AC	$46,017.69	$32,212.38

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	500.00	CY	$15.28	$7,640.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
120-6	EMBANKMENT	500.00	CY	$17.66	$8,830.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
	Earthwork Component Total				$48,682.38

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$8.44	$18,568.00
	Comment: 4-Lane Leg: 19785 sf/9=2198 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,950.00	SY	$20.06	$39,117.00
	Comment: 4-Lane Leg: measure approx. 1950 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	215.00	TN	$180.14	$38,730.10
	Comment: 2" Superpave Traffic C (1950 X 110 X 2)/2000 = 215 TN				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	108.00	TN	$218.00	$23,544.00
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1950 X 110)/2000 = 107.25 TN use 108 TN				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.20	GM	$1,259.68	$251.94
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.04	GM	$1,716.71	$68.67
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	115.00	LF	$1.07	$123.05
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	30.00	LF	$1.44	$43.20
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	198.00	LF	$1.92	$380.16
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02	GM	$707.41	$14.15
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01	GM	$1,262.94	$12.63
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	2.00	EA	$63.83	$127.66
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	4.00	EA	$35.35	$141.40
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15	GM	$1,345.62	$201.84
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	55.00	LF	$1.73	$95.15

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2

Skip Stripe No. of Stripes	0

Roadway Component Total $121,418.95

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-701	OPTIONAL BASE,BASE GROUP 01	154.00	SY	$30.81	$4,744.74
	Comment: 4-Lane Leg: 130 ft X 5.33 ft wide X 2 sides /9 = 154 SY				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	10.00	TN	$218.00	$2,180.00
	Comment: 1" thick FC: (154 SY X 110)/2000 = 8.47 TN use 10 TN				
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00	SY	$65.70	$28,908.00
527-2	DETECTABLE WARNINGS	104.00	SF	$35.46	$3,687.84
570-1-2	PERFORMANCE TURF, SOD	380.00	SY	$5.40	$2,052.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	600.00	LF	$2.71	$1,626.00
107-1	LITTER REMOVAL	0.25	AC	$48.53	$12.13
107-2	MOWING	0.25	AC	$84.04	$21.01

Shoulder Component Total $43,231.72

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	240.00	LF	$41.59	$9,981.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	350.00	LF	$46.67	$16,334.50
527-2	DETECTABLE WARNINGS	40.00	SF	$35.46	$1,418.40
570-1-2	PERFORMANCE TURF, SOD	120.00	SY	$5.40	$648.00
	Median Component Total				$28,382.50

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00	EA	$11,175.07	$22,350.14
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,130.30	$6,130.30
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00	LF	$156.39	$35,031.36
	Drainage Component Total				$63,511.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$462.47	$3,237.29
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,727.04	$5,727.04
	Signing Component Total				$8,964.33

Sequence 11 Total	$314,191.68

Sequence: 12 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI 301 LF

Description: Old Lucerne (East) Roundabout Central Island

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.50
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50	AC	$46,017.69	$23,008.84

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	480.00	CY	$15.28	$7,334.40
	Comment: 26000 ft x 0.5 ft deep / 27 = 481 CY use 480 CY				
120-6	EMBANKMENT	480.00	CY	$17.66	$8,476.80
	Comment: 26000 ft x 0.5 ft deep / 27 = 481 CY use 480 CY				
	Earthwork Component Total				$38,820.05

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00

Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$8.44	$18,568.00
	Comment: measure (25578-6175)SF /9 = 2156 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,300.00	SY	$20.06	$26,078.00
	Comment: measure (25578-10477)SF /9 = 1294 SY use 1300 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	143.00	TN	$180.14	$25,760.02
	Comment: 2" Superpave Traffic C (1300 X 110 X 2)/2000				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	72.00	TN	$218.00	$15,696.00
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1300 X 110)/2000				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.05	GM	$1,259.68	$62.98
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.05	GM	$707.41	$35.37
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	8.00	EA	$35.35	$282.80
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.07	GM	$1,345.62	$94.19

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Roadway Component Total $86,577.36

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67

Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
107-1	LITTER REMOVAL	0.25	AC	$48.53	$12.13
107-2	MOWING	0.25	AC	$84.04	$21.01
	Shoulder Component Total				$2,722.20

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
350-30-13	CONC PAVEMENT FOR ROUNDABOUT APRON, 12"	480.00	SY	$335.92	$161,241.60
520-2-4	CONCRETE CURB, TYPE D	280.00	LF	$47.14	$13,199.20
520-2-8	CONCRETE CURB, TYPE RA	370.00	LF	$68.39	$25,304.30
570-1-2	PERFORMANCE TURF, SOD	700.00	SY	$5.40	$3,780.00
	Median Component Total				$203,525.10

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$462.47	$1,849.88
	Signing Component Total				$1,849.88

Sequence 12 Total $333,494.59

Date: 8/1/2024 11:35:47 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 36 Project Grand Total **$19,040,795.90**

Description: Segment 5-East of Lucernce Loop Rd. to West of Lk. Hamilton Canal - June 2024 Unit Cost Updates from Version 28 - 6/3/24

Project Sequences Subtotal			**$14,222,319.52**
102-1	Maintenance of Traffic	15.00 %	$2,133,347.93
101-1	Mobilization	10.00 %	$1,635,566.74
Project Sequences Total			**$17,991,234.19**
Project Unknowns		5.00 %	$899,561.71
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					**$150,000.00**
Version 36 Project Grand Total					**$19,040,795.90**

Date: 8/1/2024 11:36:31 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 37 Project Grand Total **$10,619,201.91**

Description: Segment 6-West side of Lk Hamilton Canal to west of Brenton Manor Ave. - June 2024 Unit Cost Updates from Version 29 - 6/3/24

Sequence: 17 NDU - New Construction, Divided, Urban **Net Length:** 0.540 MI 2,851 LF

Description: Segment 6-West side of Lk Hamilton Canal to west of Brenton Manor Ave.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.540
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	7.33 AC	$56,017.69	$410,609.67
120-6	EMBANKMENT	20,256.19 CY	$24.69	$500,125.33

	Earthwork Component Total	$910,735.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	23.00 / 23.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	17,842.18	SY	$10.73	$191,446.59
285-709	OPTIONAL BASE,BASE GROUP 09	14,572.80	SY	$20.06	$292,330.37
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,003.76	TN	$193.64	$388,008.09
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,202.26	TN	$207.93	$249,985.92

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	219.00	EA	$4.36	$954.84
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.16	GM	$1,259.68	$2,720.91
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.08	GM	$546.91	$590.66
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	2.16	GM	$5,558.07	$12,005.43
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.08	GM	$1,616.01	$1,745.29

	Roadway Component Total	$1,139,788.10

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 22.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	10.00 / 10.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,851.20	LF	$46.67	$133,065.50
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,851.20	LF	$46.67	$133,065.50
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	6,336.00	SY	$65.70	$416,275.20
570-1-1	PERFORMANCE TURF	6,336.00	SY	$3.85	$24,393.60

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	5,702.40	LF	$2.71	$15,453.50
104-11	FLOATING TURBIDITY BARRIER	135.00	LF	$15.46	$2,087.10
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	135.00	LF	$6.67	$900.45
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	28.00	EA	$123.06	$3,445.68
107-1	LITTER REMOVAL	13.74	AC	$48.53	$666.80
107-2	MOWING	13.74	AC	$84.04	$1,154.71
	Shoulder Component Total				$733,197.10

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

520-1-7	CONCRETE CURB & GUTTER, TYPE E	5,702.40	LF	$41.59	$237,162.82
570-1-1	PERFORMANCE TURF	5,544.00	SY	$3.85	$21,344.40
	Median Component Total				$258,507.22

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	20.00	EA	$7,474.89	$149,497.80
425-1-451	INLETS, CURB, TYPE J-5, <10'	6.00	EA	$14,168.32	$85,009.92
425-1-521	INLETS, DT BOT, TYPE C, <10'	3.00	EA	$6,847.68	$20,543.04
425-2-41	MANHOLES, P-7, <10'	3.00	EA	$6,130.30	$18,390.90
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,432.00	LF	$156.39	$223,950.48
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	128.00	LF	$237.81	$30,439.68
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	2,704.00	LF	$299.07	$808,685.28
570-1-1	PERFORMANCE TURF	164.16	SY	$3.85	$632.02

Retention Basin 1

Description	Value
Size	2 AC
Multiplier	1
Depth	9.00
Description	Pond 6

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.00	AC	$56,017.69	$112,035.38
120-1	REGULAR EXCAVATION	29,040.00	CY	$17.28	$501,811.20
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,180.00	LF	$34.73	$40,981.40
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31

570-1-1	PERFORMANCE TURF	9,680.00 SY	$3.85	$37,268.00
	Drainage Component Total			$2,205,964.29

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	13.00	AS	$462.47	$6,012.11
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,578.08	$3,156.16
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$7,692.26	$15,384.52
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	2.00	AS	$15,571.98	$31,143.96
	Signing Component Total				$55,696.75

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	Lake Hamilton Drive

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00	LF	$19.26	$14,445.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00	LF	$36.22	$9,055.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$10,834.31	$10,834.31
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00	EA	$1,374.06	$21,984.96
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,747.93	$3,747.93
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$9.92	$595.20
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	4.00	EA	$81,339.84	$325,359.36
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00	AS	$1,499.43	$17,993.16

653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$770.15	$6,161.20
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00	EA	$704.50	$8,454.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00	AS	$1,354.74	$16,256.88
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$239.20	$1,913.60
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$47,427.85	$47,427.85
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$277.68	$1,110.72
	Signalizations Component Total				$485,339.17

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,851.20	LF	$19.26	$54,914.11
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	565.92	LF	$36.22	$20,497.62
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	19.00	EA	$1,374.06	$26,107.14
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	10,413.36	LF	$3.77	$39,258.37
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	19.00	EA	$8,402.83	$159,653.77
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	19.00	EA	$768.21	$14,595.99
	Subcomponent Total				$315,027.00
	Lighting Component Total				$315,027.00

BRIDGES COMPONENT

Bridge 1

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	100.00
Width (LF)	97.67
Type	Low Level

Cost Factor		1.25
Structure No.		
Removal of Existing Structures area		4,030.00
Default Cost per SF		$114.00
Factored Cost per SF		$142.50
Final Cost per SF		**$161.00**
Basic Bridge Cost		**$1,391,797.50**
Description	LAKE HAMILTON CANAL BRIDGE	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	4,030.00	SF	$59.31	$239,019.30
400-2-10	CONC CLASS II, APPROACH SLABS	217.04	CY	$597.85	$129,757.36
415-1-9	REINF STEEL- APPROACH SLABS	37,982.00	LB	$1.34	$50,895.88
	Bridge 1 Total				$1,811,470.04
	Bridges Component Total				$1,811,470.04

Sequence 17 Total	$7,915,724.67

Date: 8/1/2024 11:36:32 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 37 Project Grand Total **$10,619,201.91**

Description: Segment 6-West side of Lk Hamilton Canal to west of Brenton Manor Ave. - June 2024 Unit Cost Updates from Version 29 - 6/3/24

Project Sequences Subtotal			**$7,915,724.67**
102-1	Maintenance of Traffic	15.00 %	$1,187,358.70
101-1	Mobilization	10.00 %	$910,308.34
Project Sequences Total			**$10,013,391.71**
Project Unknowns		5.00 %	$500,669.59
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$105,140.61	$105,140.61
Project Non-Bid Subtotal					**$105,140.61**
Version 37 Project Grand Total					**$10,619,201.91**

Date: 8/1/2024 11:37:03 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 38 Project Grand Total **$64,525,900.19**

Description: Segment 7-West of Brenton Manor Ave. to La Vista Drive - June 2024 Unit Cost Updates from Version 30 - 6/3/24

Sequence: 21 NDU - New Construction, Divided, Urban **Net Length:** 1.370 MI 7,234 LF

Description: Segment 7-West of Brenton Manor Ave. to La Vista Drive

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EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.370
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	18.60	AC	$26,017.69	$483,929.03
120-6	EMBANKMENT	51,390.71	CY	$15.66	$804,778.52

Earthwork Component Total	$1,288,707.55

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	23.00 / 23.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	45,266.26	SY	$8.44	$382,047.23
285-709	OPTIONAL BASE,BASE GROUP 09	36,971.73	SY	$17.06	$630,737.71
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	5,083.61	TN	$180.14	$915,761.51
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	3,050.17	TN	$207.93	$634,221.85

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	555.00	EA	$4.36	$2,419.80
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	5.48	GM	$1,259.68	$6,903.05
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	2.74	GM	$546.91	$1,498.53
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	5.48	GM	$5,558.07	$30,458.22
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	2.74	GM	$1,616.01	$4,427.87

Roadway Component Total	$2,608,475.77

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 22.25
Total Outside Shoulder Perf. Turf Width L/R	10.00 / 10.00
Sidewalk Width L/R	10.00 / 10.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	7,233.60	LF	$46.67	$337,592.11
520-1-10	CONCRETE CURB & GUTTER, TYPE F	7,233.60	LF	$46.67	$337,592.11
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	16,074.67	SY	$65.70	$1,056,105.82
570-1-1	PERFORMANCE TURF	16,074.67	SY	$3.85	$61,887.48

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	14,467.20	LF	$2.59	$37,470.05
104-11	FLOATING TURBIDITY BARRIER	342.50	LF	$15.46	$5,295.05
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	342.50	LF	$6.67	$2,284.48
104-15	SOIL TRACKING PREVENTION DEVICE	2.00	EA	$2,689.06	$5,378.12
104-18	INLET PROTECTION SYSTEM	70.00	EA	$123.06	$8,614.20
107-1	LITTER REMOVAL	34.87	AC	$48.53	$1,692.24
107-2	MOWING	34.87	AC	$84.04	$2,930.47
	Shoulder Component Total				$1,856,842.13

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

520-1-7	CONCRETE CURB & GUTTER, TYPE E	14,467.20	LF	$41.59	$601,690.85
570-1-1	PERFORMANCE TURF	14,065.33	SY	$3.85	$54,151.52
	Median Component Total				$655,842.37

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	50.00	EA	$7,474.89	$373,744.50
425-1-451	INLETS, CURB, TYPE J-5, <10'	14.00	EA	$14,168.32	$198,356.48
425-1-521	INLETS, DT BOT, TYPE C, <10'	7.00	EA	$6,847.68	$47,933.76
425-2-41	MANHOLES, P-7, <10'	7.00	EA	$6,130.30	$42,912.10
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	3,632.00	LF	$156.39	$568,008.48
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	328.00	LF	$237.81	$78,001.68
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	6,856.00	LF	$299.07	$2,050,423.92
570-1-1	PERFORMANCE TURF	416.48	SY	$3.85	$1,603.45

Box Culvert 1

Description	Value
Size	10 x 8
Length	103.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-4-1	CONC CLASS IV, CULVERTS	149.40	CY	$1,464.01	$218,723.09
415-1-1	REINF STEEL- ROADWAY	16,878.75	LB	$1.43	$24,136.61

Retention Basin 2

Description	Value
Size	.5 AC
Multiplier	1
Depth	1.00
Description	Pond 7

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

110-1-1	CLEARING & GRUBBING	0.50	AC	$26,017.69	$13,008.84
120-1	REGULAR EXCAVATION	806.67	CY	$15.28	$12,325.92
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	600.00	LF	$34.73	$20,838.00
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	2,420.00	SY	$3.85	$9,317.00

Retention Basin 3

Description	Value
Size	.5 AC
Multiplier	1
Depth	12.00
Description	Pond 8

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50	AC	$26,017.69	$13,008.84
120-1	REGULAR EXCAVATION	9,680.00	CY	$15.28	$147,910.40
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	600.00	LF	$34.73	$20,838.00
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	2,420.00	SY	$3.85	$9,317.00

Retention Basin 4

Description	Value
Size	1 AC
Multiplier	1
Depth	11.00
Description	Pond 9

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.00	AC	$26,017.69	$26,017.69
120-1	REGULAR EXCAVATION	17,746.67	CY	$15.28	$271,169.12
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	840.00	LF	$34.73	$29,173.20
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	4,840.00	SY	$3.85	$18,634.00

Retention Basin 5

Description	Value
Size	2.5 AC
Multiplier	1
Depth	5.00
Description	Pond 10

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.50	AC	$26,017.69	$65,044.22
120-1	REGULAR EXCAVATION	20,166.67	CY	$15.28	$308,146.72
425-1-361	INLETS, CURB, TYPE P-6, <10'	1.00	EA	$11,175.07	$11,175.07
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,335.00	LF	$34.73	$46,364.55
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	12,100.00	SY	$3.85	$46,585.00

Retention Basin 6

Description	Value
Size	1.5 AC

Multiplier		1
Depth		1.30
Description	FPC 5	

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.50	AC	$26,017.69	$39,026.54
120-1	REGULAR EXCAVATION	3,146.00	CY	$15.28	$48,070.88
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	$6,465.04	$6,465.04
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$14,177.00	$14,177.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$348.14	$19,495.84
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$660.28	$132,056.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,025.00	LF	$34.73	$35,598.25
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$4,525.31	$4,525.31
570-1-1	PERFORMANCE TURF	7,260.00	SY	$3.85	$27,951.00
	Drainage Component Total				$5,700,495.25

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	33.00	AS	$462.47	$15,261.51
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	3.00	AS	$1,578.08	$4,734.24
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	3.00	AS	$7,692.26	$23,076.78
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	3.00	AS	$15,571.98	$46,715.94
	Signing Component Total				$89,788.47

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	7,233.60	LF	$19.26	$139,319.14
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,435.76	LF	$36.22	$52,003.23
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	48.00	EA	$1,374.06	$65,954.88
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	26,419.08	LF	$3.77	$99,599.93
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	48.00	EA	$768.21	$36,874.08

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-61-321	LIGHT POLE CMPLT,STD,F&I, 40'MH,10'ARM L	48.00	EA	$11,499.60	$551,980.80
	Subcomponent Total				$945,732.05
	Lighting Component Total				$945,732.06

Sequence 21 Total $13,145,883.60

Sequence: 23 NDU - New Construction, Divided, Urban **Net Length:** 0.966 MI 5,100 LF

Description: US27 Frontage Roads

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	50.00 / 50.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.966
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	11.71	AC	$26,017.69	$304,667.15
120-6	EMBANKMENT	36,209.63	CY	$15.66	$567,042.81
	Earthwork Component Total				$871,709.96

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	33,047.69	SY	$8.44	$278,922.50
285-709	OPTIONAL BASE,BASE GROUP 09	27,199.74	SY	$17.06	$464,027.56
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	3,739.96	TN	$180.14	$673,716.39

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	2,243.98	TN	$207.93	$466,590.76

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	391.00	EA	$4.36	$1,704.76
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	3.86	GM	$1,259.68	$4,862.36
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.93	GM	$546.91	$1,055.54
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	3.86	GM	$5,558.07	$21,454.15
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.93	GM	$1,616.01	$3,118.90
	Roadway Component Total				$1,915,452.92

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 22.25
Total Outside Shoulder Perf. Turf Width L/R	20.00 / 20.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,099.95	LF	$46.67	$238,014.67
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,099.95	LF	$46.67	$238,014.67
570-1-1	PERFORMANCE TURF	22,666.45	SY	$3.85	$87,265.83

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	10,199.90	LF	$2.59	$26,417.74
104-11	FLOATING TURBIDITY BARRIER	241.48	LF	$15.46	$3,733.28
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	241.48	LF	$6.67	$1,610.67
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	50.00	EA	$123.06	$6,153.00
107-1	LITTER REMOVAL	24.58	AC	$48.53	$1,192.87
107-2	MOWING	24.58	AC	$84.04	$2,065.70
	Shoulder Component Total				$607,157.49

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	20.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	10,199.90	LF	$41.59	$424,213.84
570-1-1	PERFORMANCE TURF	11,333.23	SY	$3.85	$43,632.94
	Median Component Total				$467,846.78

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	35.00	EA	$7,474.89	$261,621.15
425-1-451	INLETS, CURB, TYPE J-5, <10'	10.00	EA	$14,168.32	$141,683.20
425-1-521	INLETS, DT BOT, TYPE C, <10'	5.00	EA	$6,847.68	$34,238.40
425-2-41	MANHOLES, P-7, <10'	5.00	EA	$6,130.30	$30,651.50
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	2,560.00	LF	$156.39	$400,358.40
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	232.00	LF	$237.81	$55,171.92

430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	4,832.00	LF	$299.07	$1,445,106.24
570-1-1	PERFORMANCE TURF	293.63	SY	$3.85	$1,130.48
	Drainage Component Total				$2,369,961.29

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	24.00	AS	$462.47	$11,099.28
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,578.08	$3,156.16
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$7,692.26	$15,384.52
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	2.00	AS	$15,571.98	$31,143.96
	Signing Component Total				$60,783.92

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	4 Lane Mast Arm
Multiplier	2
Description	US 27 & 544 Intersection

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,500.00	LF	$19.26	$28,890.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	500.00	LF	$36.22	$18,110.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00	PI	$10,834.31	$21,668.62
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	32.00	EA	$1,374.06	$43,969.92
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	2.00	AS	$3,747.93	$7,495.86
639-2-1	ELECTRICAL SERVICE WIRE, F&I	120.00	LF	$9.92	$1,190.40
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	8.00	EA	$81,339.84	$650,718.72

650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	24.00	AS	$1,499.43	$35,986.32
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	16.00	AS	$770.15	$12,322.40
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	24.00	EA	$704.50	$16,908.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	24.00	AS	$1,354.74	$32,513.76
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	16.00	EA	$239.20	$3,827.20
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	2.00	AS	$47,427.85	$94,855.70
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$277.68	$2,221.44
	Signalizations Component Total				$970,678.34

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	**Value**
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	5,099.95	LF	$19.26	$98,225.04
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,012.26	LF	$36.22	$36,664.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	34.00	EA	$1,374.06	$46,718.04
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	18,626.42	LF	$3.77	$70,221.60
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	34.00	EA	$8,402.83	$285,696.22
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	34.00	EA	$768.21	$26,119.14
	Subcomponent Total				$563,644.10
	Lighting Component Total				$563,644.10

Sequence 23 Total $7,827,234.80

Sequence: 24 NDR - New Construction, Divided, Rural **Net Length:** 1.200 MI 6,336 LF

Description: US 27 Overpass/Bridge

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	105.00 / 105.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.200
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	30.55	AC	$26,017.69	$794,840.43
120-6	EMBANKMENT	121,660.59	CY	$15.66	$1,905,204.84

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	50,000.00	CY	$15.66	$783,000.00

Earthwork Component Total $3,483,045.27

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	36.00 / 36.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	76,032.00	SY	$8.44	$641,710.08
285-709	OPTIONAL BASE,BASE GROUP 09	51,617.28	SY	$17.06	$880,590.80
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	6,969.60	TN	$180.14	$1,255,503.74
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	4,181.76	TN	$207.93	$869,513.36

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	810.00	EA	$4.36	$3,531.60
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	4.80	GM	$1,259.68	$6,046.46
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	4.80	GM	$546.91	$2,625.17
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	4.80	GM	$5,646.57	$27,103.54
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	4.80	GM	$1,982.10	$9,514.08
	Roadway Component Total				$3,696,138.83

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	275
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	O
Rumble Strips ï¿½No. of Sides	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	14,544.64	SY	$17.75	$258,167.36
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,936.00	TN	$180.14	$348,751.04
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	76.67	TN	$188.51	$14,453.06
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	1.20	GM	$1,447.76	$1,737.31

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	16,473.60	LF	$2.59	$42,666.62
104-11	FLOATING TURBIDITY BARRIER	300.00	LF	$15.46	$4,638.00
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	300.00	LF	$6.67	$2,001.00
104-15	SOIL TRACKING PREVENTION DEVICE	2.00	EA	$2,689.06	$5,378.12
104-18	INLET PROTECTION SYSTEM	8.00	EA	$123.06	$984.48
107-1	LITTER REMOVAL	29.09	AC	$48.53	$1,411.74
107-2	MOWING	29.09	AC	$84.04	$2,444.72
	Shoulder Component Total				$682,633.45

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	42.00
Performance Turf Width	32.00
Total Median Shoulder Width L/R	8.00 / 8.00
Paved Median Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	275
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	O
Rumble Strips ï¿½No. of Sides	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	7,504.64	SY	$17.75	$133,207.36
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	968.00	TN	$180.14	$174,375.52

337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	76.67	TN	$188.51	$14,453.06
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	1.00	GM	$1,447.76	$1,447.76
570-1-1	PERFORMANCE TURF	22,528.00	SY	$3.85	$86,732.80
	Median Component Total				$410,216.50

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-551	INLETS, DT BOT, TYPE E, <10'	8.00	EA	$5,480.28	$43,842.24
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	960.00	LF	$196.18	$188,332.80
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	416.00	LF	$156.39	$65,058.24
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	360.00	LF	$237.81	$85,611.60
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	48.00	EA	$3,331.11	$159,893.28
524-1-1	CONCRETE DITCH PAVT, NR, 3"	2,400.00	SY	$102.32	$245,568.00
570-1-1	PERFORMANCE TURF	844.80	SY	$3.85	$3,252.48
	Drainage Component Total				$791,558.64

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	29.00	AS	$462.47	$13,411.63
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	3.00	AS	$1,578.08	$4,734.24
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	3.00	AS	$7,692.26	$23,076.78

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	3.00	AS	$15,571.98	$46,715.94
	Signing Component Total				$87,938.59

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	6,336.00	LF	$19.26	$122,031.36
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,257.60	LF	$36.22	$45,550.27
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	42.00	EA	$1,374.06	$57,710.52
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	23,140.80	LF	$3.77	$87,240.82
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	42.00	EA	$768.21	$32,264.82
	Subcomponent Total				$344,797.79

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-61-321	LIGHT POLE CMPLT,STD,F&I, 40'MH,10'ARM L	42.00	EA	$11,499.60	$482,983.20
	Lighting Component Total				$827,780.99

BRIDGES COMPONENT

Bridge 1

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	540.00
Width (LF)	58.67
Type	High Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	$140.00
Factored Cost per SF	$175.00
Final Cost per SF	**$187.55**
Basic Bridge Cost	**$5,544,315.00**
Description	US 27 BRIDGE OVER SR 544

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	130.38	CY	$597.85	$77,947.68
415-1-9	REINF STEEL- APPROACH SLABS	22,816.50	LB	$1.34	$30,574.11

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	2,400.00	LF	$120.45	$289,080.00

	Bridge 1 Total	$5,941,916.79

Bridge 2

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	540.00
Width (LF)	58.67
Type	High Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	$140.00
Factored Cost per SF	$175.00
Final Cost per SF	**$178.43**
Basic Bridge Cost	**$5,544,315.00**
Description	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	130.38	CY	$597.85	$77,947.68
415-1-9	REINF STEEL- APPROACH SLABS	22,816.50	LB	$1.34	$30,574.11

	Bridge 2 Total	$5,652,836.79

Bridge 3

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	105.00
Width (LF)	20.00
Type	Low Level

Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	1,260.00
Default Cost per SF	$114.00
Factored Cost per SF	$142.50
Final Cost per SF	**$160.11**
Basic Bridge Cost	**$299,250.00**
Description	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	1,260.00	SF	$59.31	$74,730.60
400-2-10	CONC CLASS II, APPROACH SLABS	44.44	CY	$597.85	$26,568.45
415-1-9	REINF STEEL- APPROACH SLABS	7,777.00	LB	$1.34	$10,421.18
	Bridge 3 Total				$410,970.23
	Bridges Component Total				$12,005,723.81

RETAINING WALLS COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-8-7	CONC BARRIER, W/JUNCT SL, 36 SS	4,000.00	LF	$382.52	$1,530,080.00
548-12	RET WALL SYSTEM, PERM, EX BARRIER	12,638.00	SF	$51.06	$645,296.28
	Retaining Walls Component Total				$2,175,376.28

Sequence 24 Total $24,160,412.36

Sequence: 25 NDU - New Construction, Divided, Urban **Net Length:** 0.303 MI 1,600 LF

Description: SR 544 under US 27 Overpass

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	105.00 / 105.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.303
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	7.71	AC	$26,017.69	$200,596.39
120-6	EMBANKMENT	10,502.65	CY	$15.66	$164,471.50
	Earthwork Component Total				$365,067.89

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	7
Roadway Pavement Width L/R	23.00 / 59.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	16,410.80	SY	$8.44	$138,507.15
285-709	OPTIONAL BASE,BASE GROUP 09	14,576.32	SY	$17.06	$248,672.02
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,004.24	TN	$180.14	$361,043.79

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,202.55	TN	$207.93	$250,046.22

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	5

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	245.00	EA	$4.36	$1,068.20
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.21	GM	$1,259.68	$1,524.21
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.52	GM	$546.91	$831.30
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.21	GM	$5,558.07	$6,725.26
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.52	GM	$1,616.01	$2,456.34
	Roadway Component Total				$1,010,874.49

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 22.25
Total Outside Shoulder Perf. Turf Width L/R	20.00 / 20.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,599.84	LF	$46.67	$74,664.53
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,599.84	LF	$46.67	$74,664.53
570-1-1	PERFORMANCE TURF	7,110.40	SY	$3.85	$27,375.04

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,199.68	LF	$2.59	$8,287.17
104-11	FLOATING TURBIDITY BARRIER	75.75	LF	$15.46	$1,171.10
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	75.75	LF	$6.67	$505.25
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	16.00	EA	$123.06	$1,968.96
107-1	LITTER REMOVAL	7.71	AC	$48.53	$374.17
107-2	MOWING	7.71	AC	$84.04	$647.95
	Shoulder Component Total				$192,347.76

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	20.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	3,199.68	LF	$41.59	$133,074.69
570-1-1	PERFORMANCE TURF	3,555.20	SY	$3.85	$13,687.52
	Median Component Total				$146,762.21

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	11.00	EA	$7,474.89	$82,223.79
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$14,168.32	$56,673.28
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$6,847.68	$13,695.36
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,130.30	$12,260.60
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	808.00	LF	$156.39	$126,363.12
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	72.00	LF	$237.81	$17,122.32

430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,520.00	LF	$299.07	$454,586.40
570-1-1	PERFORMANCE TURF	92.11	SY	$3.85	$354.62
	Drainage Component Total				$763,279.49

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	8.00	AS	$462.47	$3,699.76
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,578.08	$1,578.08
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$7,692.26	$7,692.26
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	1.00	AS	$15,571.98	$15,571.98
	Signing Component Total				$28,542.08

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,599.84	LF	$19.26	$30,812.92
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	317.54	LF	$36.22	$11,501.30
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	11.00	EA	$1,374.06	$15,114.66
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,843.05	LF	$3.77	$22,028.30
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	11.00	EA	$8,402.83	$92,431.13
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	11.00	EA	$768.21	$8,450.31
	Subcomponent Total				$180,338.62
	Lighting Component Total				$180,338.62

Sequence 25 Total	$2,687,212.54

Sequence: 27 NDR - New Construction, Divided, Rural **Net Length:** 0.057 MI 301 LF

Description: Brenton Manor- Roundabout Central Island, includes landscaping and irrigation system

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.50
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50	AC	$26,017.69	$13,008.84

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	400.00	CY	$15.28	$6,112.00
	Comment: 22000 ft x 0.5 ft deep / 27 = 407 CY use 400 CY				
120-6	EMBANKMENT	400.00	CY	$15.66	$6,264.00
	Comment: 22000 ft x 0.5 ft deep / 27 = 407 CY use 400 CY				
	Earthwork Component Total				$25,384.85

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00

Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,800.00	SY	$8.44	$15,192.00
	Comment: measure (22121-6175)SF /9 = 1772 SY use 1800 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,300.00	SY	$17.06	$22,178.00
	Comment: measure (22121-10477)SF /9 = 1294 SY use 1300 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	143.00	TN	$180.14	$25,760.02
	Comment: 2" Superpave Traffic C (1300 X 110 X 2)/2000				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	72.00	TN	$218.00	$15,696.00
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1300 X 110)/2000				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.05	GM	$1,259.68	$62.98
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02	GM	$707.41	$14.15
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	6.00	EA	$35.35	$212.10
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.07	GM	$1,345.62	$94.19

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Roadway Component Total $79,209.44

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67

Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
107-1	LITTER REMOVAL	0.25	AC	$48.53	$12.13
107-2	MOWING	0.25	AC	$84.04	$21.01
	Shoulder Component Total				$2,722.20

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
350-30-13	CONC PAVEMENT FOR ROUNDABOUT APRON, 12"	480.00	SY	$335.92	$161,241.60
520-2-4	CONCRETE CURB, TYPE D	280.00	LF	$47.14	$13,199.20
520-2-8	CONCRETE CURB, TYPE RA	370.00	LF	$68.39	$25,304.30
570-1-2	PERFORMANCE TURF, SOD	700.00	SY	$5.40	$3,780.00
	Median Component Total				$203,525.10

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$462.47	$1,849.88
	Signing Component Total				$1,849.88

LANDSCAPING COMPONENT

User Input Data

Description	Value
Lump Sum	40,000.00
Cost %	0.00
Component Detail	N

	Landscaping Component Total	$40,000.00
Sequence 27 Total		$352,691.47

Sequence: 29 NDR - New Construction, Divided, Rural

Net Length: 0.057 MI
301 LF

Description: Brenton Manor-4-Lane Approach

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.70
Alignment Number	1
Distance	0.057
Top of Structural Course For Begin Section	100.00
Top of Structural Course For End Section	100.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.70	AC	$26,017.69	$18,212.38

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	500.00	CY	$15.28	$7,640.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
120-6	EMBANKMENT	500.00	CY	$15.66	$7,830.00
	Comment: 27000 ft X 0.5 ft deep / 27 = 500 CY				
	Earthwork Component Total				$33,682.38

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	220
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,200.00	SY	$8.44	$18,568.00
	Comment: 4-Lane Leg: 19785 sf/9=2198 SY use 2200 SY				
285-709	OPTIONAL BASE,BASE GROUP 09	1,950.00	SY	$17.06	$33,267.00
	Comment: 4-Lane Leg: measure approx. 1950 SY				
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	215.00	TN	$180.14	$38,730.10
	Comment: 2" Superpave Traffic C (1950 X 110 X 2)/2000 = 215 TN				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	108.00	TN	$218.00	$23,544.00
	Comment: 1" FC-9.5 Traffic C PG 76-22 (1950 X 110)/2000 = 107.25 TN use 108 TN				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.20	GM	$1,259.68	$251.94
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.04	GM	$1,716.71	$68.67
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	115.00	LF	$1.07	$123.05
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	30.00	LF	$1.44	$43.20
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	198.00	LF	$1.92	$380.16
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	0.02	GM	$707.41	$14.15
710-11-144	PAINTED PAVEMENT MARKINGS, STANDARD, WHI	0.01	GM	$1,262.94	$12.63
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	2.00	EA	$63.83	$127.66
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	4.00	EA	$35.35	$141.40
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.15	GM	$1,345.62	$201.84
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	55.00	LF	$1.73	$95.15

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2

Skip Stripe No. of Stripes	0

Roadway Component Total $115,568.95

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-701	OPTIONAL BASE,BASE GROUP 01	154.00	SY	$30.81	$4,744.74
	Comment: 4-Lane Leg: 130 ft X 5.33 ft wide X 2 sides /9 = 154 SY				
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	10.00	TN	$218.00	$2,180.00
	Comment: 1" thick FC: (154 SY X 110)/2000 = 8.47 TN use 10 TN				
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	440.00	SY	$65.70	$28,908.00
527-2	DETECTABLE WARNINGS	104.00	SF	$35.46	$3,687.84
570-1-2	PERFORMANCE TURF, SOD	380.00	SY	$5.40	$2,052.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	600.00	LF	$2.59	$1,554.00
107-1	LITTER REMOVAL	0.25	AC	$48.53	$12.13
107-2	MOWING	0.25	AC	$84.04	$21.01

Shoulder Component Total $43,159.72

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	0.00
Performance Turf Width	0.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	240.00	LF	$41.59	$9,981.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	350.00	LF	$46.67	$16,334.50
527-2	DETECTABLE WARNINGS	40.00	SF	$35.46	$1,418.40
570-1-2	PERFORMANCE TURF, SOD	120.00	SY	$5.40	$648.00
	Median Component Total				$28,382.50

DRAINAGE COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	2.00	EA	$11,175.07	$22,350.14
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,130.30	$6,130.30
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00	LF	$156.39	$35,031.36
	Drainage Component Total				$63,511.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$462.47	$3,237.29
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,727.04	$5,727.04
	Signing Component Total				$8,964.33

Sequence 29 Total	$293,269.68

Date: 8/1/2024 11:37:04 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 38 Project Grand Total **$64,525,900.19**

Description: Segment 7-West of Brenton Manor Ave. to La Vista Drive - June 2024 Unit Cost Updates from Version 30 - 6/3/24

Project Sequences Subtotal			**$48,466,704.45**
102-1	Maintenance of Traffic	15.00 %	$7,270,005.67
101-1	Mobilization	10.00 %	$5,573,671.01
Project Sequences Total			**$61,310,381.13**
Project Unknowns		5.00 %	$3,065,519.06
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					**$150,000.00**
Version 38 Project Grand Total					**$64,525,900.19**

Date: 8/1/2024 11:37:43 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 39 Project Grand Total **$8,480,190.88**

Description: Segment 8-LaVista Drive to SR 17 - June 2024 Unit Cost Updates from Version 31 - 6/3/24

Sequence: 25 NDU - New Construction, Divided, Urban **Net Length:** 0.710 MI 3,749 LF

Description: Segment 8-LaVista Drive to SR 17

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.710
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	2 to 1 / 2 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	9.64	AC	$56,017.69	$540,010.53
120-6	EMBANKMENT	18,635.70	CY	$24.69	$460,115.43
	Earthwork Component Total				$1,000,125.96

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	22.00 / 22.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	22,626.09	SY	$10.73	$242,777.95
285-709	OPTIONAL BASE,BASE GROUP 09	18,327.47	SY	$20.06	$367,649.05
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,520.03	TN	$193.64	$487,978.61
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,512.02	TN	$207.93	$314,394.32

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	288.00	EA	$4.36	$1,255.68
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.84	GM	$1,259.68	$3,577.49
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.42	GM	$546.91	$776.61
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	2.84	GM	$5,558.07	$15,784.92
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.42	GM	$1,616.01	$2,294.73
	Roadway Component Total				$1,436,489.36

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	14.25 / 14.25
Total Outside Shoulder Perf. Turf Width L/R	4.00 / 4.00
Sidewalk Width L/R	8.00 / 8.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	3,748.80	LF	$46.67	$174,956.50
520-1-10	CONCRETE CURB & GUTTER, TYPE F	3,748.80	LF	$46.67	$174,956.50
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	6,664.53	SY	$65.70	$437,859.62
570-1-1	PERFORMANCE TURF	3,332.27	SY	$4.62	$15,395.09

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	7,497.60	LF	$2.71	$20,318.50
104-11	FLOATING TURBIDITY BARRIER	177.50	LF	$15.46	$2,744.15
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	177.50	LF	$6.67	$1,183.92
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,689.06	$2,689.06
104-18	INLET PROTECTION SYSTEM	37.00	EA	$123.06	$4,553.22
107-1	LITTER REMOVAL	18.07	AC	$48.53	$876.94
107-2	MOWING	18.07	AC	$84.04	$1,518.60
	Shoulder Component Total				$837,052.11

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	15.50
Performance Turf Width	11.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER,	7,497.60	LF	$41.59	$311,825.18

	TYPE E			
570-1-1	PERFORMANCE TURF	4,581.87 SY	$4.62	$21,168.24
	Median Component Total			$332,993.42

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	26.00	EA	$7,474.89	$194,347.14
425-1-451	INLETS, CURB, TYPE J-5, <10'	8.00	EA	$14,168.32	$113,346.56
425-1-521	INLETS, DT BOT, TYPE C, <10'	4.00	EA	$6,847.68	$27,390.72
425-2-41	MANHOLES, P-7, <10'	4.00	EA	$6,130.30	$24,521.20
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,880.00	LF	$156.39	$294,013.20
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	168.00	LF	$237.81	$39,952.08
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	3,552.00	LF	$299.07	$1,062,296.64
570-1-1	PERFORMANCE TURF	215.84	SY	$4.62	$997.18
	Drainage Component Total				$1,756,864.72

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	18.00	AS	$462.47	$8,324.46
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,578.08	$3,156.16
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$7,692.26	$15,384.52
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	2.00	AS	$15,571.98	$31,143.96
	Signing Component Total				$58,009.10

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value

Type	4 Lane Mast Arm
Multiplier	1
Description	SR 17

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00	LF	$19.26	$14,445.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00	LF	$36.22	$9,055.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$10,834.31	$10,834.31
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00	EA	$1,374.06	$21,984.96
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,747.93	$3,747.93
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$9.92	$595.20
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	4.00	EA	$81,339.84	$325,359.36
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00	AS	$1,499.43	$17,993.16
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$770.15	$6,161.20
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00	EA	$704.50	$8,454.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00	AS	$1,354.74	$16,256.88
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$239.20	$1,913.60
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$47,427.85	$47,427.85
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$277.68	$1,110.72
	Signalizations Component Total				$485,339.17

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	3,748.80	LF	$19.26	$72,201.89
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	744.08	LF	$36.22	$26,950.58
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	25.00	EA	$1,374.06	$34,351.50

715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	13,691.64 LF	$3.77	$51,617.48
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	25.00 EA	$8,402.83	$210,070.75
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	25.00 EA	$768.21	$19,205.25
	Subcomponent Total			$414,397.45
	Lighting Component Total			$414,397.45
Sequence 25 Total				$6,321,271.29

Date: 8/1/2024 11:37:44 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 440273-1-22-01 **Letting Date:** 01/2099

Description: SR 544 (LUCERNE PARK RD) FROM MARTIN LUTHER KING BLVD TO SR 17

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English

Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 7.950 MI

Project Manager: JMK-AEH-DCT

Version 39 Project Grand Total **$8,480,190.88**

Description: Segment 8-LaVista Drive to SR 17 - June 2024 Unit Cost Updates from Version 31 - 6/3/24

Project Sequences Subtotal			**$6,321,271.29**
102-1	Maintenance of Traffic	15.00 %	$948,190.69
101-1	Mobilization	10.00 %	$726,946.20
Project Sequences Total			**$7,996,408.18**
Project Unknowns		5.00 %	$399,820.41
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$83,962.29	$83,962.29
Project Non-Bid Subtotal					**$83,962.29**
Version 39 Project Grand Total					**$8,480,190.88**